

Edwin I. Hatch Nuclear Plant
Units 1 and 2
Fire Hazards Analysis

Active Page List

<u>Section/Page</u>	<u>Revision</u>
<u>Table of Contents</u>	
i thru iii	28
<u>Section 1.0</u>	
1-1 and 1-2	28
<u>Section 2.0</u>	
2-1 thru 2-3	28
<u>Section 3.0</u>	
3-1 thru 3-8	33
Table 3-1, sheets 1 and 2	28
Table 3-2	28
Figure 3-1	28
<u>Section 4.0</u>	
4-1 thru 4-9	34
<u>Section 5.0</u>	
5-1 thru 5-6	28
<u>Section 6.0</u>	
6-1 thru 6-3	28
<u>Section 7.0</u>	
7-1 thru 7-12	28

Hatch FHA
Active Page List (continued)

<u>Section/Page</u>	<u>Revision</u>
<u>Section 8.0</u>	
H-11801 Rev. 1	28
H-11802 Ver. 12	32
H-11804 Rev. 0	28
H-11805 Rev. 2	28
H-11806 Rev. 2	28
H-11807 Ver. 1	28
H-11811 Rev. 3	28
H-11812 Rev. 2	28
H-11814 Rev. 8	28
H-11815 Rev. 2	28
H-11816 Rev. 2	28
H-11817 Rev. 6	28
H-11818 Rev. 2	28
H-11820 Rev. 2	28
H-11821 Rev. 1	28
H-11822 Rev. 1	28
H-11823 Ver. 2	28
H-11826 Ver. 1	28
H-11827 Rev. 2	28
H-11828 Ver. 4	28
H-11829 Rev. 4	28
H-11830 Rev. 0	28
H-11831 Rev. 1	28
H-11832 Rev. 0	28
H-11833 Rev. 2	28
H-11834 Rev. 2	28
H-11835 Rev. 3	28
H-11836 Ver. 4	28
H-11837 Rev. 0	28
H-11839 Rev. 3	28
H-11840 Rev. 1	28
H-11841 Rev. 0	28
H-11842 Rev. 1	28
H-11843 Rev. 2	28
H-11844 Ver. 3	29
H-11846 Ver. 3	28
H-11847 Ver. 2	30
H-11848 Rev. 0	28
H-11850 Ver. 3	28
H-11851 Ver. 1	28

Hatch FHA
Active Page List (continued)

<u>Section/Page</u>	<u>Revision</u>
H-11852 Rev. 0	28
H-11854 Ver. 2	28
H-11855 Rev. 0	28
H-11856 Rev. 0	28
H-11857 Rev. 0	28
H-11859 Rev. 1	28
H-11860 Ver. 5	28
H-11861 Rev. 0	28
H-11862 Rev. 0	28
H-11863 Rev. 1	28

Section 9.0

Section 9.1

9.1-A-1 thru 9.1-A-5	28
----------------------	----

Section 9.2

9.2-B-1 thru 9.2-B-57	34
-----------------------	----

Section 9.3

Moved to Section 13.1

Section 9.4

9.4-D-1 thru 9.4-D-22	34
-----------------------	----

Section 9.5

9.5-E-1 thru 9.5-E-105	34
------------------------	----

Section 9.6

Moved to Section 13.2

Section 9.7

Moved to Section 13.3

Hatch FHA
Active Page List (continued)

<u>Section/Page</u>	<u>Revision</u>
Section 9.8	
9.8-H-1 thru 9.8-H-7	31
Section 9.9	
9.9-I-1 thru 9.9-I-4	28
Section 9.10	
<i>Moved to Section 13.4</i>	
Section 9.11	
<i>Moved to Section 13.5</i>	
Section 9.12	
<i>Moved to Section 13.6</i>	
Section 9.13	
<i>Moved to Section 13.7</i>	
<u>Section 10.0</u>	
Section 10.1	
10.1-1 thru 10.1-72	34
Section 10.2	
10.2-1 thru 10.2-29	28
Section 10.3	
10.3-1 thru 10.3-7	28
Section 10.4	
10.4-1 and 10.4-2	28

Hatch FHA
Active Page List (continued)

<u>Section/Page</u>	<u>Revision</u>
Section 10.5	
10.5-1 thru 10.5-3	30
Section 10.6	
10.6-1 thru 10.6-12	28
Section 10.7	
10.7-1 thru 10.7-10	28
Section 10.8	
10.8-1 thru 10.8-20	34
<u>Section 11.0</u>	
Section 11.1	
11.1-1 thru 11.1-30	31
Section 11.2	
11.2-1 thru 11.2-35	34
Section 11.3	
11.3-1 thru 11.3-57	28
Section 11.4	
11.4-1 thru 11.4-65	28
Section 11.5	
11.5-1 thru 11.5-24	28
Section 11.6	
11.6-1 thru 11.6-35	28

Hatch FHA
Active Page List (continued)

<u>Section/Page</u>	<u>Revision</u>
Section 11.7	
11.7-1 thru 11.7-18	28
<u>Section 12.0</u>	
Section 12.1	
12.1-1 thru 12.1-34	33
Section 12.2	
12.2-1 thru 12.2-33	33
Section 12.3	
12.3-1 thru 12.3-65	28
Section 12.4	
12.4-1 thru 12.4-52	28
Section 12.5	
12.5-1 thru 12.5-18	28
Section 12.6	
12.6-1 thru 12.6-20	28
Section 12.7	
12.7-1 thru 12.7-10	28
<u>Section 13.0</u>	
Section 13.1	<i>Historical</i>
Section 13.2	<i>Historical</i>
Section 13.3	<i>Historical</i>
Section 13.4	<i>Historical</i>

Hatch FHA
Active Page List (continued)

<u>Section/Page</u>	<u>Revision</u>
Section 13.5	<i>Historical</i>
Section 13.6	<i>Historical</i>
Section 13.7	<i>Historical</i>

**EDWIN I. HATCH NUCLEAR PLANT
FIRE HAZARDS ANALYSIS AND FIRE PROTECTIONS PROGRAM**

TABLE OF CONTENTS

<u>Section</u>		<u>Page</u>
1.0	INTRODUCTION	1-1
	1.1 Purpose	1-1
	1.2 Scope	1-1
2.0	DEFINITIONS	2-1
3.0	METHODOLOGY	3-1
	3.1 Bases for the Fire Hazard Analysis	3-1
	3.2 Design Input Summary/As-Built Verification	3-1
	3.3 Fire Hazard Analysis Methodology and Format	3-2
	3.4 Establishment of Fire Areas/Zones	3-4
	3.5 Design Basis Fire	3-5
	3.6 Summary of the Safe Shutdown Evaluation	3-7
	3.7 Flooding/Inadvertent Actuation	3-8
4.0	FIRE PROTECTION FEATURES	
	4.1 Defense-In-Depth	4-1
	4.2 Separation Criteria	4-1
	4.3 Fire Barriers	4-2
	4.4 Combustible and Ignition Source Control	4-3
	4.5 Material Control	4-3
	4.6 Detection and Annunciation Systems	4-3
	4.7 Fire Protection Water Supplies	4-5
	4.8 Fixed Water Suppression Systems	4-6
	4.9 Standpipes and Hose Stations	4-7
	4.10 Portable Extinguishers	4-7
	4.11 Gaseous Suppression Systems	4-7
	4.12 Emergency Lighting	4-8
	4.13 Ventilation	4-8
5.0	FIRE AREA DATA SHEET EXPLANATORY NOTES	5-1
	5.1 Fire Area/Zone	5-1
	5.2 Description	5-1
	5.3 Drawing Number(s)	5-2
	5.4 Area	5-2
	5.5 Combustibles	5-2
	5.6 Design Basis Fire	5-2
	5.7 Fire Protection (Available)	5-3
	5.8 Fire Resistance (Construction)	5-4

TABLE OF CONTENTS (CONTINUED)

<u>Section</u>	<u>Page</u>
6.0 REFERENCES	6-1
7.0 FIRE SUPPRESSION AND DETECTION SYSTEM SUMMARY	7-1
8.0 FIRE HAZARD ANALYSIS FIGURES	8-1
9.0 APPENDICES	
9.1 Appendix A Fire Protection Program Plan	
9.2 Appendix B Fire Protection Equipment Operating and Surveillance Requirements	
9.3 Appendix C Exemption Request Submittals and Safety Evaluation Reports (<i>Moved to Historical Volume 4</i>)	
9.4 Appendix D Appendix A Compliance Matrix	
9.5 Appendix E Safe Shutdown System Methodology	
9.6 Appendix F Detection Scope Document (<i>Moved to Historical Volume 4</i>)	
9.7 Appendix G Response to Generic Letter 81-12 (<i>Moved to Historical Volume 4</i>)	
9.8 Appendix H NFPA Deviation Summary	
9.9 Appendix I Fire Barrier Penetration Report	
9.10 Appendix J Fire Resistance of Concrete Block at HNP (<i>Moved to Historical Volume 4</i>)	
9.11 Appendix K Combustibility of Askarels (<i>Moved to Historical Volume 4</i>)	
9.12 Appendix L Miscellaneous Supporting Calculations (<i>Moved to Historical Volume 4</i>)	
9.13 Appendix M Fire Detection Systems Phased Implementation Database (<i>Moved to Historical Volume 4</i>)	
10.0 COMMON AREAS FIRE HAZARD ANALYSIS	
11.0 UNIT 1 AREAS FIRE HAZARD ANALYSIS	
11.1 Areas 10XX, Unit 1 Control Building	
11.2 Areas 11XX, Unit 1 Turbine Building	
11.3 Areas 12XX, Unit 1 Reactor Building	
11.4 Areas 13XX, Unit 1 Radwaste and Radwaste Addition Buildings	
11.5 Areas 14XX, Unit 1 Diesel Generator Building	
11.6 Areas 16XX, Unit 1 Yard	
11.7 Areas 18XX, Unit 1 Miscellaneous	
12.0 UNIT 2 AREAS FIRE HAZARD ANALYSIS	
12.1 Areas 20XX, Unit 2 Control Building	
12.2 Areas 21XX, Unit 2 Turbine Building	
12.3 Areas 22XX, Unit 2 Reactor Building	
12.4 Areas 23XX, Unit 2 Radwaste Building	

TABLE OF CONTENTS (CONTINUED)

12.5	Areas 24XX, Unit 2 Diesel Generator Building
12.6	Areas 26XX, Unit 2 Yard
12.7	Areas 28XX, Unit 2 Miscellaneous
13.0	HISTORICAL MATERIAL
13.1	Exemption Request Submittals and Safety Evaluation Reports
13.2	Detection Scope Document
13.3	Response to Generic Letter 81-12
13.4	Fire Resistance of Concrete Block at HNP
13.5	Combustibility of Askarels
13.6	Miscellaneous Supporting Calculations
13.7	Fire Detection Systems Phased Implementation Database

1.0 INTRODUCTION

In October 1976, Georgia Power Corporation (GPC) submitted a report entitled "Evaluation of the Hatch Nuclear Plant Fire Protection Program", documenting its evaluation of the fire protection provisions at E. I. Hatch Nuclear Plant (HNP). This report described the Fire Protection Program, evaluated the effects of postulated fires on nuclear plant safety (Fire Hazard Analysis), and provided a comparison with the guidelines contained in Appendix A to the Nuclear Regulatory Commission's (NRC) Branch Technical Position APCS 9.5-1. In October 1978, the NRC issued a Safety Evaluation Report judging the compliance of HNP to the guidelines of Appendix A as acceptable, pending implementation of certain modifications.

In October 1980, the NRC approved a new rule concerning fire protection at nuclear power plants. This rule and its Appendix R, "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979," required GPC to re-evaluate the fire protection provisions at HNP, particularly with respect to the capability to achieve and maintain safe shutdown in the event of a fire. As a result of this re-evaluation, additional modifications to the design and operation of HNP have been implemented.

1.1 Purpose

This report represents an update of the 1976 Fire Hazard Analysis and incorporated the results of the safe shutdown assessment documented in calculations performed by the architect/engineers for GPC. The objectives of this updated Fire Hazard Analysis are:

- a. To define fire areas and fire zones consistent with the guidelines of both Appendix A and Appendix R;
- b. To document and quantify all combustibles located in each fire area and zone and to calculate the design bases fire (DBF) for each fire area and zone;
- c. To summarize, by fire area, the location of circuits and components required to safely shut down the reactor;
- d. To describe the capabilities of the fire protection features for all areas, including those to protect at least one path of safe shutdown equipment in each fire area.

This updated Fire Hazard Analysis was performed by individuals knowledgeable in both nuclear plant systems and fire protection and was reviewed and approved by a fire protection engineer who is qualified for member grade in the Society of Fire Protection Engineers.

1.2 Scope

This fire hazard analysis included all plant areas which either:

- a. Contain safety-related and/or safe shutdown equipment;
- b. Contain neither safety-related nor safe shutdown equipment but represent an exposure hazard to any such area; or

HNP-FHA-1

- c. Have the potential for a significant release of radioactive material.

In addition, other plant areas have been included that present a significant hazard or investment. These areas, while not affected by regulatory requirements, represent a significant investment by GPC and it is good fire protection practice to include them in this updated Fire Hazard Analysis.

This report also readdresses those positions of BTP 9.5-1 associated with plant design features. Those positions in the BTP associated with administration, organization, training, and quality assurance are readdressed in the Fire Protection Plan provided as Appendix A of this report.

2.0 **DEFINITIONS**

Approved - Tested and accepted for a specific purpose or application by a nationally recognized testing laboratory.

Authority Having Jurisdiction – An organization, office, or individual responsible for enforcing the requirements of a code or standard or for approving equipment, materials, an installation, or a procedure (e.g., Nuclear Electric Insurance Limited (NEIL)).

Automatic - Self-acting, operating by its own mechanism when actuated by some impersonal influence, as for example, a change in voltage, pressure, temperature or mechanical configuration.

Combustible Material - Any material that does not meet the definition of noncombustible.

Design Basis Fire - A design basis fire is a theoretical event that postulates the complete combustion of all the combustibles (i.e., flashover is assumed) in a compartment and considers the total heat released under these conditions. An actual fire always involves varying amounts of incomplete combustion and, therefore, yields a lower total heat release to the compartment; thus, an actual fire is less severe than a design basis fire.

Exposure Fire - An exposure fire is a fire in a given area that involves either in situ or transient combustibles and is external to any structures, systems, or components located in or adjacent to that same area. The effects of such a fire could adversely affect those structures, systems, or components important to safety. Thus, a fire involving one path of safe shutdown equipment may constitute an exposure fire for the redundant path located in the same area, and a fire involving combustibles other than either redundant path may constitute an exposure fire to both redundant paths located in the same area.

Fire Area - An area sufficiently bounded to withstand the hazards associated with the area and, as necessary, to protect important equipment within the area from a fire outside the area.

Fire Barrier - Those components of construction including walls, floors, enclosures, roofs penetration seals, fire-rated doors, and ventilation dampers that are rated by approving laboratories in hours of resistance to fire to prevent the propagation of fire. Structural steel forming a part of these barriers is provided with protective coatings to preclude fire damage. Fire barriers may also consist of a combination of existing architectural features and suppression systems as detailed in section 3.4 of this report.

Fire Detectors - A device designed to automatically detect the presence of fire and initiate an alarm.

- a. Heat (Thermal) Detector - A device which detects abnormally high temperature or rate of temperature rise.
- b. Smoke Detector - A device which detects the visible or invisible products of combustion.

- c. Line-Type Thermal Detector - A device in which detection is continuous along a path, e.g., fixed-temperature, heat-sensitive cable, and rate-of-rise pneumatic tubing detectors.

Fire Rating - The endurance period of a fire barrier or structure to a standard fire exposure elapsing before the first critical point in behavior is observed. (Refer to NFPA Standard No. 251 or ASTM E-119).

Fire Suppression - The capability for control and extinguishment of fires. Manual fire suppression activities are the application of hose streams or portable extinguishers to control and extinguish a fire. Automatic fire suppression is the application of fixed systems such as automatic sprinklers, halon, carbon dioxide, or fixed water spray, installed in specific areas to control and extinguish fires.

Fire Zone - That portion of a fire area that is best analyzed separately as a zone within a fire area due to its unique combustible loading or fire characteristics. A fire zone is a subset of a fire area.

Labeled – Equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization that is acceptable to the authority having jurisdiction and concerned with product evaluation, that maintains periodic inspection of production of labeled equipment or materials, and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

Listed – Equipment, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets appropriate designated standards or has been tested and found suitable for a specified purpose.

Noncombustible Material

- a. A material in the form in which it is used and under the conditions anticipated, will not ignite, burn, support combustion, or release flammable vapors when subjected to fire or heat.
- b. Material having a structural base of noncombustible material as defined in a., above, with a surfacing not over 1/8-inch thick that has a flame spread rating not higher than 50 when measured using ASTM E-84 Test "Surface Burning Characteristics of Building Materials."

Safety Related - Fire areas and zones are defined as safety related if they contain any safety equipment as defined in Table 1 of reference 1.

Sprinkler System - A system of piping and components from the first supply valve to the point where water discharges from the system to the protected area. The system sometimes includes a controlling and/or a sectionalizing valve which is activated by a fire detection system (thermal or smoke) and a device for actuating an alarm when the system is in operation.

HNP-FHA-2

- a. Wet Pipe - A system employing automatic closed head (fusible link operated) sprinklers attached to a piping system containing water and connected to a water supply so that water discharges immediately from sprinklers opened by a fire.
- b. Dry Pipe - A system employing automatic closed head sprinklers attached to a piping system containing air under pressure, the release of which from the opening of a sprinkler permits the water to open a valve known as a dry pipe valve. The water then flows into the piping system and out the opened sprinklers as the air pressure drops.
- c. Pre Action System - A system employing automatic closed head sprinklers attached to a piping system containing air that may or may not be under pressure, with a fire detection system installed in the same areas as the sprinklers. Actuation of the fire detection system opens a valve which permits water to flow into the piping system and discharges from all open sprinklers simultaneously.
- d. Deluge - A system employing open head sprinklers attached to a piping system connected to a water supply through a valve which is opened upon actuation of a fire detection system in the same area as the sprinklers and/or nozzles. When this valve opens, water flows into the piping system and discharges from all open sprinklers simultaneously.
- e. Water Spray System - A network of piping similar to a sprinkler system except that it utilizes directional spray nozzles. NFPA Standard No. 15, "Water Spray Fixed System," provides guidance on these systems.
- f. Standpipe and Hose System - A fixed piping system connected to a water supply to provide effective hose streams in the shortest possible time to specific areas inside the building.

Fire-rated Class A, B, C – Fire-rated rating class applied to fire doors and dampers as follows:

<u>Class</u>	<u>Fire Rating</u>
A	3 h
B	1-1/2 h
C	3/4 h

3.0 METHODOLOGY

The bases and methodology used in producing this Fire Hazard Analysis are as follows.

3.1 Bases for the Fire Hazard Analysis

This Fire Hazard Analysis is performed to:

- a. Consider potential in-situ and transient fire hazards.
- b. Determine the consequences of fire in any location of the plant on the ability to safely shut down the reactor or on the ability to minimize and control the release of radioactivity to the environment.
- c. Specify measures for fire prevention, fire detection, fire suppression, and fire containment and alternative shutdown capability as required for each fire area containing structures, systems, and components important to safety in accordance with Nuclear Regulatory Commission (NRC) guidelines and regulations.
- d. Assess the fire protection measures throughout the E. I. Hatch Nuclear Plant (HNP).

3.2 Design Input Summary/As-Built Verification

The E. I. Hatch Nuclear Plant Fire Hazard Analysis drawings (section 8.0) provide the following information:

- Suppression system coverage.
- Detection system coverage.
- Fire area boundary definitions.
- Fire barrier ratings.
- Fire door ratings.
- Portable extinguisher coverage.
- Hose station coverage.

The square footage of the fire areas was determined using various Unit 1 general arrangement and equipment location drawings and Unit 2 general arrangement and architectural drawings as referenced in section 5.3 of this report.

The summary information regarding the safe shutdown circuits and components located in each area was extracted from the Safe Shutdown Analysis Report. The methodology used for this extraction is noted in section 3.6 of this report.

The inventory of combustible materials in each fire area and zone, with the exception of cable insulation, was determined via a detailed plant walkdown conducted in June and July of 1985.

The cable combustible inventory was calculated as is stated in section 3.5 and in appendix L of this report. Any additional information not specified here was determined during the previously noted walkdown.

3.3 Fire Hazard Analysis Methodology and Format

The extent to which this updated Fire Hazard Analysis meets the above bases and the methodology and format employed are discussed below:

3.3.1 Fire Hazard Analysis Methodology

This updated Fire Hazard Analysis identifies and quantifies the combustible contents of, as a minimum, all structures housing safety-related equipment or presenting an exposure hazard to safety-related equipment. Conservative values of heat release, assuming total combustion of all fixed combustibles in each fire area and zone, are utilized to maximize the effect of potential fire hazards. Cable insulation, which represents a major hazard in nuclear power plants, is evaluated assuming cable tray sections are filled to the maximum design limit or the actual fill, whichever is greater.

With regards to transient combustibles, it should be noted that HNP utilizes a permit system for control of transient combustibles. All movement of transients through safety-related structures are reviewed and approved by site fire protection personnel. Since the evaluation of the acceptability of transient combustibles is made at the time of the permit, transient combustibles have not been specifically included in this updated Fire Hazard Analysis except as follows:

- Combustibles which are not "fixed" but are, nonetheless, considered permanent (e.g., dress out areas, supply storage, etc.) were included.
- Known transient combustibles in the yard area (e.g., diesel fuel transport) were evaluated for their effects on safety-related equipment in the yard.

This updated Fire Hazard Analysis summarizes the analyses performed by the architect/engineers to demonstrate compliance to Sections III.G of Appendix R. For each fire area, this summary includes the identification of the path of equipment to be utilized to achieve safe shutdown, diesel generators required, number of safe shutdown components (e.g., pumps, valves, etc.) located in the area, and safe shutdown components of the path used for safe shutdown for which electrical cabling passes through the area. Circuit protection or special operator actions required to safely shut down the reactor are also identified.

The release of radioactivity resulting from a fire may be due to the airborne release of surface contamination of combustible materials, the failure of waste processing systems, or the initiation of a plant transient involving the rupture of a fission product barrier. Such a release is not specifically addressed in each fire area and zone analysis since:

- All buildings containing contaminated materials are of substantial construction and surface contamination released due to a fire is expected to be insignificant and remain local to the structure.

HNP-FHA-3

- The failure of waste processing systems is bounded by the analysis in chapter 15 of the FSAR.
- The provisions of Appendix R ensure the ability to achieve safe shutdown with no fuel failures or failures of high-low pressure boundaries.

Inasmuch as the fire prevention, fire detection, fire suppression, and fire containment features at HNP have been previously approved by the NRC (SER dated October 1978), this updated Fire Hazard Analysis has focused on the subsequent changes to the plant approved features and on the evaluation of new systems to meet GPC commitments to NRC guidelines and regulations. Alternative shutdown capability has been approved by the NRC (SER dated February 1983) and has been incorporated as discussed in section 3.6.

For convenience, appendix D of this report provides a cross-reference matrix referencing the NRC position in BTP 9.5-1, the GPC response to each position as stated in the "Evaluation of the Hatch Nuclear Plant Fire Protection Program" (reference 1), and the current response as stated in this report.

3.3.2 Format of the Detailed Fire Hazard Analysis

The analysis in sections 10.0 through 12.0 consists of a fire analysis data sheet for each fire area and zone and a detailed hazards analysis. The fire analysis data sheet is a summary of all important information contained in each fire area or zone and is described in section 5.0 of this report.

The following sections are contained in the detailed hazards analysis of each fire area and zone.

Description - This section lists the building in which the area or zone is located, the floor elevation, and the description of the area or zone.

Drawing Number(s) - This identifies the E. I. Hatch Nuclear Plant Fire Hazard Analysis drawing or drawings on which the area or zone is depicted.

Area - This section lists the floor area of the area or zone in square feet.

Combustible Material - This section defines the combustible loading as low, moderate, or high (as defined in section 3.5) and lists the major types of combustible material in the area or zone.

Design Basis Fire (DBF) - This section contains the postulated worst case fire in the fire area or zone in terms of an equivalent fire referenced to the standard exposure fire (as defined in section 2.0).

Construction - This section contains a description of the construction and rating of the boundaries of the fire area or zone.

Fire Protection - This section lists all of the elements of the fire protection systems within the fire area or zone.

Appendix R Exemptions - This section lists any Appendix R exemptions that have been submitted or granted for the area.

Consequences of Design Basis Fire - This section contains the possible safety consequences for the plant in the event of a design basis fire. This section also contains a description of the sequence of events which will mitigate the consequences of a design basis fire and an evaluation of the ability of area or zone boundaries to contain the design basis fire.

Safe Shutdown Analysis - This section contains a listing of the safe shutdown components affected due to a loss of circuits in the area (for the path used for shutdown only) and the circuit protection or operator actions required.

3.4 Establishment of Fire Areas/Zones

Fire areas are generally bounded on all sides by rated fire barriers or by substantially constructed walls exempted from rating requirements. Rated fire barriers typically have openings or penetrations protected with seals or closures, having a fire resistance rating equivalent to or greater than that of the barrier, including doors and HVAC dampers. All openings in rated barriers that do not have a fire resistance rating equal to that of the penetrated barrier have been evaluated according to the criteria in appendix I of this report. Structural steel, which forms a part of a rated barrier, is protected with an equivalent rated coating of fire retardant material.

Where fire area boundaries are not rated fire barriers, the barriers have been evaluated for their ability to contain a design basis fire and to protect equipment within the area from a fire outside the area. Nonrated barriers typically considered acceptable are exterior concrete walls of major structures subject to insignificant outside fire hazards and interior concrete walls with few unsealed openings separating fire areas that have very low (less than 20,000 Btu/ft²) combustible loadings. Additional considerations include the available active fire protection features, location and size of openings, ceiling height, and location of safe shutdown equipment.

Requests for exemption from the requirement for a 3-h rating of nonrated fire barriers separating fire areas have been submitted based on these evaluations. Appendix C provides these exemption requests, along with the safety evaluation reports for those that have been granted. Appendix I of this report provides the evaluation criteria for penetrations in fire barriers that do not meet accepted, standard configurations or that cannot be inspected to verify their compliance with accepted standards.

An exception to the above boundary philosophy is the use of a combination of circuit protection and water suppression to divide each reactor building into two fire areas at and below elevation 185 ft 0 in. These boundaries consist of those engineered systems of sprinklers and circuit protection, in combination with existing architectural features, used to prevent a fire that occurs on one side of each unit's reactor building from propagating to or damaging safe shutdown circuits in the opposite side.

These systems consist of automatic sprinkler systems extending from the east-west centerline of each reactor building into each adjacent fire area to a distance of 20 ft beyond the last redundant opposite path component. Where only one path of equipment exists, the area of

sprinkler coverage is at least 20 ft wide. This separation has been reviewed and approved by the NRC (reference 8).

In a few instances, artificial area boundaries have been created to separate the control building from each turbine building. However, no credit has been taken for these artificial boundaries to prevent the propagation of a fire.

Hazards in the yard areas have been analyzed as separate hazards where there is no possibility of fire propagating due to large spatial separations or other physical features.

Fire zones within a fire area are established either on the basis of individual rooms or compartments for the convenience of identifying the combustible inventories, or on the basis of a significant concentration of combustible materials within an area. The Fire Hazard Analysis for fire zones evaluates the likelihood of propagation beyond the zone boundaries, assuming that the fire protection features in the zone are available, but takes credit for fire containment only at fire area boundaries.

3.5 Design Basis Fire

The approach and analysis methods used for the calculation of the design basis fire for this Fire Hazard Analysis are described below:

3.5.1 Combustible Loading

Combustible materials are categorized and quantified in each fire area or zone. Complete combustion of all combustible materials in the fire area or zone is assumed for the design basis fire. Each type of combustible (for cable trays see subsection 3.5.2) is multiplied by its heat of combustion, listed in table 3-1. The combustible loading is calculated by dividing the total heat of combustion by the floor area of the fire area or zone. The combustible loading is defined as low, moderate, or high as follows:

Low - the loading does not exceed an average of 100,000 Btu/ft².

Moderate - the loading exceeds an average of 100,000 Btu/ft² but is less than 200,000 Btu/ft².

High - the loading exceeds an average of 200,000 Btu/ft².

Cable in conduit is not considered a part of the combustible loading. Small quantities of miscellaneous combustibles are, in some instances, not considered when they represent an insignificant contribution to the total combustible loading. For example, emergency light battery cases (approximately 4 lb of plastic) are not included, unless the room in which they are located is very small or contains very few other combustibles.

TF-1, a class of less flammable synthetic fluids, is used in several transformers within the plant. This fluid has a flash point at or above 200° F; the heat of combustion is 4,800 Btu/lb. (See appendix K of this report for additional detail.)

Silicone, a class of less flammable synthetic fluids containing polydimethylsiloxane, is used in several transformers within the plant. This fluid has an auto ignition point of 460°F. The heat of combustion is 11,600 Btu/lb.

3.5.2 Cable Tray Combustible Loading and Heat Release Calculation

The purpose for performing this calculation is to determine the quantity of combustible cable insulation in each fire area or zone and the theoretical heat that could be released upon complete combustion of that insulation.

The length and size of cable trays is determined for each area or zone. The volume of a cable tray (in.²-ft) is calculated by multiplying its length in the area or zone by its cross-sectional area. The volume of cable is calculated by multiplying the cable tray volume by the percentage fill.

The percentage fill is recorded as 40 percent, the administrative design limit, for all cable trays that are filled with cable up to 40 percent by volume. This is a very conservative assumption since the actual fill of cable trays in the plant is generally much less than 40 percent. For cable trays that are more than 40-percent full, the actual percentage fill is used. For cases where the use of the 40% fill assumption could result in exceeding the maximum permissible loading for a zone, the actual tray fill may be used for all trays in the affected zone.

The insulation weight is calculated by multiplying the calculated volume by a mean unit weight of 0.617 lb/in.²-ft.

To calculate the heat released by the combustion of the insulation in each cable tray, multiply the insulation weight by an average calorific value of 11,500 Btu/lb of insulation. Appendix L of this report provides additional detail.

The total cable insulation weight and potential heat release in each area is determined by the summation of these values for all cable trays in the area.

Where cable trays are wrapped with a 1- or 3-h fire resistant material, the quantity of such cable is included in the calculated weight of combustibles in the analysis and matrix, but is not included in the heat release or fire loading (i.e., the heat of combustion is set equal to 0).

3.5.3 Maximum Permissible Fire Loading

The maximum permissible fire loading represents an administrative limit on the maximum permanent and transient combustibles which can be contained in the fire area or zone. Transient combustible loadings are not generally included in the calculation of the design basis fire; however, administrative controls require all movement of transient combustibles in safety-related structures to be approved by site fire protection personnel.

It is intended that only those transient loads that cause the total combustible loading to exceed the maximum permissible loading would require further evaluation by the site fire protection personnel, with respect to additional suppression capability.

The maximum permissible fire loading is determined by various factors, such as construction of the area or zone, available fire protection features, and commitments to support Appendix R exemptions. In general, the maximum permissible fire loading is limited to the following:

- a. Area or zone with no detection or automatic suppression. - 20,000 Btu/ft²
- b. Area or zone with detection and/or automatic suppression. - 100,000 Btu/ft²

In the event that the existing fixed combustible loading is greater than the guidelines above, the maximum combustible loading is stated as the existing fixed loading plus 20,000 Btu/ft².

3.5.4 Design Basis Fire Duration

The design basis fire assumes total combustion of all combustibles contained in the fire area or zone. To calculate the design basis fire, the standard exposure fire (curve E, figure 3-1) is assumed. The fire loading calculated for each fire area or zone is divided by the heat rate for the standard exposure fire (table 3-2, 80,000 Btu/ft² - h) to give the maximum fire duration in hours.

The design basis fire requires postulating the loss of components in the fire area or zone. Considering this, there are two objectives in the fire hazard analysis of each area:

- a. The boundaries, or fire barriers, are analyzed to verify their adequacy in containing the design basis fire in the fire area, so the adjacent fire areas with redundant equipment will not be jeopardized.
- b. Safe shutdown components and circuits are evaluated to determine separation per 10 CFR 50, Appendix R, section III.G.

3.6 Summary of the Safe Shutdown Evaluation

The evaluation of safe shutdown capability has been performed and documented in the Safe Shutdown Analysis Report. Appendix E of this report describes the assumptions and methodology utilized in these evaluations. These analyses determine paths (path 1, 2, and 3) of minimum equipment required to safely shut down (cold shutdown) HNP Units 1 and 2 for a design basis fire. The fire hazards analysis summarizes the results of these analyses by stating which path is required for shutdown in each fire area, diesel generator(s) required for shutdown for each fire area, number of safe shutdown components in each fire area, and tabulating the safe shutdown components of the path used for safe shutdown which are affected by a fire in the area as a result of having circuits routed through the area. These analyses also indicate any required actions. The major systems and equipment required were defined by General Electric in "Minimum Systems Required for Safe Shutdown During a Fire in Edwin I. Hatch

HNP-FHA-3

Nuclear Power Stations Units 1 and 2" (NEDO-24372) and further refined in "Safe Shutdown Appendix R Analyses for Edwin I. Hatch Nuclear Power Stations Units 1 and 2" (MDE-03-0186).

High/low pressure interface components are analyzed separately from the "normal" path 1 and path 2 safe shutdown systems and are not summarized in this report.

In addition, each fire area or zone has been categorized as safety related or nonsafety related based on whether any safety-related equipment is located within the area or zone boundaries as defined in table 1 of reference 1.

3.7 Flooding/Inadvertent Actuation

The Fire Hazard Analysis does not specifically address the effects of flooding or water spray due to the rupture or inadvertent actuation of fire suppression systems. Rupture of moderate energy systems is described in chapter 3 of the FSAR.

TABLE 3-1 (SHEET 1 OF 2)

TABLE OF COMBUSTIBLE CHARACTERISTICS

<u>Material</u>	<u>Density</u> <u>(lb/unit value)</u>		<u>Heat of Combustion</u> <u>(Btu/lb or unit)</u>	
<u>Oils and Greases</u>				
Grease	7.04	lb/gal	155040	Btu/gal
Diesel Fuel Oil	7.43	lb/gal	148600	Btu/gal
Lube Oil	7.40	lb/gal	132800	Btu/gal
Gasoline	6.15	lb/gal	127700	Btu/gal
Transformer Oil	7.48	lb/gal	143000	Btu/gal
EHC Fluid	7.00	lb/gal	16000	Btu/lb
TF-1/TF-X Fluid	12.50	lb/gal	4800	Btu/lb
Transformer Oil Silicone	8.00	lb/gal	11600	Btu/lb
<u>Class A Combustibles</u>				
Wood	36.3	lb/ft ³	8000	Btu/lb
Plank (2 x 4)	2.02	lb/lin ft	8000	Btu/lb
Plank (2 x 10)	5.04	lb/lin ft	8000	Btu/lb
Plank (2 x 12)	6.05	lb/lin ft	8000	Btu/lb
1/2 in. Plywood	48.4	lb/8 ft sheet	8000	Btu/lb
3/4 in. Plywood	72.6	lb/8 ft sheet	8000	Btu/lb
1 in. Plywood	96.8	lb/8 ft sheet	8000	Btu/lb
Paper	58.0	lb/ft ³	7800	Btu/lb
Rags & Cloth	5	lb/gal	7800	Btu/lb
Cardboard	63	lb/ft ³	7200	Btu/lb
Clothing (PCs)	5	lb/gal	9000	Btu/lb
Wood Desks	400	lb/desk	8000	Btu/lb
Metal Files	500	lb/file	8000	Btu/lb
Ladders (fiberglass)	3	lb/lin ft	43333	Btu/lb
Charcoal	33	lb/ft ³	12920	Btu/lb
Carpet	1.98	lb/ft ²	13300	Btu/lb
Tape (cloth)	37.4	lb/ft ³	7800	Btu/lb
<u>Plastics</u>				
Plastic	-		20000	Btu/lb
Respirators	-		9000	Btu/lb
Battery Cases	-		20000	Btu/lb

TABLE 3-1 (SHEET 2 OF 2)

<u>Material</u>	<u>Density</u> <u>(lb/unit value)</u>		<u>Heat of Combustion</u> <u>(Btu/lb or unit)</u>	
<u>Miscellaneous</u>				
Acetylene	14.7	ft ³ /lb	1451	Btu/ft ³
Hydrogen	192.0	ft ³ /lb	319	Btu/ft ³
Propane	8.51	ft ³ /lb	2480	Btu/ft ³
Resin	40	lb/ft ³	19000	Btu/lb
Rubber	94	lb/ft ³	19400	Btu/lb
Cable Insulation	88.9	lb/ft ³	11500	Btu/lb
Dimethylamine	42.5	lb/ft ³	18000	Btu/lb
Paint	7.86	lb/gal	12000	Btu/lb
Solvent	6.6	lb/gal	13250	Btu/lb
Methanol	6.68	lb/gal	9758	Btu/lb

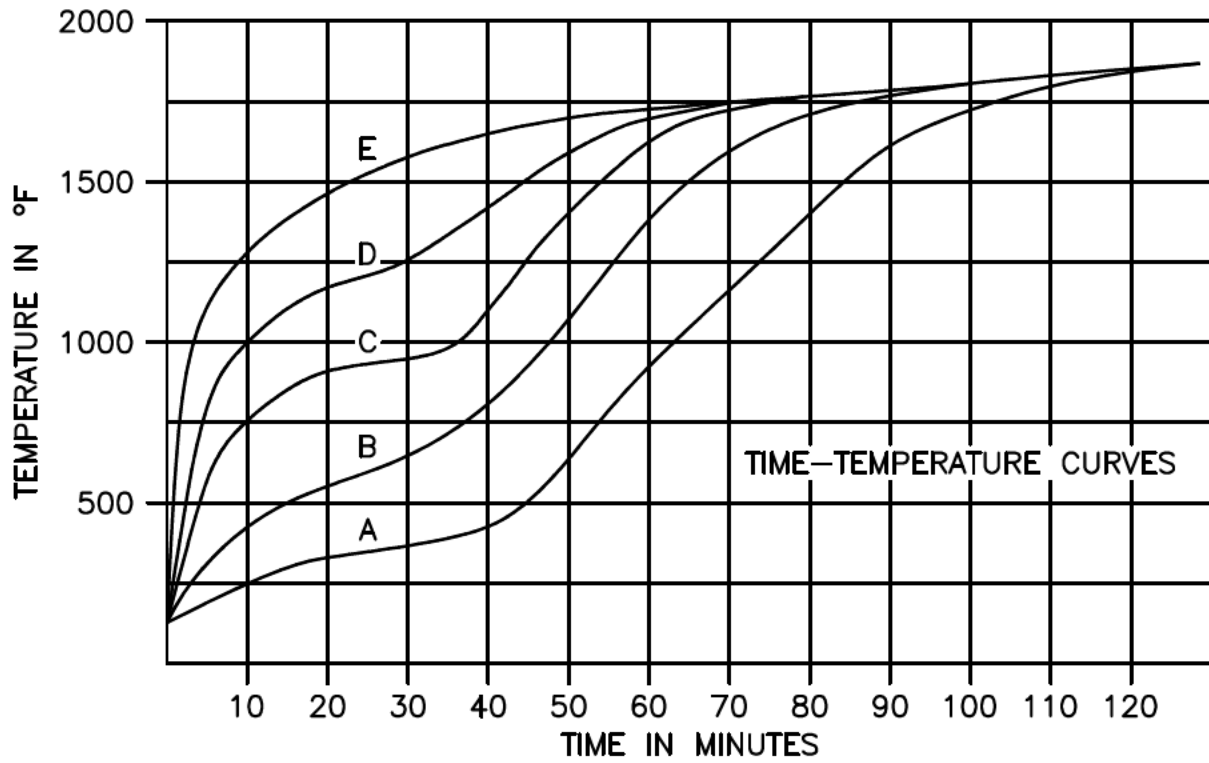
TABLE 3-2**TYPICAL TABLE OF FIRE RESISTANCE REQUIREMENT**

Barrier Fire Resistance Requirement	Fire Loading (Btu/ft ²) NFPA Curve				
	A	B	C	D	E**
30 min.	10,000	20,000	28,000	33,000	40,000
1 h	20,000	40,000	56,000	66,000	80,000
1 h., 30 min.	30,000	60,000	84,000	99,000	120,000
2 h	40,000	80,000	112,000	132,000	160,000
2 h., 30. min.	50,000 *	100,000 *	140,000 *	165,000 *	200,000
3 h	60,000 *	120,000 *	168,000 *	198,000 *	240,000

* Extrapolated value

** Standard Time-Temperature Curve (NFPA 251, 1981)

FIGURE 3-1
FIRE SEVERITY CURVES



4.0 FIRE PROTECTION FEATURES

The purpose of the fire protection program at E. I. Hatch Nuclear Plant (HNP) is to provide assurance, through a defense-in-depth design, that a fire will not prevent the performance of necessary safe plant shutdown functions and will not significantly increase the risk of radioactive releases to the environment. The primary objective of the fire protection program is to minimize both the probability and consequences of postulated fires.

4.1 Defense-in-Depth

The HNP fire protection program consists of detection and extinguishing systems, administrative controls and procedures, and trained personnel. The defense-in-depth principle is aimed at achieving an adequate balance in these areas along with:

- a. Preventing fires from starting;
- b. Detecting fires quickly, rapidly suppressing those fires that occur and limiting their damage; and
- c. Designing plant safety systems so that a fire which starts in spite of the fire prevention program and burns for a significant period of time in spite of fire protection activities will not prevent essential plant safety functions from being performed.

Not one of these echelons can be perfect or complete by itself. Strengthening any one can compensate in some measure for weaknesses, known or unknown, in the others.

The design features implemented to accomplish these objectives are summarized below.

4.2 Separation Criteria

The most effective means of preventing simultaneous damage to redundant paths of safe shutdown circuits and components is physical separation, wherever practical. HNP was designed and built with this separation as a design criteria (reference 12). The primary features of this separation criteria are:

- a. RPS and PCIS circuits are routed in individual, separate conduits.
- b. ESS system circuits are routed in raceways containing only one division.
- c. All Diesel Generator A circuits are routed in separate raceways from Diesel Generator B and C circuits.
- d. Raceways containing power cables are limited to one voltage level, i.e., various voltage levels are routed in separate raceways.
- e. In general, plant areas (excepting the cable spreading room for which alternate shutdown is used) opposite division raceways are separated by a horizontal dimension

of 3 ft and a vertical dimension of 5 ft unless cable tray covers have been installed.

As a result, all safe shutdown circuits are at a minimum, routed in separate cable trays from their redundant counterparts. In general, redundant paths of safe shutdown circuits are routed through separate fire areas within the plant. Redundant safe shutdown components are also located in separate fire areas in nearly all cases.

Wherever redundant, required, safe shutdown circuits or components are not located in separate fire areas, unless specifically exempted from separation requirements, the criteria of Section III.G.2 of Appendix R is employed at HNP to either:

- a. Enclosure of cable and equipment, and associated nonsafety circuits of one redundant train in a fire barrier having a 1-h rating with fire detectors and an automatic fire suppression system installed in the fire area.
- b. Separation of cables and equipment, and associated nonsafety circuits of redundant trains by a fire barrier having a 3-h rating. Structural steel forming a part of or supporting such fire barriers are protected to provide fire resistance equivalent to that required of the barrier.
- c. Separation of cables and equipment, and associated nonsafety circuits of redundant trains by a horizontal distance of greater than 20 ft with no intervening combustibles or fire hazards.

Separation of redundant safe shutdown circuits and components by 20 ft with no intervening combustibles is a rare occurrence at any nuclear plant. HNP is no exception and, therefore, does not attempt to utilize these separation criteria.

4.3 Fire Barriers

Primary design consideration is given to locating redundant safe shutdown circuits and components in distinct areas separated by fire barriers which prevent the propagation of fire to adjacent areas. The barriers are designed to contain a design basis fire which totally involves the combustibles in the given area. Cable tray, conduit, HVAC duct, and piping penetrations through fire barriers are in general sealed using designs that are consistent with the rating of the barriers and meet the acceptance criteria of ASTM E-814, ASTM E-119, or IEEE-634-1978 including a hose stream test.

Unless specifically evaluated and found acceptable, all doors in rated fire barriers are qualified, nationally recognized testing laboratory labeled doors with ratings equal to or greater than the rating of the wall in which the door is located.

Any penetrations or doors not meeting these criteria have been evaluated to ensure that a fire will not propagate through the penetration or door (see section 3.4 and appendix I of this report).

As discussed in the previous section, fire barriers at HNP also include fire resistive enclosures and protective wraps and coatings designed to preclude fire damage to specific safe shutdown

circuits where architectural fire barriers are not available. In addition, fire stops are used extensively throughout HNP cable trays to aid in preventing propagation of any cable tray fires which may occur.

Procedures are in place to provide for periodic inspection and required maintenance of the complete fire rated assemblies.

4.4 Combustible and Ignition Source Control

Administrative control procedures have been implemented at HNP (reference 6) to control the introduction, storage, handling, and removal of combustible materials. These procedures apply either inside or adjacent to safety-related structures and during both power and maintenance operations. The materials controlled include transient combustibles, flammable liquids, combustible liquids, and hazardous compressed gases.

Similar procedures are in place to control ignition sources throughout HNP. A hot work procedure controls welding, cutting, spark producing operations and open flames. Hot work permits are issued by foremen who are required to be trained in fire hazard recognition and protection. Fire watches are required during hot work, in areas housing safety-related equipment or significant concentrations of combustibles. Persons performing the fire watch are required to be trained in the use of portable extinguishers on the different classes of fires and the procedures for sounding the fire alarm.

4.5 Material Control

The use of nonflammable or flame retardant materials is enforced at HNP wherever practical. The fixed combustible loading of plastic is maintained as low as reasonably achievable. Plastic bags are used for contaminated clothing and trash isolation, but the use of bags is minimized during normal power operations. The electrical cabling at HNP is predominately IEEE-383 qualified to ensure slow development of any cable tray fires which may occur. Only fire retardant lumber is approved for use as scaffolding, laydown blocks, etc.

4.6 Detection and Annunciation Systems

A state of the art, early warning fire detection multiplex system has been provided for HNP Units 1 and 2. The system is configured around the master/slave concept linked to a common command center. All devices (detectors, tamper switches, pressure switches, etc.) are wired to their respective slave panels. Signals from each of these devices are grouped according to their originating detection zone. There are approximately 260 detection zones throughout both units of HNP.

The slave panels are associated with the following plant areas:

Slave A	Unit 1 safety-related areas
Slave B	Unit 1 nonsafety-related areas
Slave C	Unit 2 safety-related areas

HNP-FHA-4

Slave D

Unit 2 nonsafety-related areas

Each panel operates from an external, three-wire 120 V-ac power supply with an internal 24 V-dc backup. Indication is provided for:

System Power	(green)
Trouble	(yellow)
Alarm	(red)

Trouble and alarm are also indicated on an alphanumeric display which provides the device number and location plus the diagnosis of the trouble to the operators. The panel is capable of measuring and adjusting the sensitivity of detectors. Each device on an addressable circuit is continuously monitored for:

- sensitivity
- response
- open circuits
- short circuits
- ground faults
- functionality
- status

Information transferred to the Master panel is the trouble and/or fire condition status for the particular detection zone. Discrete component information is not displayed on the Master panel.

All slave and master data are monitored by a common command center composed of a command center panel, a color display monitor with keyboard, and a logging printer. The command center monitor displays both master and slave data of incoming alarms/troubles.

The keyboard is used in addressing all incoming master/slave data and any other functions that could normally be done at those remote panels (ex.: acknowledging and silencing panel audibles, reset functions, check and set sensitivities, etc.). In essence, the common command center serves as a convenient centralized operation center for the entire multiplex system.

The fire alarm and detection systems provided throughout the plant comply with appendix R commitments. They are also designed and installed using the general guidance of NFPA No. 72D. However, certain specific problem areas encountered in nuclear power plants are not always addressed in NFPA codes. Where such situations occurred, deviations from code provisions were necessary.

In all cases, the intent of the NFPA codes were followed. Deviations from the codes are identified and addressed in appendix H of this report. The number and location of detectors were determined in accordance with the recommendations of the manufacturer and the guidelines established in NFPA No. 72E. The type of detector selected for each area of the plant was determined on the basis of the expected fire hazard, the ceiling height and construction features, the ventilation in the detection zone, the normal detection zone temperatures and maintenance considerations. Chapter 7 of this report summarizes the detection system types and coverages throughout the plant.

4.7 Fire Protection Water Supplies

Water supply for the fire protection system inside the HNP protected area is provided by two 300,000-gal dedicated storage tanks. The tanks are supplied by two deep wells, each with a 700 gal/min makeup pump, capable of refilling either tank within 8 h. These water supplies are strained and filtered for normal makeup. In the event of a fire resulting in starting of one of the main fire pumps, the filters may be bypassed to ensure that full make-up capacity is available. The two tanks are interconnected to allow suction from either tank by the fire pumps. An interconnection via readily accessible valves in each unit's torus room is provided with the plant service water system for emergency water supply in the unlikely event of simultaneous failure of all main fire pumps.

There are three fire pumps, two diesel engine driven and one electric motor driven. Each pump is rated for 2500 gal/min capacity at 125 psi. A single 70 gal/min, 125 psi, pressure maintaining pump (jockey pump) is provided to keep the system filled and pressurized during low flow draw offs and leakages.

The jockey pump is designed to start automatically upon a drop in system pressure to 120 psi and continues to operate until the system pressure increases to 125 psi. The electric motor driven pump is actuated automatically whenever system pressure drops to 110 psi. If the demand exceeds the capacity of the electric motor-driven pump, or upon failure of this pump, one of the two diesel engine driven pumps will start upon decrease in system pressure to 100 psi. A continuing drop in pressure will actuate the second diesel engine driven pump at 90 psi. Failure of any one pump to start does not affect the starting of other pumps. All three fire pumps are arranged for manual shutdown only. Only one of the three pumps is required for fire fighting in HNP safety-related structures.

The operating status of each pump and the power supply for the electric motor driven pump is monitored in the main control room. An alarm indicates fire pump running, power availability, or failure to start. All circuits are electrically supervised.

In addition, periodic tests and inspections ensure that the pumps remain operable. Fire pump installation is consistent with NFPA 20 "Standard for the Installation of Centrifugal Fire Pumps" with the exception of minor deviations that do not affect the operability of the pumps. For example, the electric fire pump controller is not UL listed per the requirements of NFPA 20, but each individual feature of the controller has been evaluated against the requirements and determined to be equivalent. This evaluation, along with any other deviations from the NFPA standards and codes, is identified and addressed in appendix H of this report.

An underground yard main system with multiple loops capable of delivering the anticipated largest single fire flow is provided for the fire protection system. The system is common to both Units 1 and 2 and is provided with post indicator valves to facilitate the isolation of portions of the system for maintenance or repairs without interrupting the supply to the remaining system. All post-indicator valves are locked in their proper position. Guidelines established in NFPA 24 were followed for the design and installation of the piping. All piping in the yard main loop is cement lined cast iron or cement lined ductile iron.

An inside main loop is provided in each turbine and reactor building. The inside loop supplies all automatic sprinkler systems, water spray systems, standpipe risers, and hose stations. The

inside main loop is supplied directly by the underground yard main loop and is independent of other plant water systems.

Fire hydrants are installed on the yard main loop at frequent intervals to provide a means for applying effective fire hose lines throughout the plant for use by the fire brigade. A post indicator type valve is installed at the connection of each hydrant to the yard main loop to allow isolation of individual hydrants. Each hydrant outlet is provided with hose threads compatible with those used by local fire departments in the area of the plant, in the event of the need for outside assistance.

4.8 Fixed Water Suppression Systems

Automatic sprinkler system protection is provided in many areas of the plant with emphasis on protecting equipment and operations involving combustible and flammable liquids as well as in specific areas containing safety-related systems, equipment, and components. Water suppression systems consist of wet pipe sprinklers, dry pipe sprinklers, deluge sprinklers, water spray systems, and pre-action sprinkler systems. The design and installation of these systems is generally based on guidelines established in NFPA 13 and 15 giving due consideration to maintaining the ability to perform safe plant shutdown functions. However, in specific instances, it is not always possible or practical to comply with the literal provisions of the code. Where code deviations are required or are desirable, they are made under the intent of the code using sound engineering principles. A summary of the deviations from the codes is provided as appendix H of this report.

Each water suppression system in the turbine, reactor, radwaste, and control buildings is supplied by the inside main loops for the turbine and reactor buildings. Each system is provided with an isolation valve where the system connects to the main loop. Fixed water suppression systems are monitored by the plant fire detection and alarm system for proper valve position and annunciation of alarm conditions. Sectional control valves in the power block, controlling water supply to the fixed suppression systems, will also alarm in the main control room if incorrectly aligned. Periodic tests and inspections of all systems are conducted according to established procedures to assure the operability of the water suppression, control valves, and alarms.

All fixed suppression systems at HNP are summarized by location, coverage, and type in section 7.0 of this report.

4.9 Standpipes and Hose Stations

Manual hose stations are strategically located throughout the interior of the plant so as to reach any location with an effective hose stream. The guidelines established in NFPA 14 were followed in the design and installation of the standpipe and hose station system. Each hose station is equipped with 75 ft of 1 ½-in. fire hose with a 1 ½-in. nozzle. Nozzles in the power block are non-shock, fog-type nozzles. Sufficient additional hose is available within the plant for use by the plant fire brigade to reach all areas from other than the nearest hose station, if required. Hose stations inside the plant are supplied by a minimum of a 4-in.-diameter standpipe for multiple hose stations and 2 ½-in.-diameter standpipes for single stations. Hose

outlets are provided with hose threads compatible with those used by the local fire departments in the event that outside assistance is required.

Standpipe risers are independently connected to the main fire protection water supply loop inside the turbine and reactor buildings. An isolation valve is provided where most standpipes connect to the inside main loop. Each standpipe is clearly marked for fire brigade use only.

Periodic tests and inspections of the standpipe and hose systems are conducted according to established procedures to assure system operability.

4.10 Portable Extinguishers

Portable fire extinguishers are located throughout all plant areas. The majority of extinguishers provided are of the CO₂ type with dry chemical and halon type extinguishers installed only where appropriate, with due consideration given to possible adverse effects on equipment located in the area. Periodic inspections and tests of portable extinguishers are conducted in accordance with established procedures to assure operability.

4.11 Gaseous Suppression Systems

Halon 1301 fire suppression systems are used at HNP in the records storage vault near the simulator building, and in the simulator area (including under the simulator subfloor) of the simulator building. A fire in these areas has no effect on the ability of the plant to be safely shut down.

Manually operated CO₂ hose reels are provided in each diesel building switchgear room.

Total flooding CO₂ suppression systems are provided in the cable spreading room, computer room, diesel generator rooms and diesel fuel storage rooms. The cable spreading and computer room systems are manually actuated and the Diesel Building systems are automatically actuated. Guidelines established by NFPA Standard No. 12 were used as general guidance in system design and installation with consideration given to sufficient design concentration and soak time.

In areas where deep seated Class A fires may be expected, fire fighting procedures call for a 15-min soak time of CO₂ to ensure fire extinguishment. Breathing apparatus are used for manually fighting fires after the soak time has elapsed, in areas where CO₂ is present.

Ventilation systems in these areas are designed with interlocking systems which isolate the room to prevent loss of fire extinguishing agent. Fan ducts are equipped with automatic gravity dampers. These dampers close when fans are deactivated and open by air movement from the fan when the fan is operating. The dampers also act as pressure relieving devices for the room, as they will open on 1-in. differential water pressure.

4.12 Emergency Lighting

Emergency lighting is provided to illuminate the areas containing equipment needed for normal and remote shutdown as well as the access and egress routes which must be taken to reach the necessary equipment. Emergency lighting consists of sealed beam units with 8-h emergency backup power supplies. Normal lighting in vital areas is also supplied by the emergency busses in order to facilitate safe shutdown and fire brigade operations. Sealed beam, battery powered hand lights have also been provided for emergency use. An exemption from the literal requirements of Appendix R for fixed emergency lighting in the yard areas has been requested as is documented in appendix C of this report.

4.13 Ventilation

The ventilation systems for the turbine buildings, control building, reactor buildings, and radwaste buildings are not designed to either remove smoke or isolate fires with the exception of the main control room, cable spreading room, and diesel generator building. These areas have fixed smoke removal capability.

The ventilation systems in the cable spreading room, computer room and Diesel Building engine and day tank rooms are also designed for CO₂ purge capability. Ventilation penetrations through rated fire barriers are provided with fire dampers designed to close at approximately 160°F, as noted in section 3.4 of this report.

Smoke removed from the cable spreading room or main control room will pass through the reactor building vent stack and will not affect the habitability of any other plant areas for operations personnel. The vent stack is equipped with radiation monitoring devices that will indicate any abnormal radiation levels.

The smoke ventilating capabilities of the main control room and cable spreading room exceed NFPA 204 requirements. The smoke and CO₂ purge rate for each diesel generator room also exceeds NFPA 204 and NFPA 12 requirements.

For other plant areas, portable smoke handling equipment has been provided. This equipment has sufficient capacity to remove smoke from a postulated fire and is conveniently located for use by members of the fire brigade who are trained in its use. At least three units of smoke handling equipment have been provided for each unit.

The mechanical ventilation systems were not designed with their power supplies and controls outside the areas served by the system, except in the diesel generator building. The design of the mechanical ventilation systems is such that, if a failure would occur, the item of equipment would fail to the safe position; thus, the routing of control and power cables outside the fire area was not justified.

Stairwells have fire doors that will minimize smoke infiltration during a fire. Stairwells and elevators in the control building are enclosed in masonry towers with 2-h fire ratings. Elevators will not be used during fire emergencies.

HNP-FHA-4

The fresh air supply intakes to areas containing safety-related equipment or systems are located away from the exhaust air outlets and smoke vents of other areas.

Self-contained breathing apparatus of the pressure demand type are available for both fire fighters and main control room personnel. The operating life of each breathing apparatus is approximately 30 min. An air compressor designed for the purpose of refilling the air cylinders on the emergency breathing apparatus has been provided in the protected area. In the event of a loss of offsite power, the air compressor can be moved and manually connected to emergency power via a special receptacle in the diesel generator building. A procedure is in place for operation of the compressor.

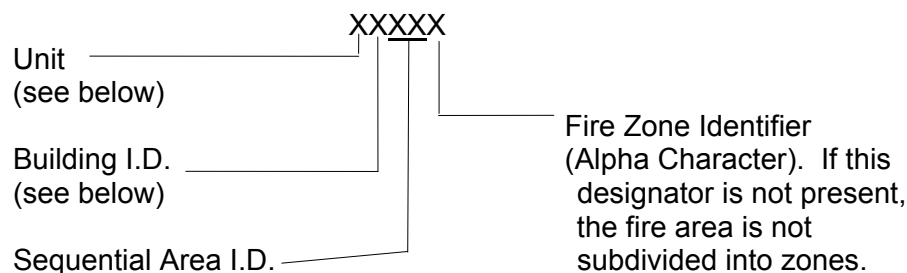
There is an adequate supply of emergency breathing apparatus on site with sufficient spare cylinders. Considering the number of personnel required for the fire brigade and for safe shutdown of the plant from the main control room, the emergency breathing equipment capacity exceeds 6 h.

5.0 FIRE AREA DATA SHEET EXPLANATORY NOTES

This section contains descriptions of the various parts that make up the Fire Hazard Analysis (FHA) data sheet contained in the detailed fire hazard analyses.

5.1 Fire Area/Zone

A fire area is defined as an area sufficiently bounded to withstand the hazards associated with the area and, as necessary, to protect important equipment within the area from a fire outside the area. A fire zone is that portion of a fire area that is best analyzed separately as a zone within a fire area due to its unique combustible loading or fire characteristics. A fire zone is a subset of a fire area. Each fire area/zone has an alphanumeric designator as follows:



Building I.D. Description

0	Control building
1	Turbine building
2	Reactor building
3	Radwaste and radwaste addition bldg.
4	Diesel building
5	Intake structure
6	Yard areas containing safe shutdown circuits or components, a significant radiological hazard, or safety-related equipment
7	Fire pump building
8	Miscellaneous

Unit Designation

0	Common areas
1	Unit 1
2	Unit 2

Each fire area or fire zone will have a data sheet and will be identified as being safety related or nonsafety related.

5.2 Description

Brief descriptions of the fire areas or zones are given as determined from plant drawings and walkdowns. The elevation is also determined from plant drawings.

5.3 Drawing Number(s)

The applicable FHA drawings for the fire areas or fire zones are listed.

5.4 Area

The floor areas were calculated using plant civil and structural drawings as a reference. Internal floor areas of stairwells are for only one elevation.

5.5 Combustibles

The combustibles in each fire area or zone are determined by a detailed review of drawings and equipment specifications, cable and raceway schedules, and a detailed physical survey of the plant. Combustible material is categorized by type as:

- Oil and grease.
- Cable (see subsection 3.5.2).
- Class A (wood-based products and cloth).
- Charcoal.
- Plastics.
- Miscellaneous (rubber, carpet, fiberglass ladders, solvents, etc.).
- Miscellaneous gases (bottled combustible gases).

Bottled gases and piped gases (hydrogen for generator cooling) are included in the combustible loading.

5.6 Design Basis Fire

The design basis fire (DBF) represents the complete combustion of all flammable materials in the area or zone and is expressed as a fire loading in Btu per square foot. This is an extremely conservative definition of the DBF, since it is based upon 40-percent cable tray fill volume or the actual tray fill, whichever is greater, plus the actual amount of other combustibles.

The fire loading for each fire area is calculated by the methodology described in section 3.0 of this report and by the FPDS (Fire Protection Data System) computer code supplied as an integral part of this report.

For the calculation of the heat released by the complete combustion of the cable insulation in each area, see section 3.0 of this report. In this analysis, cable routed in conduit is not

considered as a combustible and is not included in the calculation of the DBF. Cable which is wrapped with a 1-h or 3-h fire resistant barrier is also not included in the calculation of the design basis fire.

The maximum permissible fire loading is an administrative limit which defines the maximum fire loading which may be contained in the area or zone. The maximum fire loading value is based on an even distribution of the combustible materials within the fire area or zone and is determined using the methodology in section 3.0 of this report.

The maximum permissible fire loading value is based upon curve E from NFPA 251 as shown in figure 3-1.

The difference between the maximum permissible fire loading and the actual fire loading reflects the administrative amount of transient combustibles which may be allowed in the area or zone. Authorization by the manager-engineering support, upon recommendation of the plant fire protection staff, must be obtained prior to exceeding the maximum permissible fire loading.

The fire duration stated is the total burn time of the DBF determined by dividing the fire loading for the area or zone by 80,000 B/ft² which corresponds to a 1-h fire on the NFPA curves.

5.7 Fire Protection (Available)

The fire suppression and detection available in the fire area or zone is listed in tabular form in this section of the data sheet.

Suppression - The type of fixed suppression in the fire area or zone is noted.

Hose Stations - The type (H₂O, CO₂) of hose stations in the fire area or zone is noted.

Portable Extinguishers - The type of portable fire extinguishers is provided.

CO₂ - Carbon Dioxide

Dry Chem - Extinguisher suitable for fighting Class A, B, or C fires

Halon

Detectors - The type of detectors is indicated. FC is used to denote full area or zone coverage by detectors. PC indicates partial coverage. The portions of the area or zone equipped with partial coverage are described in the text section which follows each data sheet and on the figures depicting each fire area and zone.

5.8 Fire Resistance Rating (Construction)

5.8.1 Walls

The material of construction and the ratings for the area or zone boundaries are listed in an abbreviated format. The abbreviations used are as follows:

Materials:

- C - concrete (minimum 8-in. thickness)
- B - concrete block
- S - steel or sheet steel
- SR - sheetrock (gypsum board)
- H - PROMAT-H®

Ratings

- 3 - 3-h rated
- 2 - 2-h rated
- 1 - 1-h rated
- NR - Nonrated

An example of the format used on the data sheet is:

N,S,W-C/3;E-B/3,NR

This is interpreted as; north, south and west boundaries are constructed of concrete and are 3-h rated. The east wall is constructed of concrete block. A portion of this wall is 3-h rated and a portion is nonrated. The specifics of walls, which are partially rated or are constructed of more than one material, are provided in the text section.

5.8.2 Floors, Ceiling, or Roof

Only the material of construction is provided on the data sheet for floors and ceilings. Their ratings are discussed in the text section.

5.8.3 Fixed Openings

Openings such as hatches and open stairwells and openings in walls, floors, or ceilings are listed as fixed openings in the rated fire barriers. The following abbreviations are used:

Fixed Openings Legend

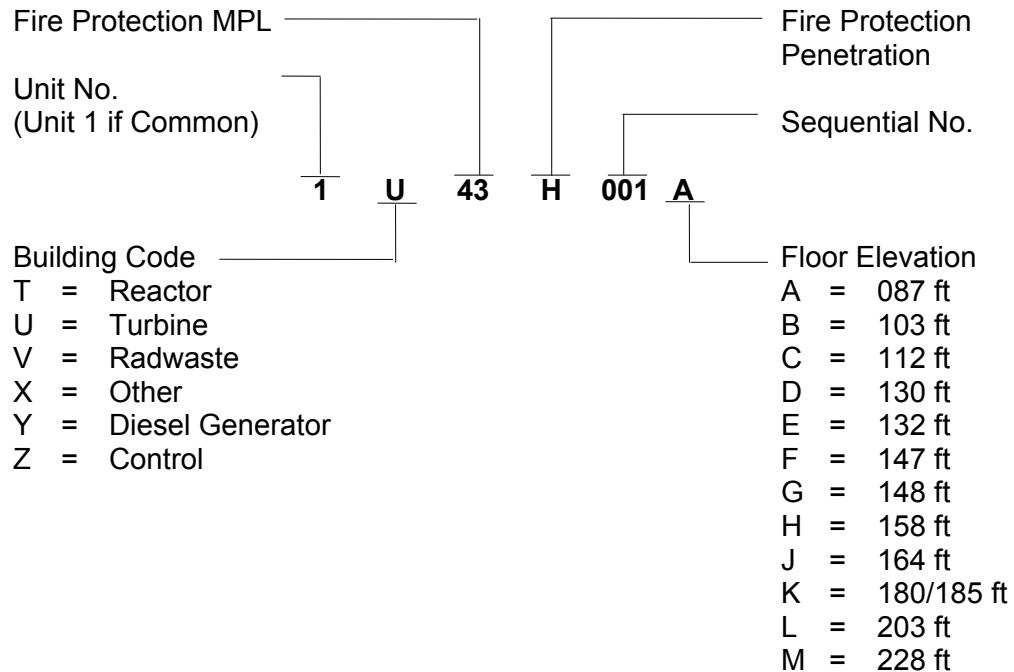
OS	=	open stairwell or ladder
OP	=	opening
OD	=	open doorway
CH	=	concrete hatch
OH	=	open or grated hatch
MH	=	metal hatch
SG	=	seismic gap
M	=	manhole
SD	=	smoke damper

The fire area or zone with which the fixed opening communicates is also listed. As an illustration, OH/1101 indicates an open hatch that communicates with fire area 1101.

5.8.4 Penetrations

Penetrations are addressed in the text for fire areas only. Penetrations, which are rated equal to or greater than the penetrated structure, are not specifically noted. Those penetrations that deviate from rating requirements or standard configurations in any way are evaluated under the criteria discussed in appendix I of this report.

Each penetration is assigned an alphanumeric designator that conforms to the following structure:



5.8.5 Doors

All of the doors that serve the area or zone are listed in the following manner: Fire-rated class area or zone number (I.D.). The following abbreviations are used for listings and class.

NR	=	nonrated door
L	=	nonrated, bullet-resistant door
A	=	Class A fire door (3-h fire-resistance rating)
B	=	Class B fire door (1 1/2-h fire-resistance rating)
C	=	Class C fire door (3/4-h fire-resistance rating)
W	=	Watertight door - nonrated
X	=	Class A equivalent fire door

For example, A/1104 indicates a Class A door to fire area 1104; WX/1005 indicates a nonrated, watertight door for which an exemption from the requirement for a Class A door has been granted.

6.0 REFERENCES

1. "Evaluation of the Hatch Nuclear Plant Fire Protection Program," Georgia Power Company, Amendment 9.
2. Edwin I. Hatch Safety Evaluation Report, Fire Protection Review Units 1 and 2, USNRC, October 4, 1978. (See Appendix C.)
3. "Response to 10CFR50.48 and Appendix R," Georgia Power Company, Amendment 3, June 17, 1983.
4. Impell Corporation Calculation No. 1380-027-C001, "Model Cable Calculation," Revision 1. (See Appendix L.)
5. Impell Corporation Calculation No. 1380-027-C004, "Combustible Value Calculation," Revision 0. (See Appendix L.)
6. Administrative Control Procedure, Fire Protection Program, Procedure Number 40AC-ENG-008-0S.
7. Title 10 to the Code of Federal Regulations, Section 50.48, "Fire Protection" and Appendix R, "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979."
8. Safety Evaluation Report, Exemption from 10CFR50 Appendix R, USNRC, April 18, 1984. (See Appendix C.)
9. Safety Evaluation Report, Appendix R to 10CFR50, USNRC, February 11, 1983. (See Appendix C.)
10. ASTM E-119, "Fire Test of Building Construction and Materials."
11. Fire Protection Handbook, Fifteenth Edition, National Fire Protection Association, 1981.
12. E.I. Hatch Nuclear Plant-Unit 1 Electrical Separation Criteria and Raceway and Cable Numbering System, Drawing No. A-17361, Revision 4.
13. E.I. Hatch Nuclear Plant-Unit 2 Electrical Separation Criteria and Raceway and Cable Numbering System, Drawing No. A-27001, Revision 7.
14. Generic Letter 86-10, "Implementation of Fire Protection Requirements," USNRC, April 24, 1986.
15. "Response to Application for Change to Facility Operating Licenses," USNRC, Amendments Nos. 133 and 70, November 24, 1986.
16. Safety Evaluation Report, Exemption from 10CFR50 Appendix R, USNRC, January 2, 1987. (See Appendix C.)
17. E.I. Hatch Nuclear Plant Safe Shutdown Analysis Report, Revision 2.

HNP-FHA-6

18. Edwin I. Hatch Nuclear Plant Unit No. 1 and 2 Fire Hazard Analysis Drawings:

Sheet Number

H-11801
H-11802
H-11804
H-11805
H-11806
H-11807
H-11811
H-11812
H-11814
H-11815
H-11816
H-11817
H-11818
H-11820
H-11821
H-11822
H-11823
H-11826
H-11827
H-11828
H-11829
H-11830
H-11831
H-11832
H-11833
H-11834
H-11835
H-11836
H-11837
H-11839
H-11840
H-11841
H-11842
H-11843
H-11844
H-11846
H-11847
H-11848
H-11850
H-11851
H-11852
H-11854
H-11855
H-11856
H-11857
H-11859
H-11860
H-11861

HNP-FHA-6

Sheet Number

H-11862

H-11863

Fire Suppression and Detection System SummaryLEGENDS

Suppression Zone System Type

CO ₂	Carbon Dioxide
DL	Deluge
DP	Dry Pipe
H	Halon
PA	Pre Action
WP	Wet Pipe
WS	Water Spray

Detection Zone System Type

DP	Dry Pilot
IS	Ionization Smoke
LT	Linear Thermal
PE	Photoelectric
PS	Pressure Switch
ST	Spot Thermal

Buildings

CAS	Central Alarm Station
CB	Control Building
CST	Condensate Storage Tank
DG	Diesel Generator Building
FPP	Fire Protection Pumphouse
IS	Intake Structure
LLR	Low Level Radwaste Building
OG	Offgas Building
RA	Radwaste Building Addition (U1)
RW	Radwaste Building
RX	Reactor Building
SB	Service Building
SIM	Simulator Building
TB	Turbine Building
WG	Waste Gas Building
YD	Yard Areas or Structures

Fire Suppression and Detection System Summary

0001	-----	Working Floor & Corridor	0CB	112	-----	-----	2Z43112D12	LT
	-----	Working Floor	0CB	112	1Z43130W12	WP	1Z43112D01	IS
	-----	Annunciator Logic Cabinet	1CB	112	-----	-----	1Z43112D07	IS
0002	0002A	Control Bldg Stairwell	1CB	All	-----	-----	-----	-----
	0002B	Control Bldg Freight Elev	1CB	All	-----	-----	-----	-----
0007	0007A	East Corridor	1CB	112	-----	-----	1Z43112D14	IS
	0007A	East Corridor	1CB	112	-----	-----	2Z43112D12	LT
	0007C	H.P. Cold Lab Storage Area	1CB	112	-----	-----	1Z43112D15	ST
	0007D	Respirator Room	1CB	112	-----	-----	1Z43112D15	IS
	0007E	H.P. Cold Lab Test Area	1CB	112	-----	-----	1Z43112D15	IS
	0007F	SCBA Room	1CB	112	-----	-----	-----	-----
0014	0014A	R.C. Lab	1CB	130	-----	-----	1Z43130D09	IS
	0014B	H.P. Hallway	1CB	130	-----	-----	1Z43130D09	IS
	0014C	H.P. Area Storage	1CB	130	-----	-----	1Z43130D09	IS
	0014D	H.P. Reference Area	1CB	130	-----	-----	1Z43130D09	IS
	0014E	H.P. Receiving Area	1CB	130	-----	-----	1Z43130D09	IS
	0014F	Decon Room and Shower	1CB	130	-----	-----	1Z43130D09	IS
	0014G	H.P. Counting Room	1CB	130	2Z43130W16	WS	1Z43130D09	IS
	0014H	Hot Lab	1CB	130	2Z43130W16	WS	1Z43130D09	IS
	0014I	H.P. Forman's Office	1CB	130	-----	-----	1Z43130D09	IS
	0014J	H.P. Office	1CB	130	-----	-----	1Z43130D09	IS
	0014K	North Corridor	1CB	130	1Z43130W01	WP	1Z43130D02	LT
	0014K	South Corridor	2CB	130	2Z43130W16	WP	2Z43130D17	LT
	0014K	North Corridor	1CB	130	-----	-----	1Z43130D09	IS
	0014L	HVAC Room	1CB	130	1Z43130W24	WS	-----	-----
	0014M	Men's Restroom	1CB	130	-----	-----	-----	-----
	0014N	Ladies' Restroom	1CB	130	-----	-----	-----	-----
0024	0024A	Unit 1 Cable Spreading Rm	1CB	147	1Z43147W02	PA	1Z43147D04	LT
	0024A	Unit 1 Cable Spreading Rm	2 CB	147	2Z43147W03	PA	1Z43147D04	LT
	0024A	Unit 1 Cable Spreading Rm	1 CB	147	1Z43147C05	C0 ₂	-----	-----
	0024B	Computer Room	1 CB	147	1Z43147C07	C0 ₂	1Z43147D06	IS
	0024C	Control Room	0 CB	164	-----	-----	1Z43164D01	IS
	0024C	Control Room Rest Rooms	0 CB	164	-----	-----	1Z43164D01	ST
	0024D	Control Room Entryway	0 CB	164	-----	-----	-----	-----
0025	-----	C0 ₂ Tank Room	1 CB	147	-----	-----	1Z43147D09	IS
0028	-----	LPCI Inverter Room	1 CB	147	-----	-----	1Z43147D08	IS
0031	-----	Ctrl Rm Roof - Fltr D004A	0CB	180	1Z43180W01	WS	No Number	ST
	-----	Ctrl Rm Roof - Fltr D004B	0CB	180	1Z43180W02	WS	No Number	ST
0040	-----	Vertical Cable Chase	0CB	130	1Z43130W12	WS	1Z43130D13	LT
0101	0101A	RFP Oil Conditioner	1TB	164	1Z43164W17	WS	No Number	DP

Fire Suppression and Detection System Summary

	0101A	U1 Turbine Bearing # 8	1TB	164	1U43164W15	WS	1U43164D16	ST
	0101A	Power Conversion Room	1TB	164	-----	-----	1U43164D23	IS
	0101A	PEECC Building	1TB	164	-----	-----	1U43164D21	IS
	0101B	U1 Turbine Bearing # 1	1TB	164	1U43164W01	WS	1U43164D02	ST
	0101B	U1 Turbine Bearing # 2	1TB	164	1U43164W03	WS	1U43164D04	ST
	0101B	U1 Turbine Bearing # 3	1TB	164	1U43164W05	WS	1U43164D06	ST
	0101B	U1 Turbine Bearing # 4	1TB	164	1U43164W07	WS	1U43164D08	ST
	0101B	U1 Turbine Bearing # 5	1TB	164	1U43164W09	WS	1U43164D10	ST
	0101B	U1 Turbine Bearing # 6	1TB	164	1U43164W11	WS	1U43164D12	ST
	0101B	U1 Turbine Bearing # 7	1TB	164	1U43164W13	WS	1U43164D14	ST
	0101C	U1 Reactor Feed Pump A	1TB	164	1U43164W19	WS	No Number	DP
	0101D	U1 Reactor Feed Pump B	1TB	164	1U43164W18	WS	No Number	DP
	0101E	E Ctrl Rm Entryway	1TB	164	-----	-----	-----	-----
	0101F	Ctrl Rm Break Area	1TB	164	-----	-----	1Z43164D02	ST
	0101G	Chart Storage Rm & Hall	1TB	164	-----	-----	1Z43164D02	ST
	0101H	Shift Clerk/Ops Supv Office	1TB	164	-----	-----	1Z43164D02	ST
	0101I	U2 Turbine Bearing # 1	2TB	164	2U43164W01	WS	2U43164D02	ST
	0101I	U2 Turbine Bearing # 2	2TB	164	2U43164W03	WS	2U43164D04	ST
	0101I	U2 Turbine Bearing # 3	2TB	164	2U43164W05	WS	2U43164D06	ST
	0101I	U2 Turbine Bearing # 4	2TB	164	2U43164W07	WS	2U43164D08	ST
	0101I	U2 Turbine Bearing # 5	2TB	164	2U43164W09	WS	2U43164D10	ST
	0101I	U2 Turbine Bearing # 6	2TB	164	2U43164W11	WS	2U43164D12	ST
	0101I	U2 Turbine Bearing # 7	2TB	164	2U43164W13	WS	2U43164D14	ST
	0101J	Main Turbine Deck Area	2TB	164	-----	-----	-----	-----
	0101J	U2 Turbine Bearing # 8	2TB	164	2U43164W15	WS	2U43164D16	ST
	0101J	PEECC Building	2TB	164	-----	-----	2U43164D21	IS
	0101J	Power Conversion Room	2TB	164	-----	-----	2U43164D23	IS
	0101K	U2 Reactor Feed Pump A	2TB	164	2U43164W17	WS	No Number	DP
	0101L	U2 Reactor Feed Pump B	2TB	164	2U43164W18	WS	No Number	DP
0201	0201A	Refueling Floor	1RX	228	-----	-----	-----	-----
	0201B	Refueling Floor	2RX	228	-----	-----	-----	-----
0401	-----	Diesel Bldg Hallway	DG	130	-----	-----	-----	-----
0501	-----	Intake Structure	IS	111	1Y43111W01	WS	1Y43111D02	ST
0601	0601A	Waste Gas Bldg Work Flr	WG	-----	-----	-----	-----	-----
	0601B	U1 WG Charcoal Absorber	WG	-----	-----	-----	-----	-----
	0601C	U2 WG Charcoal Absorber	WG	-----	-----	-----	-----	-----
0602	-----	Main Stack	YD	-----	-----	-----	-----	-----
0603	-----	Low Level Radwaste Bldg	LLR	-----	No Number	DP	-----	-----
0702	0702A	Water Pump Room	FPP	130	1X43130W13	WP	-----	-----
	0702B	West Fire Pump Room	FPP	130	1X43130W13	WP	-----	-----
0703	-----	Central Fire Pump Room	FPP	130	1X43130W13	WP	-----	-----
0704	-----	East Fire Pump Room	FPP	130	1X43130W13	WP	-----	-----

Fire Suppression and Detection System Summary

0801	-----	Main 500kv Auto-xfmr	YD	129	2X43129W03	WS	No Number	DP
	-----	500kv Duval White North	YD	129	2X43130W20	WS	No Number	DP
	-----	500kv Duval White Mid	YD	129	2X43130W21	WS	No Number	DP
	-----	500kv Duval White South	YD	129	2X43130W22	WS	No Number	DP
	-----	Substation SW House	YD	129	-----	-----	1X43127D01	IS
0802	-----	500kv Duval Black North	YD	132	2X43132W01	WS	No Number	DP
	-----	500kv Duval Black Mid	YD	132	2X43132W02	WS	No Number	DP
	-----	500kv Duval Black South	YD	132	2X43132W03	WS	No Number	DP
0803	-----	Main Meteorological Tower	YD	-----	-----	-----	-----	-----
0804	-----	Backup Met Tower	YD	-----	-----	-----	-----	-----
0805	-----	Chlorine Bldg	YD	130	-----	-----	-----	-----
0806	-----	TSC - Charcoal Filter	SB	130	No Number	WS	No Number	ST
0807	-----	EOF	SIM	-----	No Number	WP	No Number	PS
0808	-----	CAS Diesel Generator Bldg	CAS	130	1X43130W17	WP	-----	-----
	-----	CAS Computer	CAS	130	-----	-----	Safeguard	IS
0809	-----	Hydrogen/Oxygen Storage	YD	-----	-----	-----	-----	-----
0810	-----	Spent Fuel Storage Facility	YD	-----	-----	-----	-----	-----
1003	-----	Oil Storage Tank Room	1CB	112	1Z43112W02	DL	No Number	DP
1004	-----	Station Battery Room 1A	1CB	112	-----	-----	1Z43112D03	IS
1005	-----	Station Battery Room 1B	1CB	112	-----	-----	1Z43112D04	IS
1006	-----	U1 Water Analysis Room	1CB	112	-----	-----	-----	-----
1008	-----	U1 AC Inverter Room	1CB	112	-----	-----	1Z43112D05	IS
1009	-----	RPS Battery Room South	1CB	112	-----	-----	1Z43112D06	IS
1010	-----	RPS Battery Room North	1CB	112	-----	-----	1Z43112D06	IS
1013	-----	RPS MG Set Room	1CB	130	-----	-----	1Z43130D11	IS
1015	-----	Annunciator Room	1CB	130	-----	-----	1Z43130D10	IS
1016	-----	West 600v Swgr Room 1C	1CB	130	-----	-----	1Z43130D04	IS
1017	-----	East 600v Swgr Room 1D	1CB	130	-----	-----	1Z43130D05	IS
1018	-----	West DC Swgr Room 1A	1CB	130	-----	-----	1Z43130D06	IS

Fire Suppression and Detection System Summary

1019	-----	Transformer Room	1CB	130	-----	-----	1Z43130D07	IS
1020	-----	East DC Swgr Room 1B	1CB	130	-----	-----	1Z43130D08	IS
1023	-----	Oil Conditioning Room	1CB	130	1Z43130W03	WP	-----	-----
1101	1101A	Under Main Condenser	1TB	112	1U43112W02	PA	No Number	DP
	1101C	Condensate Pump Area	1TB	112	-----	-----	-----	-----
	1101D	SJAE Rooms	1TB	112	-----	-----	-----	-----
	1101E	Vacuum Pump Room	1TB	112	-----	-----	-----	-----
	1101F	Condensate Polishing Room	1TB	112	-----	-----	-----	-----
	1101G	RBCCW Room	1TB	112	-----	-----	-----	-----
	1101H	East Corridor	1TB	112	-----	-----	-----	-----
	1101I	West Cableway	1TB	112	1U43112W01	WP	-----	-----
	1101J	Work Flr - H ₂ Seal Oil Unit	1TB	130	1U43130W03	WS	No Number	DP
	1101J	Northwest Switchgear Area	1TB	130	-----	-----	1U43130D05	IS
	1101K	Main Condenser Area	1TB	130	1U43130W04	PA	No Number	DP
	1101M	NE MCC Area Mezzanine	1TB	147	-----	-----	1U43147D01	IS
	1101N	NW MCC Area Mezzanine	1TB	147	-----	-----	1U43147D03	IS
1102	-----	NW Stairwell	1TB	All	-----	-----	-----	-----
1103	-----	NE Stairwell	1TB	All	-----	-----	-----	-----
1104	-----	East Cableway	1TB	130	1U43130W01	WP	1U43130D02	IS
1105	-----	East Cableway Foyer	1TB	130	1U43130W01	WP	1U43130D02	IS
1201	-----	U1 Drywell and Torus	1RX	All	-----	-----	-----	-----
1203	1203A	S Torus East Water Curtain	1RX	087	1T43087W01	WP	1T43087D02	LT
	1203A	S Torus West Water Curtain	1RX	087	1T43087W03	WP	1T43087D04	LT
	1203B	SE Corner - RHR Pump Rm	1RX	087	1T43087W03	WP	1T43087D08	LT
	1203C	SW Corner - RCIC Room	1RX	087	1T43087W05	WP	-----	-----
	1203F	Work Flr - South CRD	1RX	130	-----	-----	1T43130D04	LT
	1203F	Work Flr - SE Corner	1RX	130	-----	-----	1T43130D05	IS
	1203F	Work Flr - E Wtr Curtain	1RX	130	1T43130W03	WP	1T43130D07	LT
	1203F	Work Flr - SW Wtr Curtain	1RX	130	1T43130W01	WP	1T43130D02	IS
	1203I	Stairwell	1RX	All	-----	-----	-----	-----
	1203K	Work Flr - S Wtr Curtain	1RX	158	1T43158W03	WP	1T43158D04	IS
	1203K	Recirc ASD "A" Area	1RX	158	1T43158W02	WP	-----	-----
	1203K	Recirc ASD "B" Area	1RX	158	1T43158W01	WP	-----	-----
1205	1205A	N Torus East Wtr Curtain	1RX	087	1T43087W01	WP	1T43087D02	LT
	1205A	N Torus West Wtr Curtain	1RX	087	1T43087W03	WP	1T43087D04	LT
	1205B	NE Corner - RHR Pmp Rm	1RX	087	-----	-----	1T43087D09	LT
	1205C	NW Corner Room	1RX	087	-----	-----	-----	-----
	1205F	Work Flr - North CRD	1RX	130	1T43130W06	WP	1T43130D09	LT
	1205F	Work Flr - NE Corner	1RX	130	-----	-----	1T43130D08	IS
	1205F	Work Flr - NW Corner	1RX	130	-----	-----	1T43130D10	IS

Fire Suppression and Detection System Summary

	1205F	Work Flr - E Wtr Curtain	1RX	130	1T43130W03	WP	1T43130D07	LT
	1205I	Work Flr - N Wtr Curtain	1RX	158	1T43158W03	WP	1T43158D04	IS
	1205L	RWCU Heat Exchgr Room	1RX	158	-----	-----	-----	-----
	1205M	Cleanup Phase Separators	1RX	158	-----	-----	-----	-----
	1205N	HVAC Rm S - Supp Sys 1	1RX	164	1T43164W01	PA	1T43164D02	LT
	1205N	HVAC Rm N - Supp Sys 2	1RX	164	1T43164W03	PA	1T43164D02	LT
	1205N	HVAC Rm - Filter D005	1RX	164	1T43164W04	WS	No Number	ST
	1205N	HVAC Rm - Filter D006	1RX	164	1T43164W05	WS	No Number	ST
	1205N	HVAC Rm - Filter D007	1RX	164	1T43164W06	WS	No Number	ST
	1205N	HVAC Rm - Filter D008	1RX	164	1T43164W07	WS	No Number	ST
	1205Q	STBY Gas Fitr Room	1RX	164	-----	-----	1T43164D02	LT
	1205Q	STBY Gas Fitr D001A-1	1RX	164	1T43164W08	WS	No Number	ST
	1205Q	STBY Gas Fitr D001A-2	1RX	164	1T43164W10	WS	No Number	ST
	1205Q	STBY Gas Fitr D001B-1	1RX	164	1T43164W09	WS	No Number	ST
	1205Q	STBY Gas Fitr D001B-2	1RX	164	1T43164W11	WS	No Number	ST
	1205R	Work Flr - North	1RX	185	-----	-----	-----	-----
	1205S	Work Flr - SE Wtr Curtain	1RX	185	1T43185W04	WP	-----	-----
	1205T	Filter Demin Room	1RX	185	-----	-----	-----	-----
	1205U	SW Corridor	1RX	185	1T43185W03	WP	-----	-----
	1205W	Rm South of Spent Fuel Pit	1RX	185	-----	-----	-----	-----
	1205X	Stack Monitoring Room	1RX	203	-----	-----	-----	-----
	1205Y	Work Flr	1RX	203	-----	-----	-----	-----
	1205Z	HPCI Pmp Rm Ceiling	1RX	087	1T43087W07	WP	-----	-----
	1205Z	HPCI Pmp Rm Wtr Curtain	1RX	087	1T43087W06	WS	-----	-----
	-----	-----	-----	-----	-----	-----	-----	-----
	-----	-----	-----	-----	-----	-----	-----	-----
1301	1301A	W Condensate Phase Sep	1RW	108	-----	-----	-----	-----
	1301B	E Condensate Phase Sep	1RW	108	-----	-----	-----	-----
	1301C	Waste Sludge/Resin Rms	1RW	108	-----	-----	-----	-----
	1301D	Chem Waste Collection Rm	1RW	108	-----	-----	-----	-----
	1301E	Waste Collector Tank Rm	1RW	108	-----	-----	-----	-----
	1301F	Waste Sludge/Sample Rm	1RW	108	-----	-----	-----	-----
	1301G	Working Floor	1RW	108	-----	-----	-----	-----
	1302H	Radwaste Control Room	1RW	132	-----	-----	1V43132D01	IS
	1301I	Chemical Treatment Room	1RW	132	-----	-----	-----	-----
	1301J	Working Floor	1RW	132	1V43132W02	DP	1V43132D03	IS
	1301K	RW Exh Filter Room D005	1RW	144	1V43144W01	WS	No Number	ST
	1301K	RW Exh Filter Room D006	1RW	144	1V43144W02	WS	No Number	ST
	1301L	Hopper B Room	1RW	144	-----	-----	-----	-----
	1301M	SE RW Bldg	1RW	144	-----	-----	-----	-----
	1301N	Hopper A Room	1RW	144	-----	-----	-----	-----
	1301P	Working Floor	1RW	156	-----	-----	-----	-----
	1301Q	Ventilation Room	1RW	156	-----	-----	-----	-----
	1301R	Centrifuge Room A	1RW	156	-----	-----	-----	-----
	1301S	Centrifuge Room B	1RW	156	-----	-----	-----	-----
1302	1302A	Concentrated RW Pmp Rm	1RA	108	-----	-----	-----	-----
	1302B	Chem Waste Tank Rm	1RA	108	-----	-----	-----	-----

Fire Suppression and Detection System Summary

	1302C	Chem Waste Sample Rm	1RA	108	-----	-----	-----	-----
	1302D	Concentrator Tank Rm	1RA	108	-----	-----	-----	-----
	1302E	Chem Waste Ntrl Pmp Rm	1RA	108	-----	-----	-----	-----
	1302F	Working Floor	1RA	132	-----	-----	-----	-----
	1302G	RW Concentrate Tank	1RA	132	-----	-----	-----	-----
	1302H	Floor Drain Sample Tank	1RA	132	-----	-----	-----	-----
	1302I	HVAC Rm	1RA	150	-----	-----	-----	-----
	1302J	Working Floor Filter D007	1RA	150	1V43150W01	WS	No Number	ST
	1302J	Working Floor Filter D008	1RA	150	1V43150W02	WS	No Number	ST
	1302K	Floor Drain Demin Room	1RA	150	-----	-----	-----	-----
	1302L	Solidification Area	1RA	132	-----	-----	-----	-----
1401	-----	Day Tank Room 1C	1DG	130	1X43130C04	CO ₂	No Number	ST
1402	-----	Battery Room 1C	1DG	130	-----	-----	1X43130C09	ST
1403	-----	DG Room 1C	1DG	130	1X43130C04	CO ₂	No Number	ST
1404	-----	Swgr Room 1G	1DG	130	-----	-----	1X43130C09	PS
1405	-----	Day Tank Room 1B	1DG	130	1X43130C03	CO ₂	No Number	ST
1406	-----	Battery Room 1B	1DG	130	-----	-----	1X43130C08	ST
1407	-----	DG Room 1B	1DG	130	1X43130C03	CO ₂	No Number	ST
1408	-----	Swgr Room 1F	1DG	130	-----	-----	1X43130C08	PS
1409	-----	Day Tank Room 1A	1DG	130	1X43130C02	CO ₂	No Number	ST
1410	-----	Battery Room 1A	1DG	130	-----	-----	1X43130C07	ST
1411	-----	DG Room 1A	1DG	130	1X43130C02	CO ₂	No Number	ST
1412	-----	Swgr Room 1E	1DG	130	-----	-----	1X43130C07	PS
1601	-----	Service Wtr Valve Pit 1A	YD	-----	-----	-----	-----	-----
1602	-----	Service Wtr Valve Pit 1B	YD	-----	-----	-----	-----	-----
1603	-----	Condensate Storage Tank	CST	130	-----	-----	-----	-----
1604	1604A	Railroad Airlock	1RX	130	-----	-----	-----	-----
	1604B	Nitrogen Storage Tank	YD	129	-----	-----	-----	-----
1605	-----	Circulating Wtr Pump Pit	YD	-----	-----	-----	-----	-----
1606	-----	U1 Main Transformer	YD	129	1X43129W01	WS	No Number	DP
	-----	Sta Serv Xfmr 1A & 1B	YD	129	1X43129W02	WS	No Number	DP
	-----	Startup Aux Xfmr 1C	YD	192	1X43129W03	WS	No Number	DP
	-----	Startup Aux Xfmr 1D	YD	192	1X43129W04	WS	No Number	DP

Fire Suppression and Detection System Summary

	-----	Excitation Transformer (PPT)	YD	129	1X43129W07	-----	No Number	DP
1608	1608A	Offgas Recomb Work Flrs	OG	130	-----	-----	1X43130D14	IS
	1608B	Offgas Preheater 1	OG	130	-----	-----	-----	-----
	1608C	Offgas Condenser	OG	130	-----	-----	-----	-----
	1608D	Offgas Preheater 2	OG	130	-----	-----	-----	-----
1609	-----	Turbine Filter D004	1RX	185	1T43185W01	WS	No Number	ST
	-----	Turbine Filter D005	1RX	185	1T43185W02	WS	No Number	ST
1610	-----	Diesel Oil Tank 1A	YD	130	-----	-----	-----	-----
1611	-----	Diesel Oil Tank 1B	YD	130	-----	-----	-----	-----
1612	-----	Diesel Oil Tank 1C	YD	130	-----	-----	-----	-----
1801	-----	C Twr 'A' Swgr Bldg 1A	YD	118	-----	-----	1W43118D05	IS
	-----	C Twr 'A' System 1A	YD	118	-----	-----	No Number	DP
	-----	C Twr 'A' System 1B	YD	118	-----	-----	No Number	DP
	-----	C Twr 'A' System 1C	YD	118	-----	-----	No Number	DP
	-----	C Twr 'A' System 1D	YD	118	-----	-----	No Number	DP
1802	-----	C Twr 'B' Swgr Bldg 1B	YD	118	-----	-----	1W43118D10	IS
	-----	C Twr 'B' System 1E	YD	118	-----	-----	No Number	DP
	-----	C Twr 'B' System 1F	YD	118	-----	-----	No Number	DP
	-----	C Twr 'B' System 1G	YD	118	-----	-----	No Number	DP
	-----	C Twr 'B' System 1H	YD	118	-----	-----	No Number	DP
1803	-----	C Twr 'C' Swgr Bldg 1C	YD	118	-----	-----	1W43118D15	IS
	-----	C Twr 'C' System 1J	YD	118	-----	-----	No Number	DP
	-----	C Twr 'C' System 1K	YD	118	-----	-----	No Number	DP
	-----	C Twr 'C' System 1L	YD	118	-----	-----	No Number	DP
	-----	C Twr 'C' System 1M	YD	118	-----	-----	No Number	DP
1804	-----	U1 Frisker Bldg	YD	130	-----	-----	-----	-----
1805	1805A	Instrument Calibration Rm	YD	130	-----	-----	-----	-----
	1805B	Respirator Decon Rm	YD	130	-----	-----	-----	-----
1806	-----	HVAC Chiller Bldg	YD	130	-----	-----	-----	-----
1807	-----	U1 Helper Cooling Tower	YD	118	-----	-----	-----	-----
2003	-----	Oil Storage Tank Room	2CB	112	2Z43112W13	DL	No Number	DP
2004	-----	Station Battery Room 2A	2CB	112	-----	-----	2Z43112D10	IS
2005	-----	Station Battery Room 2B	2CB	112	-----	-----	2Z43112D11	IS
2006	-----	Water Analysis Rm	2CB	112	-----	-----	-----	-----

Fire Suppression and Detection System Summary

2008	-----	U2 AC Inverter Room	2CB	112	-----	-----	2Z43112D08	IS
2009	-----	RPS Battery Room North	2CB	112	-----	-----	2Z43112D09	IS
2010	-----	RPS Battery Room South	2CB	112	-----	-----	2Z43112D09	IS
2013	-----	RPS MG Set Room	2CB	130	-----	-----	2Z42130D14	IS
2014	-----	U2 Swgr Access Hallway	2CB	130	-----	-----	2Z43130D17	LT
2015	-----	Annunciator Room	2CB	130	-----	-----	2Z43130D15	IS
2016	-----	West 600v Swgr Room 2C	2CB	130	-----	-----	2Z43130D18	IS
2017	-----	East 600v Swgr Room 2D	2CB	130	-----	-----	2Z43130D19	IS
2018	-----	West DC Swgr Room 2A	2CB	130	-----	-----	2Z43130D20	IS
2019	-----	Transformer Room	2CB	130	-----	-----	2Z43130D21	IS
2020	-----	East DC Swgr Room 2B	2CB	130	-----	-----	2Z43130D22	IS
2021	-----	Swgr Hallway Enclosure	2CB	130	-----	-----	2Z43130D17	PS
2023	-----	Oil Conditioning Room	2CB	130	2Z43130W23	DL	No Number	DP
2101	2101A	Under Main Condenser	2TB	112	2U43112W02	PA	No Number	DP
	2101C	Condensate Pump Area	2TB	112	-----	-----	-----	-----
	2101D	SJAE Rooms	2TB	112	-----	-----	-----	-----
	2101E	Vacuum Pump Room	2TB	112	-----	-----	-----	-----
	2101F	Condensate Polishing Room	2TB	112	-----	-----	-----	-----
	2101G	Offgas Recombiner	2TB	112	-----	-----	-----	-----
	2101H	East Corridor	2TB	112	-----	-----	-----	-----
	2101I	West Cableway	2TB	112	2U43112W01	WP	-----	-----
	2101J	Work Flr - H ₂ Seal Oil Unit	2TB	130	2U43130W03	WS	No Number	DP
	2101J	Northwest Switchgear Area	2TB	130	-----	-----	2U43130D05	IS
	2101K	Main Condenser Area	2TB	130	2U43130W04	PA	No Number	DP
	2101M	NE MCC Area Mezzanine	2TB	147	-----	-----	2U43147D03	IS
	2101N	NW MCC Area Mezzanine	2TB	147	-----	-----	2U43147D01	IS
2102	-----	SW Stairwell	2TB	All	-----	-----	-----	-----
2103	-----	SE Stairwell	2TB	All	-----	-----	-----	-----
2104	-----	East Cableway	2TB	130	2U43130W01	WP	2U43130D02	IS
	-----	E Cableway RFP Oil Cond	2TB	130	2U43130W06	WS	No Number	DP
2201	-----	U2 Drywell and Torus	2TB	All	-----	-----	-----	-----
2203	2203A	N Torus East Wtr Curtain	2RX	087	2T43087W03	WP	2T43087D04	LT
	2203A	N Torus West Wtr Curtain	2RX	087	2T43087W01	WP	2T43087D02	LT

Fire Suppression and Detection System Summary

	2203B	NE Corner - RHR Pmp Rm	2RX	087	-----	-----	2T43087D07	LT
	2203C	NW Corner - RCIC Room	2RX	087	2T43087W05	WP	-----	-----
	2203F	Work Flr - North CRD	2RX	130	2T43130W01	WP	2T43130D02	LT
	2203F	Work Flr - E Wtr Curtain	2RX	130	2T43130W03	WP	2T43130D05	IS
	2203F	Remote Shutdown Panel	2RX	130	-----	-----	2T43130D06	PE
	2203I	Stairwell	2RX	All	-----	-----	-----	-----
	2203K	Work Flr - N Wtr Curtain	2RX	158	2T43158W03	WP	2T43158D04	IS
2205	2205A	S Torus East Wtr Curtain	2RX	087	2T43087W03	WP	2T43087D04	LT
	2205A	S Torus West Wtr Curtain	2RX	087	2T43087W01	WP	2T43087D02	LT
	2205B	SE Corner - RHR Pmp Rm	2RX	087	-----	-----	2T43087D08	LT
	2205C	NW Corner - CRD Pmp Rm	2RX	087	-----	-----	-----	-----
	2205F	Work Flr - South CRD	2RX	130	-----	-----	2T43130D04	LT
	2205F	Work Flr - E Wtr Curtain	2RX	130	2T43130W03	WP	2T43130D05	IS
	2205H	Main Steam Pipe Chase	2RX	130	2T43130W01	WP	2T43130D02	LT
	2205H	Main Steam Pipe Chase	2RX	130	-----	-----	2T43130D04	LT
	2205I	Work Flr - S Wtr Curtain	2RX	158	2T43158W03	WP	2T43158D04	IS
	2205L	RWCU Ht Exchgr Room	2RX	158	-----	-----	-----	-----
	2205M	Cleanup Phase Separator	2RX	158	-----	-----	-----	-----
	2205N	Chiller Room	2RX	164	2T43164W01	PA	2T43164D02	IS
	2205Q	STBY Gas Filtr D001B	2RX	185	2T43185W03	WS	No Number	ST
	2205Q	STBY Gas Filtr D001A	2RX	185	2T43185W02	WS	No Number	ST
	2205R	Work Flr - South	2RX	185	-----	-----	-----	-----
	2205S	Work Flr - NE Wtr Curtain	2RX	185	2T43185W06	WP	-----	-----
	2205S	Work Flr - E Wtr Curtain	2RX	185	2T43185W04	WP	-----	-----
	2205T	HVAC Exh Filtr D005	2RX	185	2T43185W01	WS	No Number	ST
	2205U	SW Corridor	2RX	185	2T43185W05	WP	-----	-----
	2205V	TB Exh Filtr D004 - Demin	2RX	203	2T43203W01	WS	No Number	ST
	2205V	TB Exh Filtr D005 Rm	2RX	203	2T43203W02	WS	No Number	ST
	2205V	RX Exh Filtr D007 Rm	2RX	203	2T43203W03	WS	No Number	ST
	2205V	RX Exh Filtr D008 Rm	2RX	203	2T43203W04	WS	No Number	ST
	2205W	Rm North of Spent Fuel Pit	2RX	185	-----	-----	-----	-----
	2205X	Stack Monitoring Room	2RX	203	-----	-----	-----	-----
	2205Y	Work Flr	2RX	203	-----	-----	-----	-----
	2205Z	HPCI Pump Room	2RX	087	2T43087W06	WP	-----	-----
2210	-----	Recirc ASD Room A	2RX	158	2T43158W02	WP	-----	-----
2211	-----	Recirc ASD Room B	2RX	158	2T43158W01	WP	-----	-----
2301	2301A	Cond Sludge Mix Pmp Rm	2RW	103	-----	-----	-----	-----
	2301B	Condensate Phase Separator	2RW	103	-----	-----	-----	-----
	2301C	Oil Skimmer Room	2RW	103	-----	-----	-----	-----
	2301D	Flr Drain/Chem Waste Tank	2RW	103	-----	-----	-----	-----
	2301E	Decon Solution Pmp Tank	2RW	103	-----	-----	-----	-----
	2301F	Chem Waste/Neut Tk Pump	2RW	103	-----	-----	-----	-----
	2301G	Spent Resin Pmp & Tank	2RW	103	-----	-----	-----	-----
	2301H	Waste Sludge Phase Sep	2RW	103	-----	-----	-----	-----
	2301I	Waste Surge Tank Room	2RW	103	-----	-----	-----	-----
	2301J	Dry Waste Storage Area	2RW	132	2V43132W04	WP	-----	-----
	2301K	HVAC Room - Filtr D005	2RW	132	2V43132W03	WS	No Number	ST

Fire Suppression and Detection System Summary

	2301K	HVAC Room - Filtr D006	2RW	132	2V43132W02	WS	No Number	ST
	2301L	Solidification Area	2RW	132	-----	-----	-----	-----
	2301M	Conveyor Area	2RW	132	-----	-----	-----	-----
	2301N	Flr Drain & Waste Collector	2RW	132	-----	-----	-----	-----
	2301P	Steam Generator Room	2RW	132	-----	-----	-----	-----
	2301Q	Decon Solution Concentrate	2RW	132	-----	-----	-----	-----
	2301R	CCW Heat Exchgr Room	2RW	148	-----	-----	-----	-----
	2301S	Hopper A Room	2RW	148	-----	-----	-----	-----
	2301T	Hopper B Room	2RW	148	-----	-----	-----	-----
	2301U	Working Floor	2RW	164	-----	-----	-----	-----
	2301V	Radwaste Control Room	2RW	164	-----	-----	2V43164D01	IS
	2301W	Centrifuge Room A	2RW	164	-----	-----	-----	-----
	2301X	Centrifuge Room B	2RW	164	-----	-----	-----	-----
	2301Y	Chemical Treatment Room	2RW	164	-----	-----	-----	-----
	2301Z	Ventilation Room	2RW	178	-----	-----	-----	-----
2401	-----	Day Tank Room 2A	2DG	130	2X43130C05	CO ₂	No Number	ST
2402	-----	Battery Room 2A	2DG	130	-----	-----	2X43130D11	ST
2403	-----	DG Room 2A	2DG	130	2X43130C05	CO ₂	No Number	ST
2404	-----	Swgr Room 2E	2DG	130	-----	-----	2X43130D10	PS
2405	-----	Day Tank Room 2C	2DG	130	2X43130C06	CO ₂	No Number	ST
2406	-----	Battery Room 2C	2DG	130	-----	-----	2X43130D12	ST
2407	-----	DG Room 2C	2DG	130	2X43130C06	CO ₂	No Number	ST
2408	-----	Swgr Room 2F	2DG	130	-----	-----	2X43130D11	PS
2409	-----	Swgr Room 2G	2DG	130	-----	-----	2X43130D12	PS
2601	-----	Service Wtr Valve Pit 2A	YD	-----	-----	-----	-----	-----
2602	-----	Service Wtr Valve Pit 2B	YD	-----	-----	-----	-----	-----
2603	-----	Condensate Storage Tank	CST	130	-----	-----	-----	-----
2604	-----	Hot Machine Shop/N ₂ Tank	YD	130	-----	-----	2X43130D19	IS
2605	-----	Circulating Wtr Pump Pit	YD	-----	-----	-----	-----	-----
2606	-----	U2 Main Transformer	YD	129	2X43129W01	WS	No Number	DP
	-----	Aux Transformer 2A & 2B	YD	129	2X43129W02	WS	No Number	DP
	-----	Excitation Transformer (PPT)	YD	129	2X43129W08	WS	No Number	DP
2607	-----	U2 RW Dilution Valve Pit	YD	-----	-----	-----	-----	-----
2608	-----	Startup Aux Xfmr 2C	YD	129	2X43129W05	WS	No Number	DP

Fire Suppression and Detection System Summary

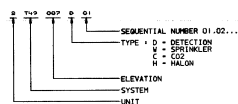
	-----	Startup Aux Xfmr 2D	YD	129	2X43129W06	WS	No Number	DP
2610	-----	Diesel Oil Tank 2A	YD	130	-----	-----	-----	-----
2612	-----	Diesel Oil Tank 2C	YD	130	-----	-----	-----	-----
2801	-----	Cooling Twr Swgr Bldg 4	YD	118	-----	-----	2W43118D16	IS
2802	-----	Cooling Twr Swgr Bldg 5	YD	118	-----	-----	2W43118D17	IS
2803	-----	Cooling Twr Swgr Bldg 6	YD	118	-----	-----	2W43118D18	IS
2804	-----	U2 Frisker Bldg	YD	130	-----	-----	-----	-----
2807	-----	U2 Helper Cooling Tower	YD	118	-----	-----	-----	-----

8.0 Fire Hazard Analysis Figures

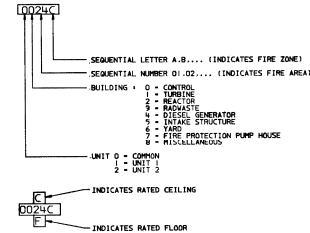
LEGEND:

- ① 9-HOUR FIRE DOOR
② 1.5-HOUR FIRE DOOR
③ 0.75-HOUR FIRE DOOR
★ CONTROL STATION
④ SMOKE DETECTOR
⑤ SMOKE DETECTOR (ON SUSPENDED CEILING)
⑥ SMOKE DETECTOR (UNDER PLATFORM)
⑦ SMOKE DETECTOR (ABOVE CEILING)
⑧ SMOKE DETECTOR (DUCT)
~~~~~ LINEAR THERMAL DETECTION WIRE  
● GASEOUS DETECTOR  
⑨ HEAT DETECTOR  
⑩ WET PIPE SPRINKLER SYSTEM  
⑪ DRY SPRINKLER SYSTEM  
⑫ PNE. ACTION SPRINKLER SYSTEM  
⑬ DELUGE SYSTEM  
⑭ CARBON DIOXIDE SYSTEM  
⑮ HALON SYSTEM  
⑯ DRY SPRINKLER SYSTEM (N.A.S.)  
⑰ DELUGE SYSTEM (N.A.S.)
- HOSE STATION (CHARGED STANDPIPE)  
▲ CARBON DIOXIDE EXTINGUISHER (PORTABLE)  
▲ DRY CHEMICAL EXTINGUISHER (A.B.C.) (PORTABLE)  
▲ HALON EXTINGUISHER (PORTABLE)  
● CARBON DIOXIDE HOSE REEL  
———— 9-HOUR FIRE WALL  
———— 2-HOUR FIRE WALL  
———— 1-HOUR FIRE WALL  
- - - - - FIRE AREA BOUNDARY  
- - - - - FIRE ZONE BOUNDARY  
- - - - - DETECTION SYSTEM BOUNDARIES  
- - - - - SUPPRESSION SYSTEM BOUNDARIES  
// // // // // SUPPRESSION SHADING

## TYPICAL MULTILEVEL ZONE NUMBERING SYSTEM



## FIRE AREA/FIRE ZONE NUMBERING SYSTEM

CAD  
AUTOCAD H118010

## FHA DOCUMENT

Southern Company Services, Inc. nsc

Georgia Power Company, Atlanta, Ga.

General Engineering Department

| REVISION | DATE     | BY          | CHKD     | APP'D    | DESCRIPTION                                                                         |
|----------|----------|-------------|----------|----------|-------------------------------------------------------------------------------------|
| 1        | 12-12-98 | R.P. MILLER | 12-12-98 | 12-12-98 | ADDED SYMBOL FOR HALON EXTINGUISHER TO LEGEND PER VCN 86-292-01                     |
| 2        | 12-12-98 | R.P. MILLER | 12-12-98 | 12-12-98 | ADDED SYMBOL FOR CARBON DIOXIDE EXTINGUISHER TO LEGEND PER VCN 86-292-01            |
| 3        | 12-12-98 | R.P. MILLER | 12-12-98 | 12-12-98 | ADDED SYMBOL FOR CARBON DIOXIDE HOSE REEL TO LEGEND PER VCN 86-292-01               |
| 4        | 12-12-98 | R.P. MILLER | 12-12-98 | 12-12-98 | ADDED SYMBOL FOR CARBON DIOXIDE EXTINGUISHER (PORTABLE) TO LEGEND PER VCN 86-292-01 |
| 5        | 12-12-98 | R.P. MILLER | 12-12-98 | 12-12-98 | ADDED SYMBOL FOR CARBON DIOXIDE EXTINGUISHER (PORTABLE) TO LEGEND PER VCN 86-292-01 |
| 6        | 12-12-98 | R.P. MILLER | 12-12-98 | 12-12-98 | ADDED SYMBOL FOR CARBON DIOXIDE EXTINGUISHER (PORTABLE) TO LEGEND PER VCN 86-292-01 |
| 7        | 12-12-98 | R.P. MILLER | 12-12-98 | 12-12-98 | ADDED SYMBOL FOR CARBON DIOXIDE EXTINGUISHER (PORTABLE) TO LEGEND PER VCN 86-292-01 |
| 8        | 12-12-98 | R.P. MILLER | 12-12-98 | 12-12-98 | ADDED SYMBOL FOR CARBON DIOXIDE EXTINGUISHER (PORTABLE) TO LEGEND PER VCN 86-292-01 |
| 9        | 12-12-98 | R.P. MILLER | 12-12-98 | 12-12-98 | ADDED SYMBOL FOR CARBON DIOXIDE EXTINGUISHER (PORTABLE) TO LEGEND PER VCN 86-292-01 |
| 10       | 12-12-98 | R.P. MILLER | 12-12-98 | 12-12-98 | ADDED SYMBOL FOR CARBON DIOXIDE EXTINGUISHER (PORTABLE) TO LEGEND PER VCN 86-292-01 |
| 11       | 12-12-98 | R.P. MILLER | 12-12-98 | 12-12-98 | ADDED SYMBOL FOR CARBON DIOXIDE EXTINGUISHER (PORTABLE) TO LEGEND PER VCN 86-292-01 |
| 12       | 12-12-98 | R.P. MILLER | 12-12-98 | 12-12-98 | ADDED SYMBOL FOR CARBON DIOXIDE EXTINGUISHER (PORTABLE) TO LEGEND PER VCN 86-292-01 |
| 13       | 12-12-98 | R.P. MILLER | 12-12-98 | 12-12-98 | ADDED SYMBOL FOR CARBON DIOXIDE EXTINGUISHER (PORTABLE) TO LEGEND PER VCN 86-292-01 |
| 14       | 12-12-98 | R.P. MILLER | 12-12-98 | 12-12-98 | ADDED SYMBOL FOR CARBON DIOXIDE EXTINGUISHER (PORTABLE) TO LEGEND PER VCN 86-292-01 |
| 15       | 12-12-98 | R.P. MILLER | 12-12-98 | 12-12-98 | ADDED SYMBOL FOR CARBON DIOXIDE EXTINGUISHER (PORTABLE) TO LEGEND PER VCN 86-292-01 |
| 16       | 12-12-98 | R.P. MILLER | 12-12-98 | 12-12-98 | ADDED SYMBOL FOR CARBON DIOXIDE EXTINGUISHER (PORTABLE) TO LEGEND PER VCN 86-292-01 |
| 17       | 12-12-98 | R.P. MILLER | 12-12-98 | 12-12-98 | ADDED SYMBOL FOR CARBON DIOXIDE EXTINGUISHER (PORTABLE) TO LEGEND PER VCN 86-292-01 |
| 18       | 12-12-98 | R.P. MILLER | 12-12-98 | 12-12-98 | ADDED SYMBOL FOR CARBON DIOXIDE EXTINGUISHER (PORTABLE) TO LEGEND PER VCN 86-292-01 |
| 19       | 12-12-98 | R.P. MILLER | 12-12-98 | 12-12-98 | ADDED SYMBOL FOR CARBON DIOXIDE EXTINGUISHER (PORTABLE) TO LEGEND PER VCN 86-292-01 |

SWIN 1 NATCH NUCLEAR PLANT UNIT NO. 1 &amp; 2

FHA HAZARD ANALYSIS

SYMBOL LEGEND

SYMBOL

SYMBOL

SYMBOL

SYMBOL

SYMBOL

SYMBOL

SYMBOL

SYMBOL

SYMBOL

SYMBOL

SYMBOL

SYMBOL

SYMBOL

SYMBOL

SYMBOL

SYMBOL

SYMBOL

SYMBOL

SYMBOL

SYMBOL

SYMBOL

SYMBOL

SYMBOL

SYMBOL

SYMBOL

SYMBOL

SYMBOL

SYMBOL

SYMBOL

SYMBOL

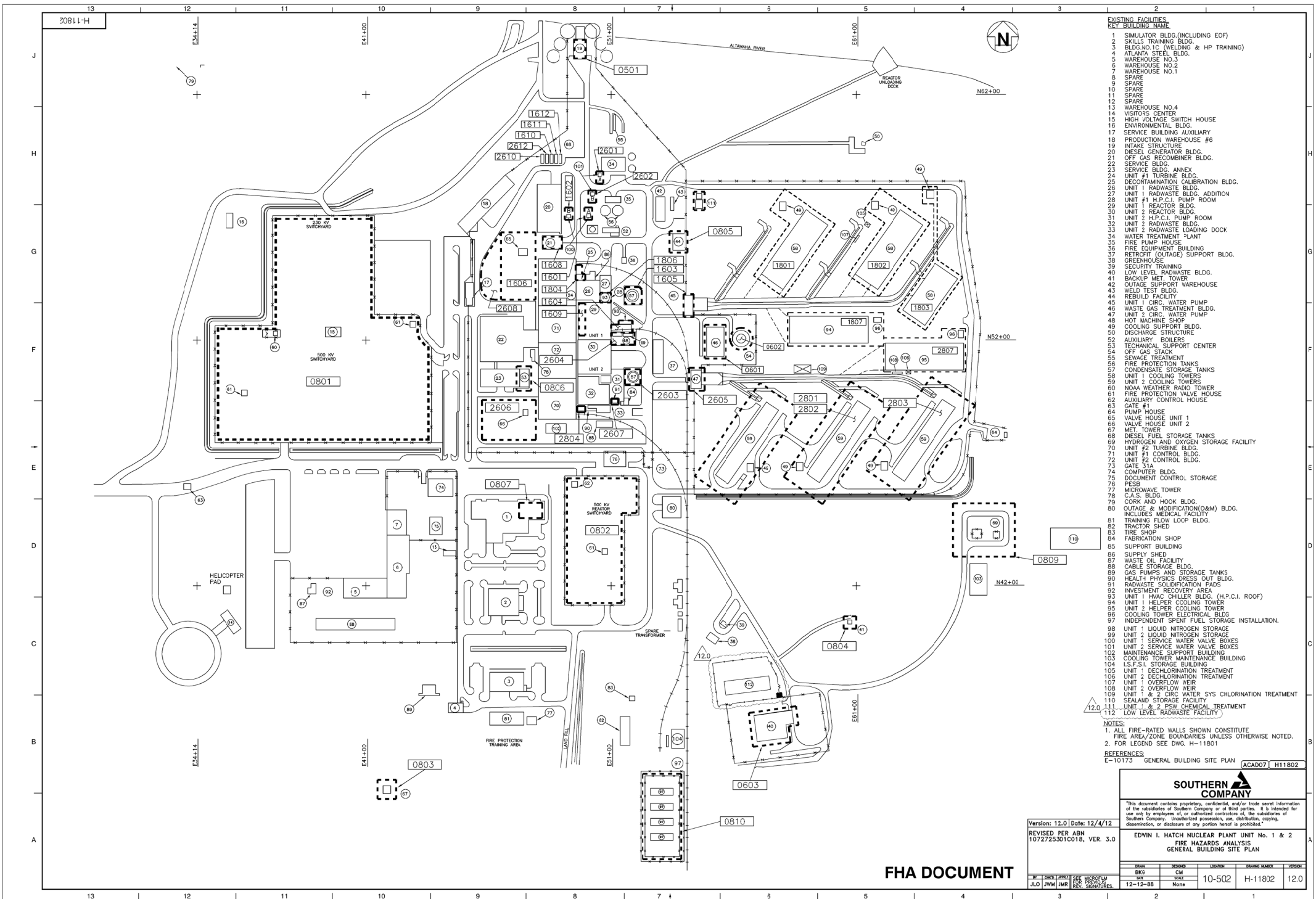
SYMBOL

SYMBOL

SYMBOL

SYMBOL





- EXISTING FACILITIES  
KEY BUILDING NAME
- 1 SIMULATOR BLDG. (INCLUDING EOP)
  - 2 SKILLS TRAINING BLDG.
  - 3 BLDG. NO. 1C (WELDING & HP TRAINING)
  - 4 ATLANTA STEEL BLDG.
  - 5 WAREHOUSE NO. 3
  - 6 WAREHOUSE NO. 2
  - 7 WAREHOUSE NO. 1
  - 8 SPARE
  - 9 SPARE
  - 10 SPARE
  - 11 SPARE
  - 12 SPARE
  - 13 WAREHOUSE NO. 4
  - 14 VISITORS CENTER
  - 15 HIGH VOLTAGE SWITCH HOUSE
  - 16 ENVIRONMENTAL BLDG.
  - 17 SERVICE BUILDING AUXILIARY
  - 18 PRODUCTION WAREHOUSE #6
  - 19 INTAKE STRUCTURE
  - 20 DIESEL GENERATOR BLDG.
  - 21 OFF GAS RECOMBINER BLDG.
  - 22 SERVICE BLDG.
  - 23 SERVICE BLDG. ANNEX
  - 24 UNIT #1 TURBINE BLDG.
  - 25 DECONTAMINATION CALIBRATION BLDG.
  - 26 UNIT 1 RADWASTE BLDG.
  - 27 UNIT 1 RADWASTE BLDG. ADDITION
  - 28 UNIT 1 H.P.C.I. PUMP ROOM
  - 29 UNIT 1 REACTOR BLDG.
  - 30 UNIT 2 REACTOR BLDG.
  - 31 UNIT 2 H.P.C.I. PUMP ROOM
  - 32 UNIT 2 RADWASTE BLDG.
  - 33 UNIT 2 RADWASTE LOADING DOCK
  - 34 WATER TREATMENT PLANT
  - 35 FIRE PUMP HOUSE
  - 36 FIRE EQUIPMENT BUILDING
  - 37 RETROFIT (OUTAGE) SUPPORT BLDG.
  - 38 GREENHOUSE
  - 39 SECURITY TRAINING
  - 40 LOW LEVEL RADWASTE BLDG.
  - 41 BACKUP MET. TOWER
  - 42 OUTAGE SUPPORT WAREHOUSE
  - 43 WELD TEST BLDG.
  - 44 REBUILD FACILITY
  - 45 UNIT 1 CIRC. WATER PUMP
  - 46 WASTE GAS TREATMENT BLDG.
  - 47 UNIT 1 CIRC. WATER PUMP
  - 48 HOT MACHINE SHOP
  - 49 COOLING SUPPORT BLDG.
  - 50 DISCHARGE STRUCTURE
  - 52 AUXILIARY BOILERS
  - 53 TECHNICAL SUPPORT CENTER
  - 54 OFF GAS STACK
  - 55 SEWAGE TREATMENT
  - 56 FIRE PROTECTION TANKS
  - 57 CONDENSATE STORAGE TANKS
  - 58 UNIT 1 COOLING TOWERS
  - 59 UNIT 2 COOLING TOWERS
  - 60 NOAA WEATHER RADIO TOWER
  - 61 FIRE PROTECTION VALVE HOUSE
  - 62 AUXILIARY CONTROL HOUSE
  - 63 GATE #1
  - 64 PUMP HOUSE
  - 65 VALVE HOUSE UNIT 1
  - 66 VALVE HOUSE UNIT 2
  - 67 MET. TOWER
  - 68 DIESEL FUEL STORAGE TANKS
  - 69 HYDROGEN AND OXYGEN STORAGE FACILITY
  - 70 UNIT #2 TURBINE BLDG.
  - 71 UNIT #1 CONTROL BLDG.
  - 72 UNIT #2 CONTROL BLDG.
  - 73 GATE #2
  - 74 COMPUTER BLDG.
  - 75 DOCUMENT CONTROL STORAGE
  - 76 PEST
  - 77 MICROWAVE TOWER
  - 78 C.A.S. BLDG.
  - 79 CORK AND HOOK BLDG.
  - 80 OUTAGE & MODIFICATION (O&M) BLDG.
  - 81 INCLUDES MEDICAL FACILITY
  - 82 TRAINING FLOW LOOP BLDG.
  - 83 TRACTOR SHED
  - 84 TIRE SHOP
  - 85 FABRICATION SHOP
  - 86 SUPPORT BUILDING
  - 87 SUPPLY SHED
  - 88 WASTE OIL FACILITY
  - 89 CABLE STORAGE BLDG.
  - 90 GAS PUMPS AND STORAGE TANKS
  - 91 HEALTH PHYSICS DRESS-OUT BLDG.
  - 92 RADWASTE SOLIDIFICATION PADS
  - 93 INVESTMENT RECOVERY AREA
  - 94 UNIT 1 HVAC CHILLER BLDG. (H.P.C.I. ROOF)
  - 95 UNIT 1 HELPER COOLING TOWER
  - 96 COOLING TOWER ELECTRICAL BLDG.
  - 97 INDEPENDENT SPENT FUEL STORAGE INSTALLATION.
  - 98 UNIT 1 LIQUID NITROGEN STORAGE
  - 99 UNIT 2 LIQUID NITROGEN STORAGE
  - 100 UNIT 1 SERVICE WATER VALVE BOXES
  - 101 UNIT 2 SERVICE WATER VALVE BOXES
  - 102 MAINTENANCE SUPPORT BUILDING
  - 103 COOLING TOWER MAINTENANCE BUILDING
  - 104 I.S.F.S.I. STORAGE BUILDING
  - 105 UNIT 1 DECHLORINATION TREATMENT
  - 106 UNIT 2 DECHLORINATION TREATMENT
  - 107 UNIT 1 OVERFLOW WEIR
  - 108 UNIT 2 OVERFLOW WEIR
  - 109 UNIT 1 & 2 CIRC. WATER SYS. CHLORINATION TREATMENT
  - 110 SEALAND STORAGE FACILITY
  - 111 UNIT 1 & 2 PSW CHEMICAL TREATMENT
  - 112 LOW LEVEL RADWASTE FACILITY

NOTES:  
1. ALL FIRE-RATED WALLS SHOWN CONSTITUTE FIRE AREA/ZONE BOUNDARIES UNLESS OTHERWISE NOTED.  
2. FOR LEGEND SEE DWG. H-11801

REFERENCES:  
E-10173 GENERAL BUILDING SITE PLAN ACAD07 H11802



"This document contains proprietary, confidential, and/or trade secret information of the subsidiaries of Southern Company or of third parties. It is intended for use only by employees of, or authorized contractors of, the subsidiaries of Southern Company. Unauthorized possession, use, distribution, copying, dissemination, or disclosure of any portion hereof is prohibited."

Version: 12.0 Date: 12/4/12  
REVISED PER ABN 1072725301C018, VER. 3.0

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 1 & 2  
FIRE HAZARDS ANALYSIS  
GENERAL BUILDING SITE PLAN

| NAME | REVISION | LOCATION | REVISION NUMBER | REVISION |
|------|----------|----------|-----------------|----------|
| SKD  | CH       |          |                 |          |
| SKD  | SKD      |          |                 |          |
| BY   | DATE     | APPROVED | DATE            | APPROVED |
| JLD  | 12-12-88 | JWM      | 12-12-88        | JWM      |

FHA DOCUMENT





































































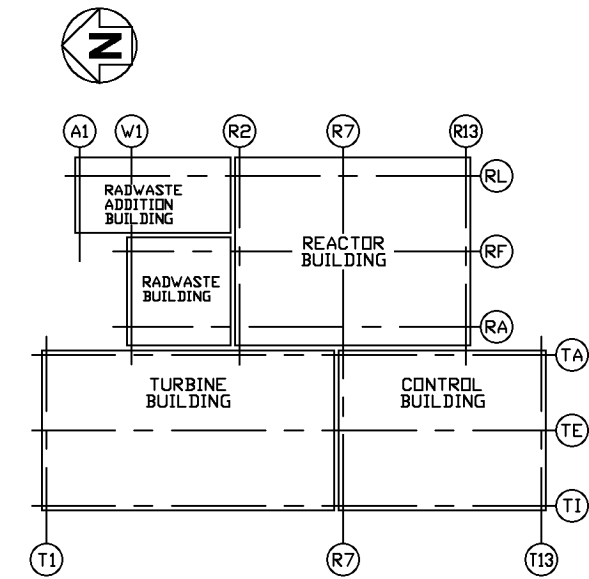
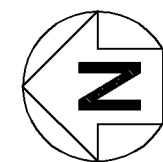




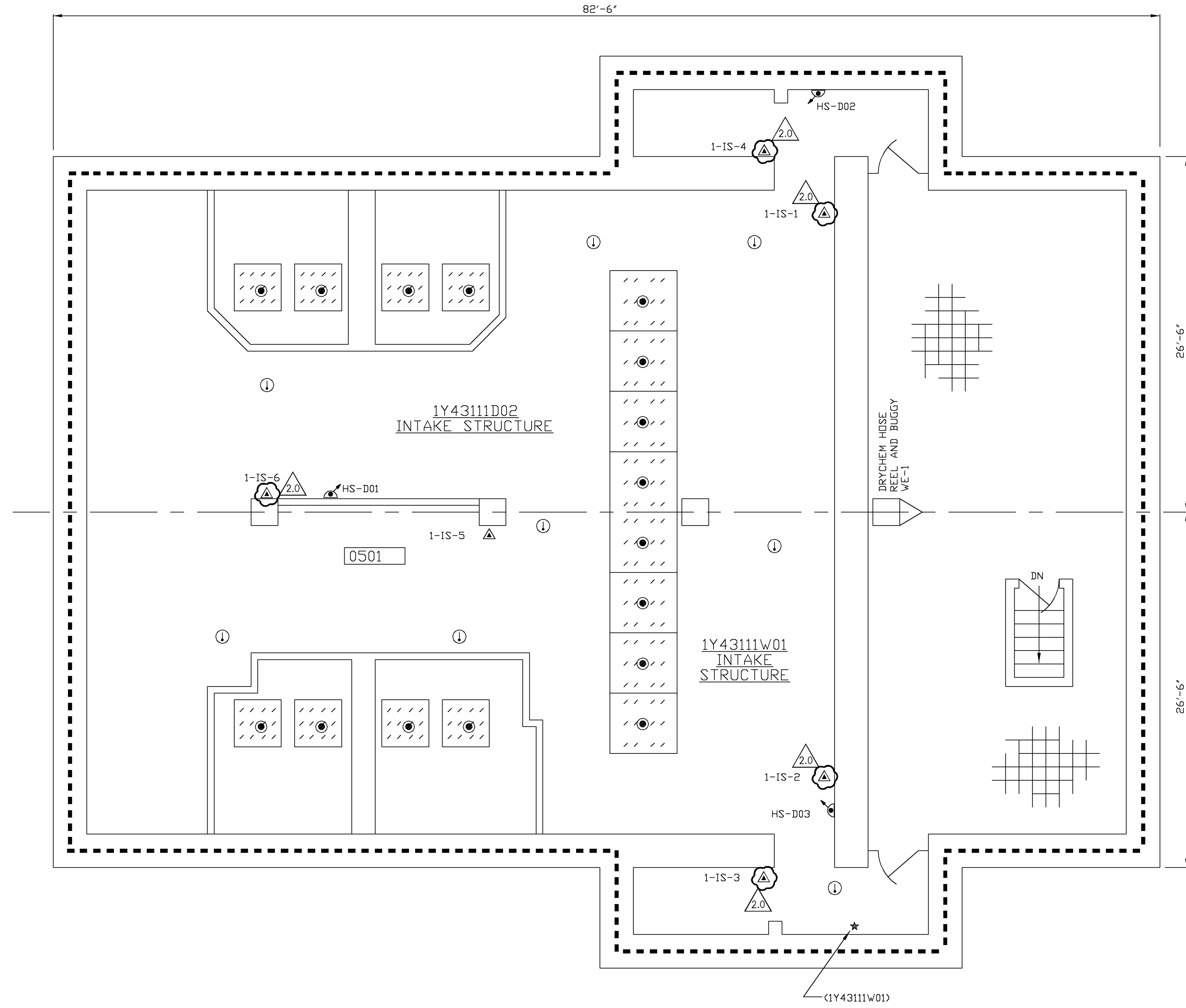




H-11847



NOTES:  
1. FOR LEGEND SEE DWG. H-11801  
2. FOR GENERAL NOTES SEE DWG. H-11802



EL. 111'-0" AND BELOW

FHA DOCUMENT

ACAD2K H1184701

**SOUTHERN  
COMPANY**

"This document contains proprietary, confidential, and/or trade secret information of the subsidiaries of Southern Company or of third parties. It is intended for use only by employees of, or authorized contractors of, the subsidiaries of Southern Company. Unauthorized possession, use, distribution, copying, dissemination, or disclosure of any portion hereof is prohibited."

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 1 & 2  
FIRE HAZARDS ANALYSIS  
INTAKE STRUCTURE

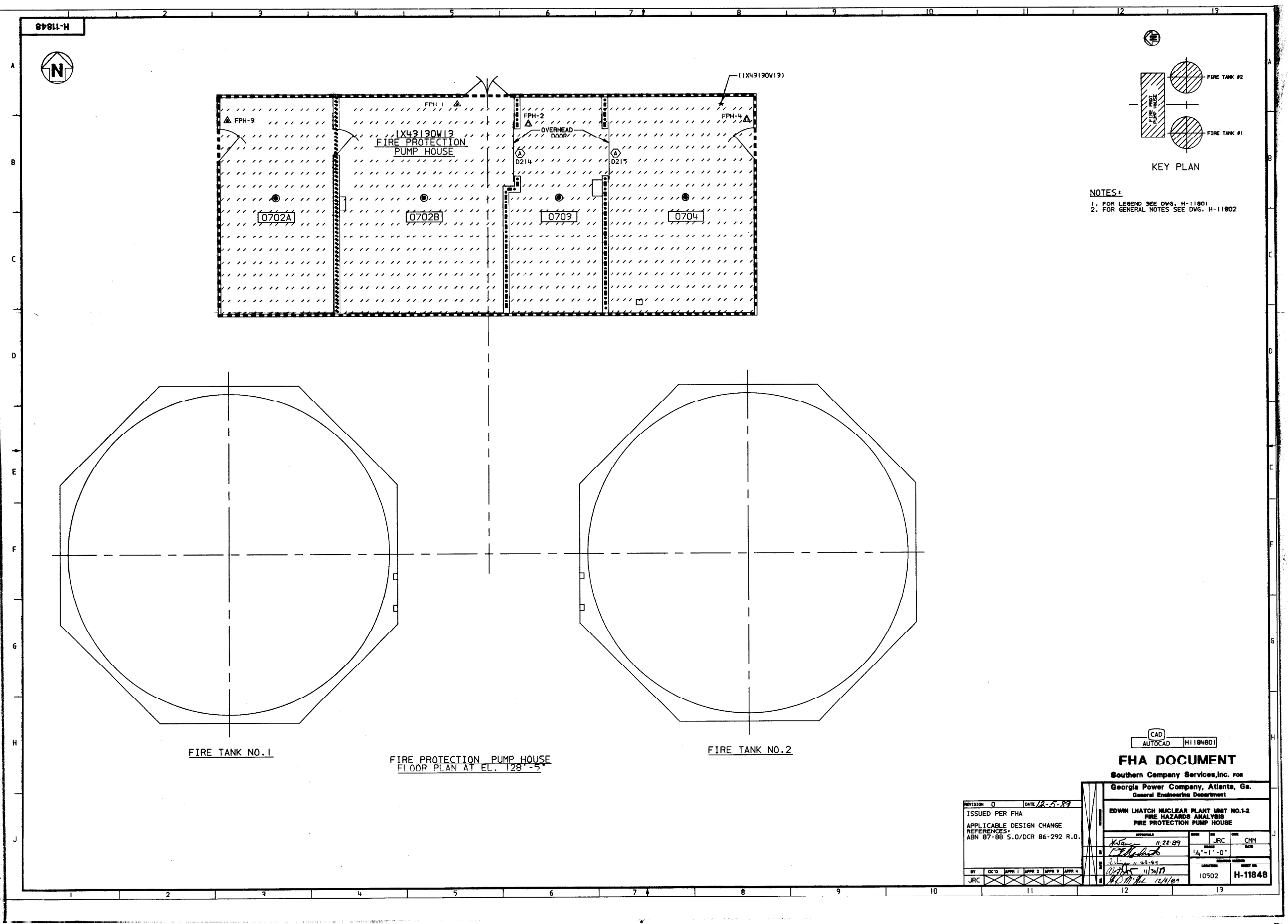
Version: 2.0 Date: 2-10-12

REVISED PER  
ABN-H02609, VER.1.0

BY: BgT  
CHKD: RAW  
APPD: AAN  
SEE MICROFILM FOR PREVIOUS REV. SIGNATURES.

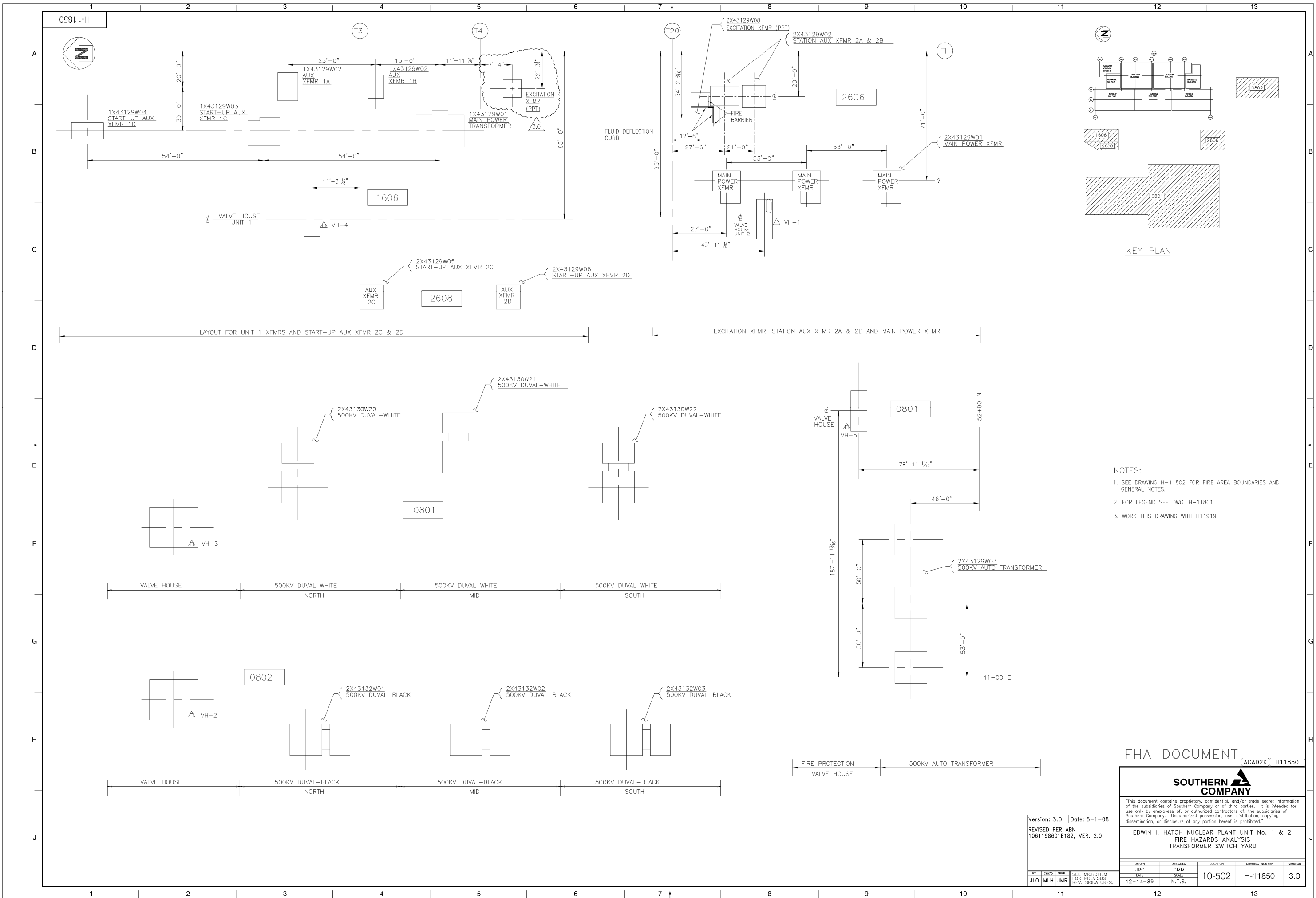
DESIGNED: JRC  
DATE: 11-17-89  
SCALE: 1/8"=1'-0"

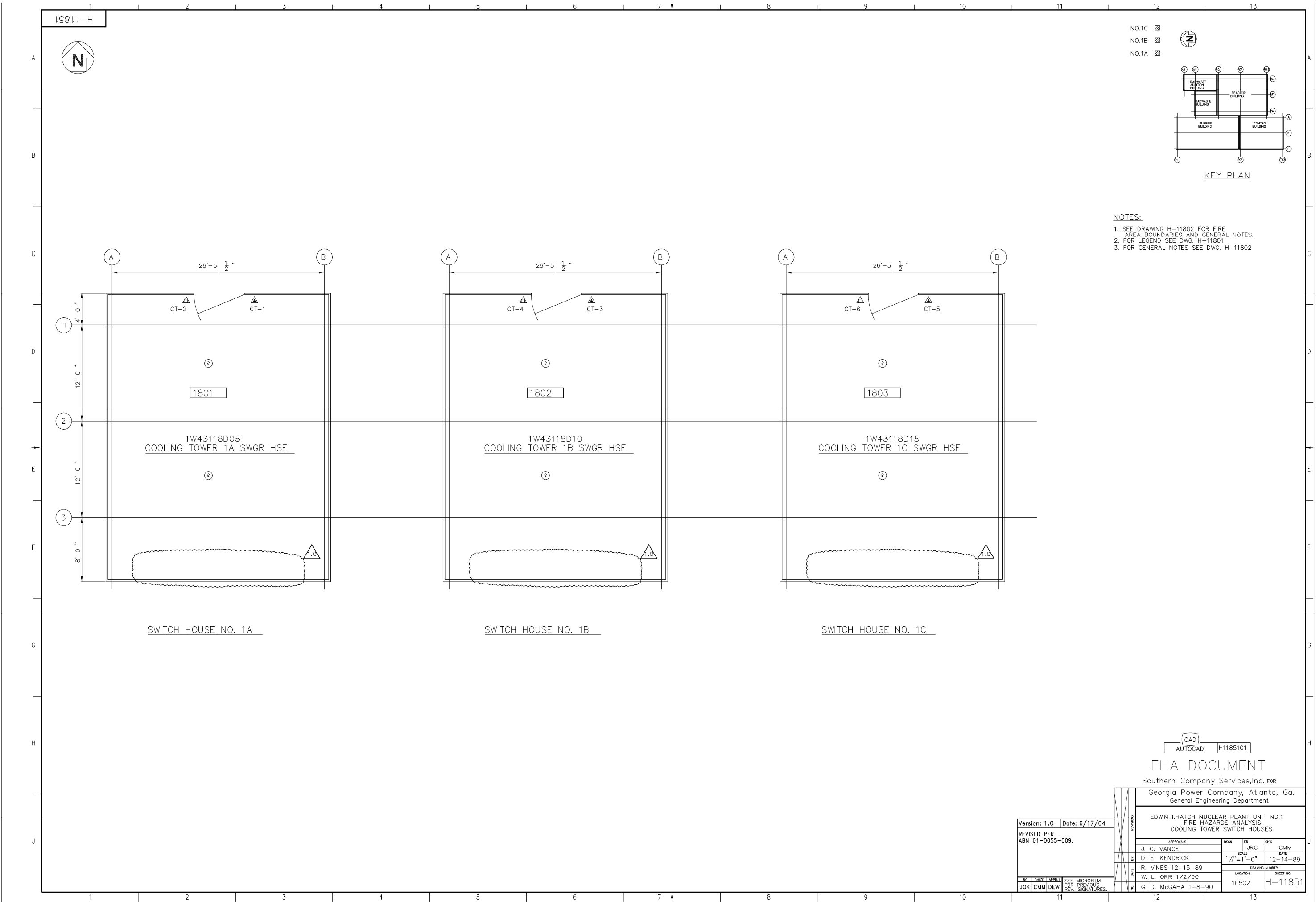
LOCATION: 10-502  
DRAWING NUMBER: H-11847  
VERSION: 2.0

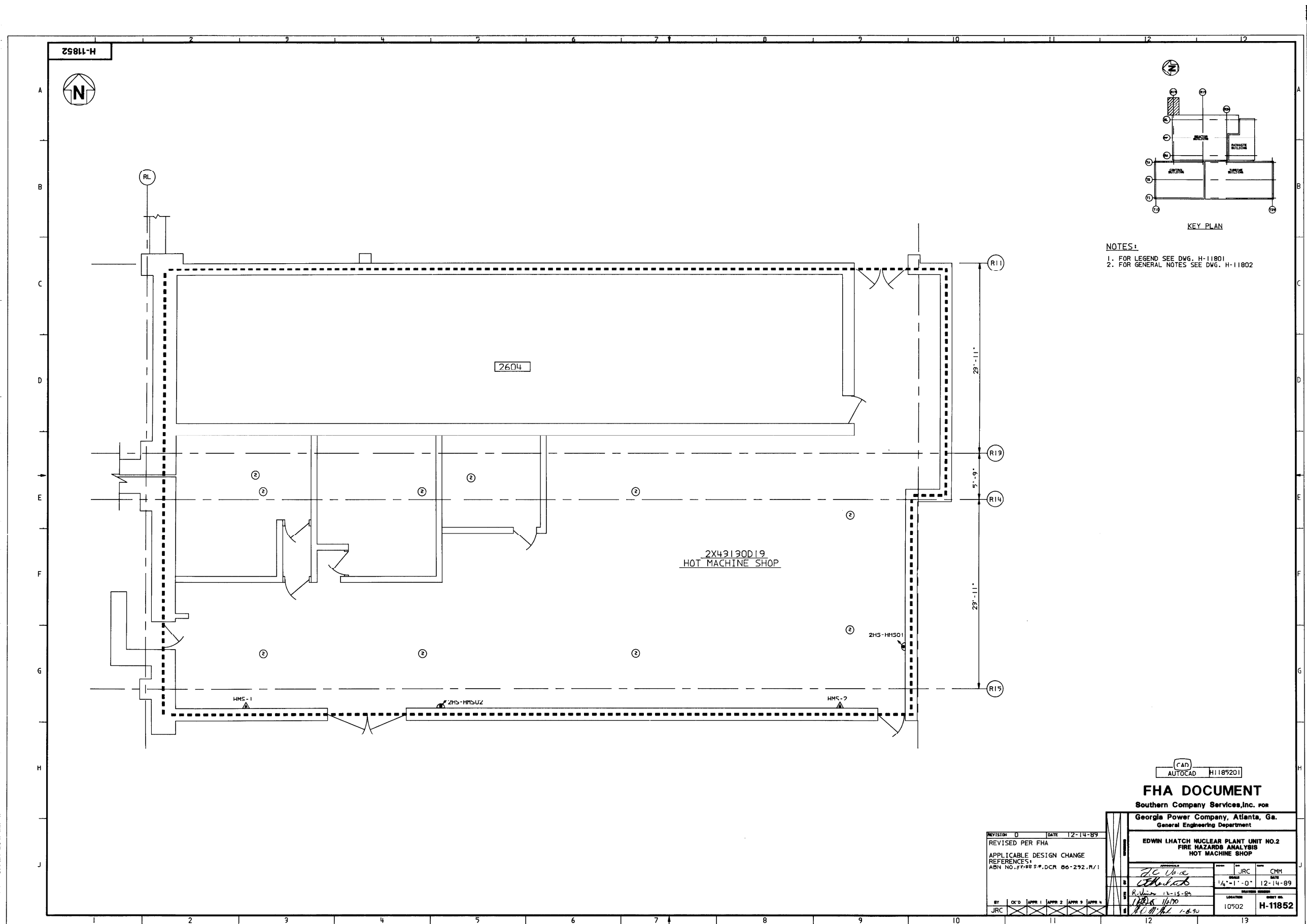


|                                              |       |        |         |
|----------------------------------------------|-------|--------|---------|
| REVISION                                     | 0     | DATE   | 12-5-89 |
| ISSUED PER FHA                               |       |        |         |
| APPLICABLE DESIGN CHANGE                     |       |        |         |
| REFERENCES:<br>ABN 87-88 S.O/DCR 86-292 R.O. |       |        |         |
| BY                                           | CHK'D | APPR 1 | APPR 2  |
| JRC                                          |       |        |         |

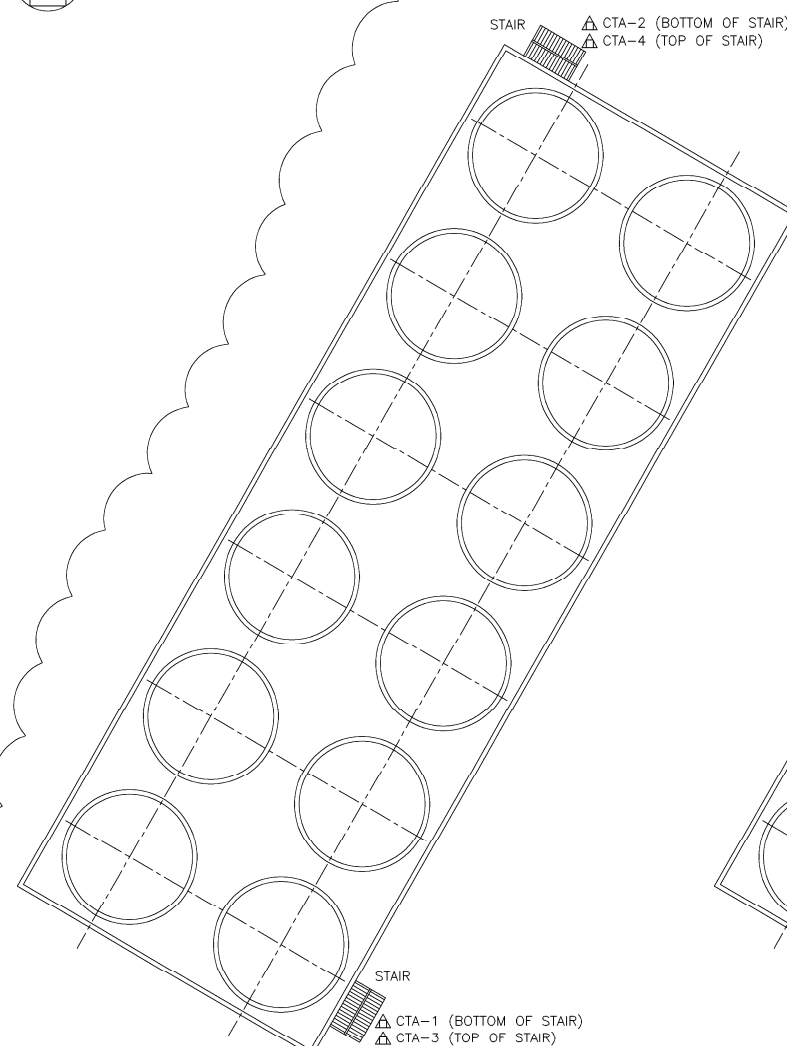
|                                                                                              |             |       |      |
|----------------------------------------------------------------------------------------------|-------------|-------|------|
| EDWIN LATCH NUCLEAR PLANT UNIT NO.1-2<br>FIRE HAZARDS ANALYSIS<br>FIRE PROTECTION PUMP HOUSE |             |       |      |
| DESIGNED BY                                                                                  | DATE        | CHK'D | DATE |
| JRC                                                                                          | 11-22-89    | CHK'D |      |
| 1/4" = 1' - 0"                                                                               |             |       |      |
| LOCATION                                                                                     | PROJECT NO. |       |      |
| 10502                                                                                        | H-11848     |       |      |





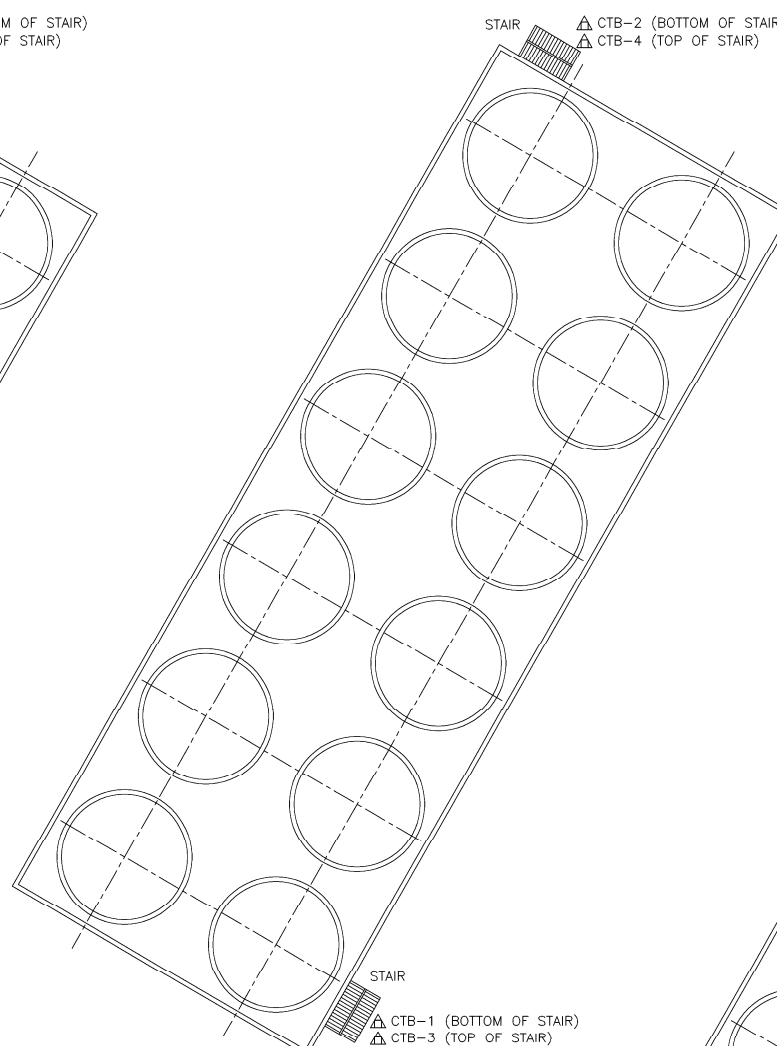






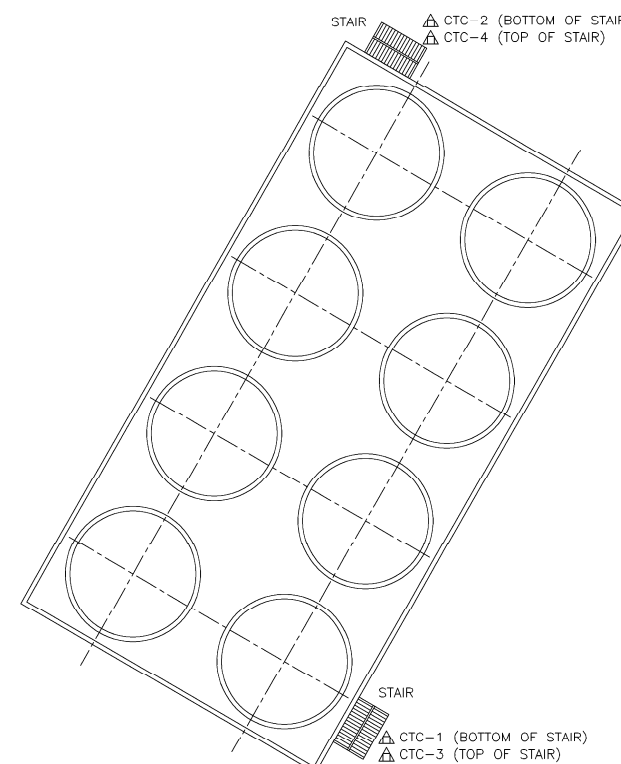
1801

COOLING TOWER 1A

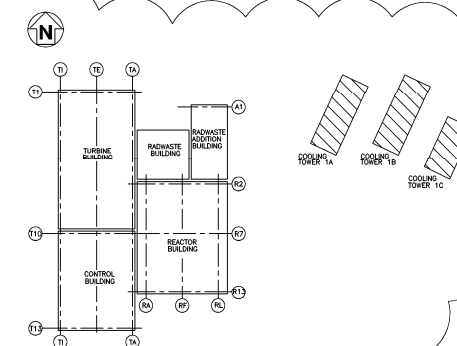


1802  
COOLING TOWER 1B

2.0



1803



KEY PLAN

NOTES:

1. FOR LEGEND SEE DWG. H-11801  
2. FOR GENERAL NOTES SEE DWG. H-11802

FHA DOCUMENT

ACAD H11854

**SOUTHERN**   
**COMPANY**

"This document contains proprietary, confidential, and/or trade secret information of the subsidiaries of Southern Company or of third parties. It is intended for use only by employees of, or authorized contractors of, the subsidiaries of Southern Company. Unauthorized possession, use, distribution, copying, dissemination, or disclosure of any portion hereof is prohibited."

EDWIN I. HATCH NUCLEAR PLANT UNIT NO. 1  
FIRE HAZARDS ANALYSIS  
COOLING TOWERS 1A, 1B, & 1C

|              |              |
|--------------|--------------|
| Version: 2.0 | Date: 7/7/04 |
|--------------|--------------|

REVISÉ PER  
ABN 01-0055-009

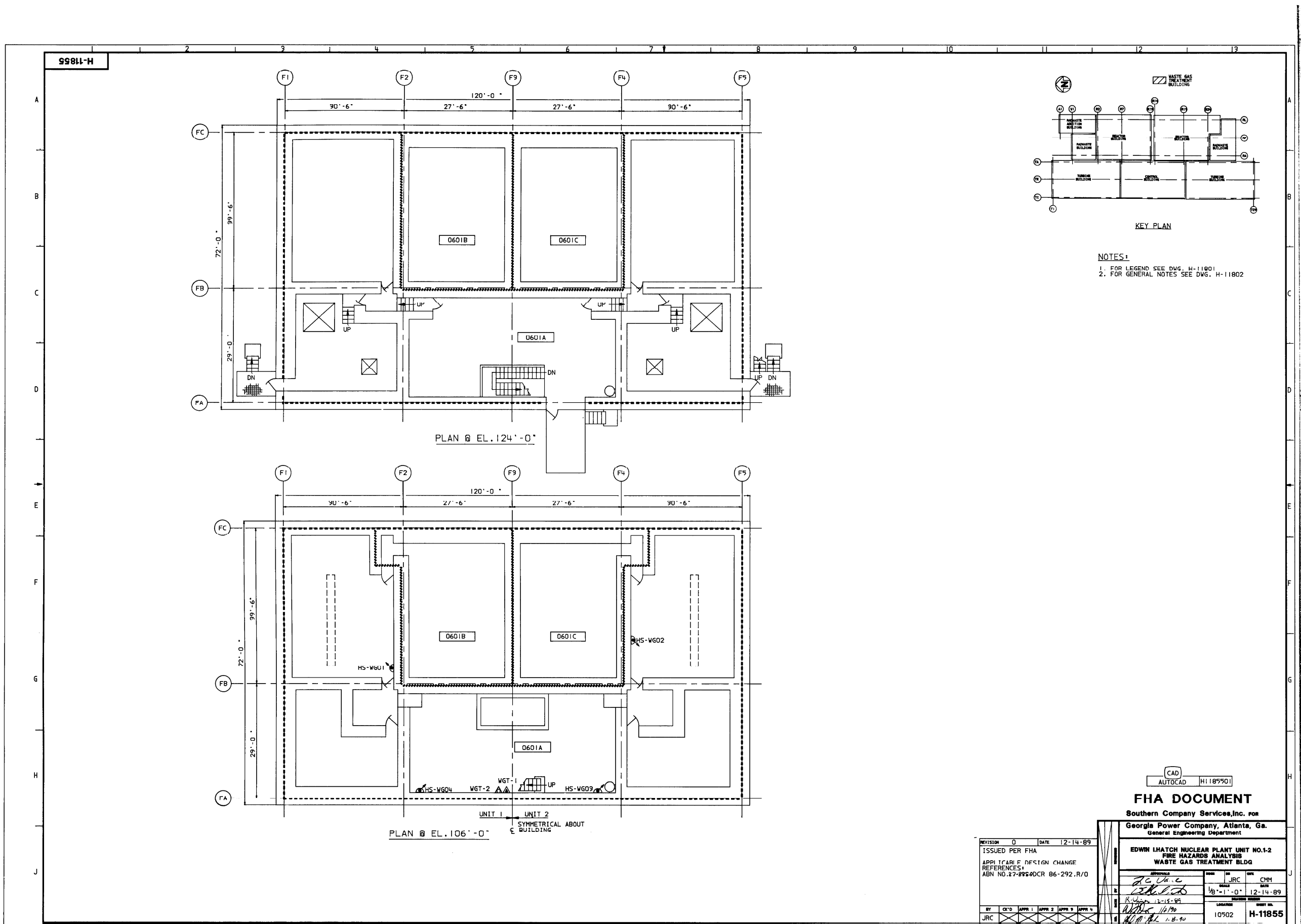
ABN 51-0055-009.

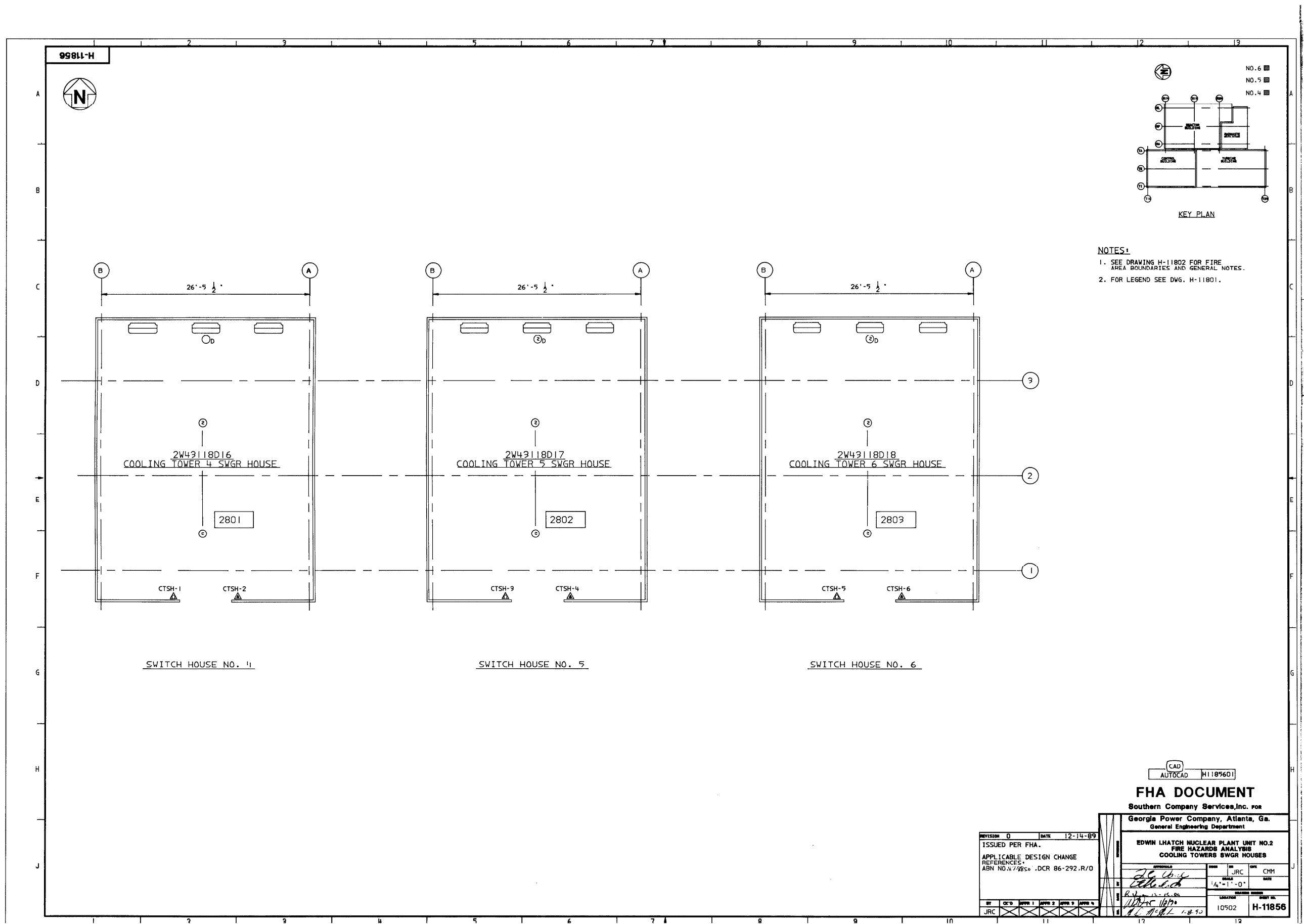
100

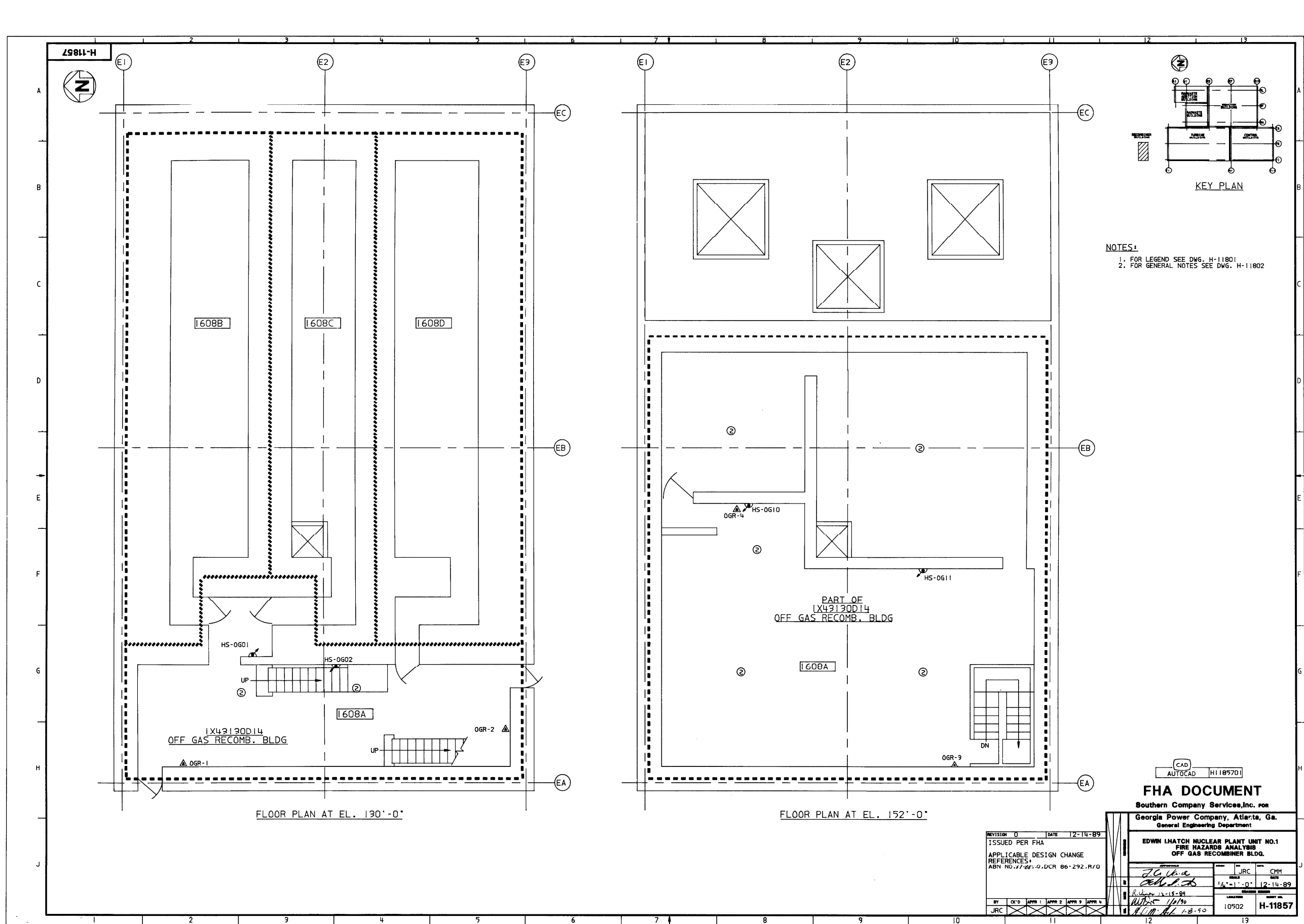
1000

|       |          |          |                |         |
|-------|----------|----------|----------------|---------|
| DRAWN | DESIGNED | LOCATION | DRAWING NUMBER | VERSION |
| RKG   | CM       |          |                |         |

|          |       |        |         |     |
|----------|-------|--------|---------|-----|
| DATE     | SCALE | 10-502 | H-11854 | 2.0 |
| 10-10-88 | None  |        |         |     |

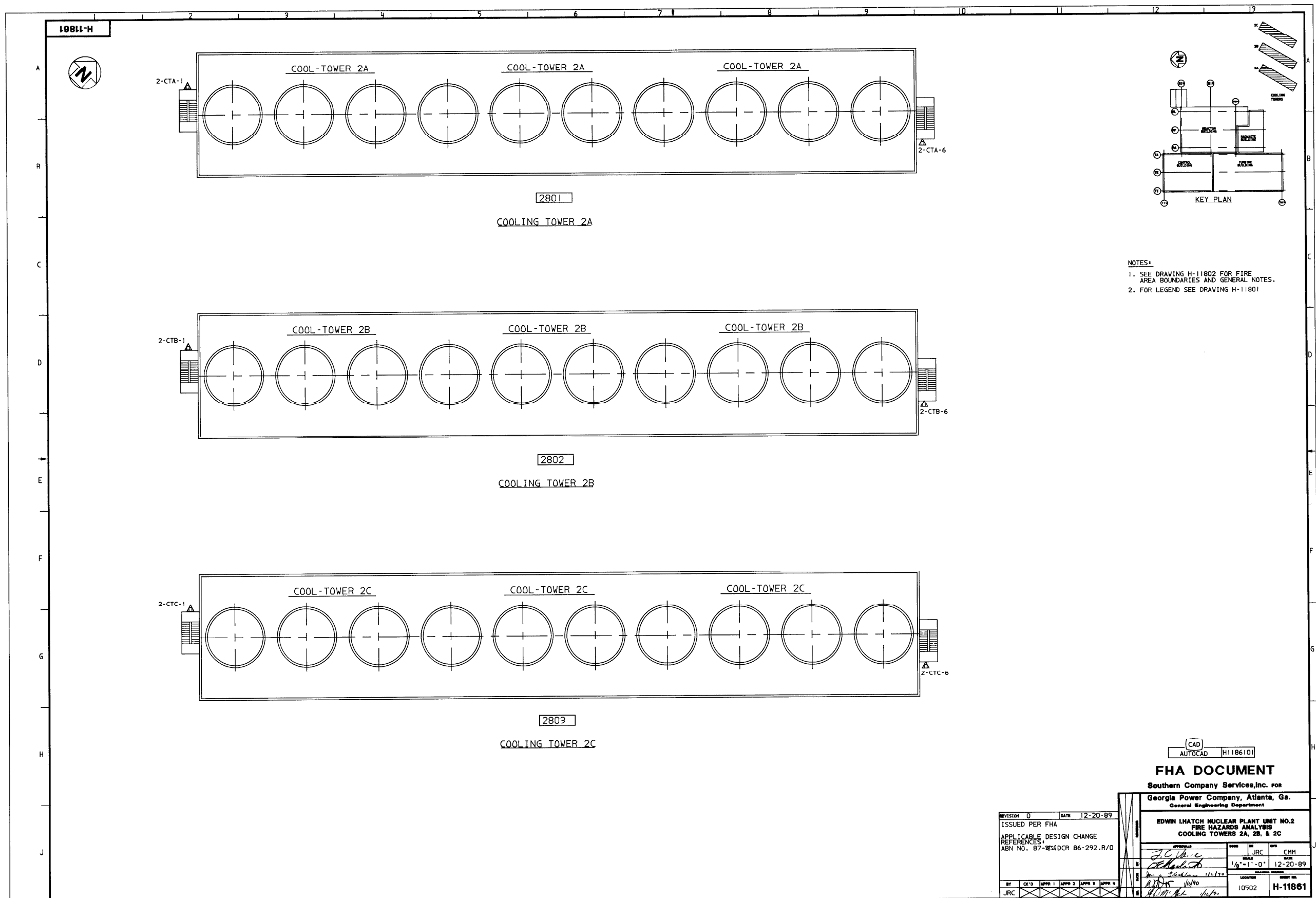






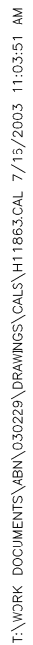












HNP-FHA-9

SECTION 9.0

APPENDICES

## FIRE PROTECTION EQUIPMENT OPERATING AND SURVEILLANCE REQUIREMENTS

Fire protection systems are required to protect safety related or safe shutdown components from the effects of fire. Consistent with nuclear safety objectives, minimum operating requirements and surveillance requirements for these systems have been developed. These requirements, formerly embodied in the plant Technical Specifications, have been incorporated into this Appendix.

Definitions for the ACTION statement as used in this Appendix are provided below to ensure uniform and consistent interpretation of the Appendix is achieved. Regulatory separation required by 10 CFR 50 Appendix R protects at least one safe shutdown path to remain free of fire damage, thereby ensuring safe shutdown capability of the unit(s). The fire protection systems, equipment, and components ensuring safe shutdown capability are better refined and identified within respective tables as "CATEGORY I" (SSD) and "CATEGORY II" (Non-SSD), aligned with their corresponding compensatory action.

As required under the provisions of Criterion 3 of 10 CFR 50 Appendix A and BTP 9.5-1 Appendix A, the fire protection systems, equipment, and components necessary to respond to fires without safe shutdown concern are included under a compensatory category designated as CATEGORY II (Non-SSD). Fire protection systems and components are included in the following paragraphs and tables. These fire protection systems, equipment, and components, considered important to safety but not associated with safe shutdown function, provide compliance to 10 CFR 50 Appendix A, Criteria 3 and 5 and BTP 9.5-1 Appendix A. The defense in depth features are aligned to the CATEGORY II compensatory action during impairment periods.

This strategy is continued throughout FHA section 9.2 (Appendix B) to ensure the graded response is applied consistently for those systems and components during periods of planned or unplanned impairments or nonfunctional condition.

Alternative compensatory measures may be specified for degraded or nonfunctional fire protection features or post-fire safe shutdown capability by preparing an evaluation per NMP-ES-035-005, "Fire Protection Alternative Compensatory Measures." The use of alternative compensatory measures should be considered for conditions affecting post-fire safe shutdown capability such as an identified lack of cable separation for safe shutdown components in lieu of fire watches since fire watches alone may not be the most effective measures. Other measures which improve operator ability to manage the potential loss of the safe shutdown component or components should be considered. Alternative compensatory measures such as temporary fire barriers, temporary detection systems, and temporary suppression systems may also be considered for degraded fire protection features. It is acceptable to implement the traditional compensatory measure (i.e., fire watch) until an alternate compensatory measure evaluation can be performed. Alternative compensatory measures may also be specified for pre-planned impairments of fire protection features or post-fire safe shutdown capability.

Each Surveillance Requirement shall be performed within the specified time interval with a maximum allowable extension of 25% of the surveillance interval; this 25% extension is known as the grace period.

## FIRE-RATED ASSEMBLIES

### OPERATING REQUIREMENTS

---

- 1.1.1 Fire-rated assemblies and sealing devices in fire-rated assembly penetrations separating fire areas or separating portions of redundant systems important to safe shutdown within a fire area shall be FUNCTIONAL. Fire-rated assemblies are walls, floor/ceilings, cable tray enclosures and other fire barriers. Sealing devices in fire-rated assembly penetrations consist of fire doors; fire dampers; and cable, piping, and ventilation duct penetration seals. Tables 1.1-1 and 1.1-2 contain the Unit 1 and Unit 2 fire door listings to which this Specification applies.

APPLICABILITY: When fuel is in the reactor vessel for the affected unit.

ACTION:

With one or more of the above required fire-rated assemblies and/or sealing devices nonfunctional or with the required surveillance interval (including grace period) exceeded, within 1 hour:

CATEGORY I:

Establish a continuous fire watch on at least one side of the affected fire rated assembly and/or sealing device(s) or verify the FUNCTIONALITY of fire detectors on at least one side of the nonfunctional assembly(s) and sealing device(s), and establish an hourly fire watch patrol and notify onshift fire brigade leader.

OR

Establish alternative compensatory measures per NMP-ES-035-005.

CATEGORY II:

Assign a tracking Fire Action Statement (FAS) for the affected fire rated assembly and/or sealing device(s). If not returned to FUNCTIONAL status within 45 days, establish an hourly fire watch patrol and notify onshift fire brigade leader.

### SURVEILLANCE REQUIREMENTS

---

- 2.1.1 Each of the above required fire-rated assemblies and penetration sealing devices shall be verified FUNCTIONAL at least once per 24 months by performing a visual inspection of:
- a. The exposed surfaces of each fire-rated assembly.
  - b. Each fire damper and associated hardware.

SURVEILLANCE REQUIREMENTS (Continued)

---

- c. At least 10 percent of each type of sealed penetration. If apparent changes in appearance or abnormal degradations are found, a visual inspection of an additional 10 percent of each type of sealed penetration shall be made. This inspection process shall continue until a 10-percent sample with no apparent changes in appearance or abnormal degradation is found. Samples shall be selected such that each penetration seal will be inspected at least once per 15 years.
  
- 2.1.2 Each of the required fire doors (i.e., the doors in Tables 1.1-1 and 1.1-2) shall be verified FUNCTIONAL by:
  - a. Verifying that each locked-closed fire door is closed at least once per 7 days.
  - b. Verifying that doors with automatic hold-open and release mechanisms are free of obstructions at least once per 24 hours and by performing a functional test of these mechanisms at least once per 18 months.
  - c. Verifying that each unlocked fire door without electrical supervision is closed at least once per 24 hours.
  - d. Inspecting the automatic hold-open, release and closing mechanism and latches at least once per 6 months.

FIRE DOOR TABLES LEGEND

DOOR NUMBER:

1 C 38

UNIQUE DOOR NUMBER

BLDG DESIGNATION: C.....CONTROL BLDG  
D.....DIESEL GEN BLDG  
R.....REACTOR BLDG  
RW...RADWASTE BLDG  
T.....TURBINE BLDG

UNIT NUMBER: 0...COMMON  
1...UNIT 1  
2...UNIT 2

COMPENSATORY ACTION:

- “Category I”: Safe Shutdown Capability Compensatory Action
- “Category II”: Non-Safe Shutdown Associated Compensatory Action

DOOR TYPE:

EX...EXCEPTION  
RU...ROLL UP  
SL...SLIDING  
SW...SWINGING

DOOR STAT:

AHO.....AUTOMATIC HOLD OPEN  
LKCL....LOCKED-CLOSED  
UNLK...UNLOCKED

DOOR OPER:

AIRL.....LOCKED BY AIRLOCK MECHANISM  
CARD...REQUIRES BADGE CARD FOR ENTRY  
FL.....HELD OPEN BY FUSIBLE LINK  
KEY.....REQUIRES KEY FOR ENTRY  
MAG.....HELD OPEN BY MAGNETIC MECHANISM

AREA NO. 1 / AREA NO. 2: THE FIRE AREAS THAT THE DOOR SEPARATES

\* Fire Areas designated “Dominant Fire Risk” by the IPEEE Risk Analysis

DETECTION ZONES: XL DETECTION ZONES FOR APPLICABLE FIRE AREAS

ELEV: FLOOR ELEVATION ON WHICH THE DOOR IS LOCATED

DWG: FHA DRAWING (FHA SECTION 8.0) ON WHICH THE DOOR CAN BE FOUND

LOCATION: BRIEF DESCRIPTION OF DOOR LOCATION

TABLE 1.1-1 (SHEET 1 OF 4)  
UNIT 1 AND COMMON FIRE DOORS

| <u>FIRE DOOR</u> | <u>ACTION CATEGORY</u> | <u>DOOR TYPE</u> | <u>DOOR STATUS</u> | <u>DOOR OPER.</u> | <u>AREA No. 1</u> | <u>DETECTION ZONE No. 1</u> | <u>AREA No. 2</u> | <u>DETECTION ZONE No. 2</u> | <u>ELEV.</u> | <u>F H A DRAWING</u> | <u>LOCATION</u>               |
|------------------|------------------------|------------------|--------------------|-------------------|-------------------|-----------------------------|-------------------|-----------------------------|--------------|----------------------|-------------------------------|
| 1C01             | I                      | SW               | UNLK               |                   | 0007A             | 1Z43112D14                  | 1006              | None                        | 112          | H-11811              | U1 WATER ANALYSIS ROOM        |
| 1C03             | II                     | SW               | AHO                | MAG               | 0007A             | 1Z43112D12                  | 0001              | 2Z43112D12                  | 112          | H-11811              | EAST CORRIDOR                 |
| 1C06             | I                      | EX               | LKCL               |                   | 1005              | 1Z43112D04                  | 0001              | 2Z43112D12                  | 112          | H-11811              | STATION BATTERY ROOM 1B       |
| 1C07             | II                     | SW               | UNLK               |                   | 1010              | 1Z43112D06                  | 0001              | 2Z43112D12                  | 112          | H-11811              | RPS BATTERY N ROOM            |
| 1C08             | II                     | SW               | UNLK               |                   | 1009              | 1Z43112D06                  | 0001              | 2Z43112D12                  | 112          | H-11811              | RPS BATTERY S ROOM            |
| 1C09             | II                     | SW               | UNLK               |                   | 2009              | 2Z43112D09                  | 0001              | 2Z43112D12                  | 112          | H-11811              | RPS BATTERY N ROOM            |
| 1C10             | II                     | SW               | UNLK               |                   | 2010              | 2Z43112D09                  | 0001              | 2Z43112D12                  | 112          | H-11811              | RPS BATTERY S ROOM            |
| 1C11             | I                      | SW               | UNLK               |                   | 1008              | 1Z43112D05                  | 0001              | 2Z43112D12                  | 112          | H-11811              | UNIT 1 AC INVERTER ROOM       |
| 1C12             | II                     | EX               | LKCL               |                   | 1004*             | 1Z43112D03                  | 0001              | 1Z43112D01                  | 112          | H-11812              | STATION BATTERY ROOM 1A       |
| 1C13             | II                     | SL               | AHO                | FL                | 1003              | 1Z43112W02                  | 0001              | 1Z43112D01                  | 112          | H-11812              | OIL STORAGE TANK ROOM         |
| 1C13A            | II                     | SL               | AHO                | FL                | 1003              | 1Z43112W02                  | 0001              | 1Z43112D01                  | 112          | H-11812              | OIL STORAGE TANK ROOM         |
| 1C14             | II                     | SW               | UNLK               |                   | 0002A             | NONE                        | 0001              | 1Z43112D01                  | 112          | H-11812              | CONTROL BLDG STAIRWELL        |
| 1C15             | II                     | SW               | UNLK               |                   | 2101I             | NONE                        | 0001              | 1Z43112D01                  | 112          | H-11812              | WEST CABLEWAY                 |
| 1C17             | II                     | SW               | UNLK               |                   | 2008              | 1Z43112D08                  | 0001              | 2Z43112D12                  | 112          | H-11811              | UNIT 2 AC INVERTER ROOM       |
| 1C21             | I                      | SW               | UNLK               |                   | 2104*             | 2U43130D02                  | 0014B             | 1Z43130D09                  | 130          | H-11814              | UNIT 2 - EAST CABLEWAY        |
| 1C22             | I                      | SW               | AHO                | MAG               | 1105*             | 1U43130D02                  | 0014K             | 1Z43130D09                  | 130          | H-11814              | EAST CABLEWAY                 |
| 1C29             | I                      | SL               | AHO                | FL                | 1020              | 1Z43130D08                  | 0014K             | 1Z43130D02                  | 130          | H-11814              | EAST DC SWGR ROOM 1B          |
| 1C31             | I                      | SL               | AHO                | FL                | 1017              | 1Z43130D05                  | 0014K             | 1Z43130D02                  | 130          | H-11814              | EAST 600VOLT SWGR ROOM 1D     |
| 1C35             | II                     | SL               | AHO                | FL                | 1016              | 1Z43130D04                  | 0014K             | 1Z43130D02                  | 130          | H-11814              | WEST 600VOLT SWGR ROOM 1C     |
| 1C38             | II                     | SL               | AHO                | FL                | 1018              | 1Z43130D06                  | 0014K             | 1Z43130D02                  | 130          | H-11814              | WEST DC SWGR ROOM 1A          |
| 1C46             | I                      | SL               | AHO                | FL                | 1015*             | 1Z43130D10                  | 0014K             | 1Z43130D02                  | 130          | H-11815              | UNIT 1 - ANNUNCIATOR ROOM     |
| 1C47             | II                     | SL               | AHO                | FL                | 2015              | 2Z43130D15                  | 0014K             | 2Z43130D17                  | 130          | H-11815              | ANNUNCIATOR ROOM              |
| 1C48             | I                      | SW               | UNLK               |                   | 1013              | 1Z43130D11                  | 0014K             | 2Z43130D17                  | 130          | H-11815              | RPS MG SET ROOM               |
| 1C49             | I                      | SW               | UNLK               |                   | 2013              | 2Z43130D14                  | 0014K             | 2Z43130D17                  | 130          | H-11815              | RPS MG SET ROOM               |
| 1C50             | II                     | SW               | UNLK               |                   | 0014K             | 1Z43130D02                  | 0002A             | NONE                        | 130          | H-11815              | CB STAIRWELL / 130' ELEVATION |
| 1C52             | II                     | SW               | AHO                | MAG               | SRVBG             | NONE                        | 0014K             | 1Z43130D02                  | 130          | H-11815              | SERVICE BLDG/ CONTROL BLDG    |
| 1C53             | II                     | SL               | AHO                | FL                | 1023              | 1Z43130W03                  | 0014K             | 1Z43130D02                  | 130          | H-11815              | OIL CONDITIONER ROOM          |
| 1C53A            | II                     | SL               | AHO                | FL                | 1023              | 1Z43130W03                  | 0014K             | 1Z43130D02                  | 130          | H-11815              | OIL CONDITIONER ROOM          |
| 1C54             | II                     | SL               | AHO                | FL                | 1019              | 1Z43130D07                  | 0014K             | 1Z43130D02                  | 130          | H-11814              | TRANSFORMER ROOM              |

## HNP-FHA-9

TABLE 1.1-1  
(SHEET 2 OF 4)

| <u>FIRE DOOR</u> | <u>ACTION CATEGORY</u> | <u>DOOR TYPE</u> | <u>DOOR STATUS</u> | <u>DOOR OPER.</u> | <u>AREA No. 1</u> | <u>DETECTION ZONE No. 1</u> | <u>AREA No. 2</u> | <u>DETECTION ZONE No. 2</u> | <u>ELEV.</u> | <u>F H A DRAWING</u> | <u>LOCATION</u>                   |
|------------------|------------------------|------------------|--------------------|-------------------|-------------------|-----------------------------|-------------------|-----------------------------|--------------|----------------------|-----------------------------------|
| 1C58             | II                     | SW               | UNLK               |                   | 0014K             | 1Z43130D02                  | 0002A             | NONE                        | 130          | H-11815              | CB STAIRWELL / 130' ELEVATION     |
| 1C60             | I                      | SW               | AHO                | MAG               | 2104*             | 2U43130D02                  | 1105*             | 1U43130D02                  | 130          | H-11814              | UNIT 2 - EAST CABLEWAY            |
| 1C61             | I                      | SW               | LKCL               | CARD              | 0025              | NONE                        | 0024A*            | 1Z43147D04                  | 147          | H-11816              | CABLE SPREADING ROOM              |
| 1C62             | I                      | SW               | UNLK               |                   | 0025              | NONE                        | 0024B             | 1Z43147D06                  | 147          | H-11816              | COMPUTER ROOM                     |
| 1C63             | II                     | SW               | UNLK               |                   | 0025              | NONE                        | 0002A             | NONE                        | 147          | H-11816              | CB STAIRWELL / 147' ELEVATION     |
| 1C64             | I                      | SW               | LKCL               | CARD              | 0028              | 1Z43147D08                  | 0024A*            | 1Z43147D04                  | 147          | H-11816              | LPCI INVERTER ROOM                |
| 1C66             | I                      | RU               | AHO                | FL                | 0101G             | 1Z43164D02                  | 0024C*            | 1Z43164D01                  | 164          | H-11817              | CHART STORE RM & HALLWAY          |
| 1C71             | II                     | SW               | UNLK               |                   | 0101A             | NONE                        | 0002A             | NONE                        | 164          | H-11817              | CB STAIRWELL / U1 TURBINE DECK    |
| 1C82             | I                      | SW               | UNLK               |                   | 0101A             | NONE                        | 0024D             | NONE                        | 164          | H-11817              | MAIN CONTROL ROOM ENTRYWAY        |
| 1C83             | II                     | SW               | LKCL               | KEY               | 0031              | NONE                        | 0002B             | NONE                        | 186          | H-11818              | MAIN CONTROL RM ROOF              |
| 1C84             | II                     | SW               | UNLK               |                   | 0002A             | NONE                        | 0002B             | NONE                        | 186          | H-11818              | MAIN CONTROL RM ROOF              |
| 1C85             | II                     | SW               | UNLK               |                   | 0031              | NONE                        | 0002A             | NONE                        | 180          | H-11818              | MAIN CONTROL RM ROOF              |
| 1C86             | I                      | RU               | AHO                | FL                | 0101A             | NONE                        | 0024C*            | 1Z43130D01                  | 164          | H-11817              | CONTROL ROOM / U1 TURBINE DECK    |
| 1C87             | I                      | RU               | AHO                | FL                | 0101J             | NONE                        | 0024C*            | 1Z43164D01                  | 164          | H-11817              | MAIN CONTROL / U2 TURBINE DECK    |
| 1C88             | I                      | SW               | UNLK               |                   | 2013              | 2Z43130D14                  | 0040*             | 1Z43130D13                  | 130          | H-11815              | UNIT 2 - RPS MG SET ROOM          |
| 1C89             | I                      | SW               | UNLK               |                   | 1013              | 1Z43130D11                  | 0040*             | 1Z43130D13                  | 130          | H-11815              | UNIT 1 - RPS MG SET ROOM          |
| 1C97             | I                      | SW               | LKCL               | KEY               | 0101A             | NONE                        | 0024D             | NONE                        | 164          | H-11817              | MAIN CONTROL ROOM ENTRYWAY        |
| 1C160            | I                      | SW               | AHO                | MAG               | 1104*             | 1U43130D02                  | 1105*             | 1U43130D02                  | 130          | H-11814              | EAST CABLEWAY                     |
| 1D134            | I                      | RU               | AHO                | FL                | 2403              | 2X43130C05                  | 0401              | NONE                        | 130          | H-11846              | DIESEL GENERATOR RM 2A            |
| 1D135            | I                      | SW               | UNLK               |                   | 2403              | 2X43130C05                  | 0401              | NONE                        | 130          | H-11846              | DIESEL GENERATOR RM 2A            |
| 1D136            | I                      | SW               | UNLK               |                   | 2401              | 2X43130C05                  | 0401              | NONE                        | 130          | H-11846              | DG DAY TANK ROOM 2A               |
| 1D137            | I                      | RU               | AHO                | FL                | 2407              | 2X43130C06                  | 0401              | NONE                        | 130          | H-11846              | DIESEL GENERATOR RM 2C            |
| 1D138            | I                      | SW               | UNLK               |                   | 2407              | 2X43130C06                  | 0401              | NONE                        | 130          | H-11846              | DIESEL GENERATOR RM 2C            |
| 1D139            | I                      | SW               | UNLK               |                   | 2405              | 2X43130C06                  | 0401              | NONE                        | 130          | H-11846              | DG DAY TANK ROOM 2C               |
| 1D140            | I                      | RU               | AHO                | FL                | 1411              | 1X43130C02                  | 0401              | NONE                        | 130          | H-11846              | DIESEL GENERATOR RM 1A            |
| 1D141            | I                      | SW               | UNLK               |                   | 1411              | 1X43130C02                  | 0401              | NONE                        | 130          | H-11846              | DIESEL GENERATOR RM 1A            |
| 1D142            | I                      | SW               | UNLK               |                   | 1409              | 1X43130C02                  | 0401              | NONE                        | 130          | H-11846              | DG DAY TANK ROOM 1A               |
| 1D143            | I                      | RU               | AHO                | FL                | 1407              | 1X43130C03                  | 0401              | NONE                        | 130          | H-11846              | DIESEL GENERATOR RM 1B (SWING DG) |
| 1D144            | I                      | SW               | UNLK               |                   | 1407              | 1X43130C03                  | 0401              | NONE                        | 130          | H-11846              | DIESEL GENERATOR RM 1B (SWING DG) |
| 1D145            | I                      | SW               | UNLK               |                   | 1405              | 1X43130C03                  | 0401              | NONE                        | 130          | H-11846              | DG DAY TANK ROOM 1B (SWING DG)    |
| 1D146            | I                      | RU               | AHO                | FL                | 1403              | 1X43130C04                  | 0401              | NONE                        | 130          | H-11846              | DIESEL GENERATOR RM 1C            |
| 1D147            | I                      | SW               | UNLK               |                   | 1403              | 1X43130C04                  | 0401              | NONE                        | 130          | H-11846              | DIESEL GENERATOR RM 1C            |



TABLE 1.1-1  
(SHEET 3 OF 4)

| <u>FIRE DOOR</u> | <u>ACTION CATEGOR Y</u> | <u>DOOR TYPE</u> | <u>DOOR STATUS</u> | <u>DOOR OPER.</u> | <u>AREA No. 1</u> | <u>DETECTION ZONE No. 1</u> | <u>AREA No. 2</u> | <u>DETECTION ZONE No. 2</u> | <u>ELEV.</u> | <u>F H A DRAWING</u> | <u>LOCATION</u>                     |
|------------------|-------------------------|------------------|--------------------|-------------------|-------------------|-----------------------------|-------------------|-----------------------------|--------------|----------------------|-------------------------------------|
| 1D148            | I                       | SW               | UNLK               |                   | 1401              | 1X43130C04                  | 0401              | NONE                        | 130          | H-11846              | DG DAY TANK ROOM 1C                 |
| 1D149            | II                      | SW               | UNLK               |                   | 2404*             | 2X43130C10                  | 2403              | 2X43130C05                  | 130          | H-11846              | DG SWGR ROOM 2E                     |
| 1D150            | II                      | SW               | LKCL               |                   | 2408*             | 2X43130C11                  | 2402              | 2X43130C11                  | 130          | H-11846              | DG BATTERY ROOM 2F                  |
| 1D151            | I                       | SW               | UNLK               |                   | 2408*             | 2X43130C11                  | 2407              | 2X43130C06                  | 130          | H-11846              | DG SWGR ROOM 2F                     |
| 1D152            | II                      | SW               | LKCL               |                   | 2409*             | 2X43130C12                  | 2406              | 2X43130C12                  | 130          | H-11846              | DG BATTERY ROOM 2G                  |
| 1D153            | I                       | SW               | UNLK               |                   | 2409*             | 2X43130C12                  | 1411              | 1X43130C02                  | 130          | H-11846              | DG SWGR ROOM 2G                     |
| 1D154            | II                      | SW               | UNLK               |                   | 1412*             | 1X43130C07                  | 1411              | 1X43130C02                  | 130          | H-11846              | DG SWGR ROOM 1E                     |
| 1D155            | II                      | SW               | LKCL               |                   | 1412*             | 1X43130C07                  | 1410              | 1X43130C07                  | 130          | H-11846              | DG BATTERY ROOM 1E                  |
| 1D156            | II                      | SW               | LKCL               |                   | 1408*             | 1X43130C08                  | 1407              | 1X43130C03                  | 130          | H-11846              | DG BATTERY ROOM 1F                  |
| 1D157            | II                      | SW               | UNLK               |                   | 1408*             | 1X43130C08                  | 1406              | 1X43130C08                  | 130          | H-11846              | DG SWGR ROOM 1F                     |
| 1D158            | II                      | SW               | UNLK               |                   | 1404*             | 1X43130C09                  | 1403              | 1X43130C04                  | 130          | H-11846              | DG SWGR ROOM 1G                     |
| 1D159            | II                      | SW               | LKCL               |                   | 1404*             | 1X43130C09                  | 1402              | 1X43130C09                  | 130          | H-11846              | DG BATTERY ROOM 1G                  |
| 1D214            | II                      | RU               | AHO                | FL                | 0702B             | 1X43130W13                  | 0703              | 1X43130W13                  | 130          | H-11848              | F RE PROTECTION PUMP HOUSE          |
| 1D215            | II                      | RU               | AHO                | FL                | 0703              | 1X43130W13                  | 0704              | 1X43130W13                  | 130          | H-11848              | F RE PROTECTION PUMP HOUSE          |
| 1R28             | I                       | SW               | LKCL               | AIRL              | 1203C             | 1T43130D02                  | 1105*             | 1U43130D02                  | 130          | H-11814              | EAST CABLEWAY / U1 RB               |
| 1R40B            | I                       | SW               | UNLK               |                   | 1205N             | 1T43164D02                  | 1203I             | NONE                        | 164          | H-11828              | HVAC ROOM EL 164'                   |
| 1R41             | II                      | SW               | LKCL               | AIRL              | 1203I             | NONE                        | 0101A             | NONE                        | 164          | H-11828              | U1 RB STAIRWELL / U1 TB             |
| 1R42             | I                       | SW               | LKCL               | AIRL              | 2203I             | NONE                        | 1203I             | NONE                        | 164          | H-11828              | UI RB STAIRWELL / U2 TB             |
| 1R51             | I                       | SW               | UNLK               |                   | 1205U             | 1T43185W03                  | 1203I             | NONE                        | 185          | H-11829              | UI RB STAIRWELL / SW CORNER         |
| 1R52A            | I                       | SW               | LKCL               | AIRL              | 2203I             | NONE                        | 1203I             | NONE                        | 185          | H-11829              | UI RB STAIRWELL / U2 RB             |
| 1R61             | I                       | SW               | UNLK               |                   | 1205X             | NONE                        | 1203I             | NONE                        | 203          | H-11830              | STACK MONITORING ROOM               |
| 1R64             | I                       | SW               | LKCL               | AIRL              | 1203I             | NONE                        | 0201A             | NONE                        | 228          | H-11831              | UI RB STAIRWELL EL 228'             |
| 1RW01            | II                      | SW               | UNLK               |                   | 1101H             | NONE                        | 1301G             | NONE                        | 112          | H-11805              | UNIT 1 RADWASTE EAST CORR DOR ENTRY |
| 1RW21            | II                      | SW               | UNLK               |                   | 1301I             | NONE                        | 1104*             | 1U43130D02                  | 132          | H-11839              | U1 RW BLDG / U1 TURBINE BLDG.       |
| 1RW30            | I                       | SW               | LKCL               | AIRL              | 1301J             | NONE                        | 1205F*            | 1T43130D10                  | 132          | H-11839              | U1 RW BLDG / U1 REACTOR BLDG.       |
| 1T07             | II                      | SW               | UNLK               |                   | 1101C             | NONE                        | 1102              | NONE                        | 112          | H-11804              | UNIT 1 TURB NE BLDG EAST STAIRWELL  |
| 1T10             | II                      | SW               | UNLK               |                   | 1101H             | NONE                        | 1103              | NONE                        | 112          | H-11804              | UNIT 1 TURB NE BLDG NORTH STA RWELL |
| 1T11             | II                      | SW               | UNLK               |                   | 1101H             | NONE                        | 0007A             | 1Z43112D14                  | 112          | H-11804              | CONTROL BLDG EAST CORRIDOR          |
| 1T17             | II                      | SW               | UNLK               |                   | 1101J             | 1U43130D05                  | 1102              | NONE                        | 130          | H-11805              | UNIT 1 TURB NE BLDG EAST STAIRWELL  |

TABLE 1.1-1  
(SHEET 4 OF 4)

| <u>FIRE DOOR</u> | <u>ACTION CATEGORY</u> | <u>DOOR TYPE</u> | <u>DOOR STATUS</u> | <u>DOOR OPER.</u> | <u>AREA No. 1</u> | <u>DETECTION ZONE No. 1</u> | <u>AREA No. 2</u> | <u>DETECTION ZONE No. 2</u> | <u>ELEV.</u> | <u>F H A DRAWING</u> | <u>LOCATION</u>                     |
|------------------|------------------------|------------------|--------------------|-------------------|-------------------|-----------------------------|-------------------|-----------------------------|--------------|----------------------|-------------------------------------|
| 1T18             | II                     | SW               | UNLK               |                   | 1101J             | 1U43130D05                  | 1102              | NONE                        | 130          | H-11805              | UNIT 1 TURBINE BLDG NORTH STA RWELL |
| 1T19             | II                     | SW               | UNLK               |                   | 1104*             | 1U43130D02                  | 1103              | NONE                        | 130          | H-11805              | EAST CABLEWAY / NE STAIRWAY         |
| 1T23             | II                     | SW               | UNLK               |                   | 1101M             | 1U43147D01                  | 1103              | NONE                        | 147          | H-11806              | UNIT 1 TURBINE BLDG EAST STAIRWELL  |
| 1T24             | II                     | SW               | UNLK               |                   | 1101N             | 1U43147D03                  | 1102              | NONE                        | 147          | H-11806              | UNIT 1 TURBINE BLDG NORTH STA RWELL |
| 1T33             | II                     | SW               | UNLK               |                   | 1103              | NONE                        | 0101A             | NONE                        | 164          | H-11807              | UNIT 1 TURBINE BLDG EAST STAIRWELL  |
| 1T34             | II                     | SW               | UNLK               |                   | 1102              | NONE                        | 0101A             | NONE                        | 164          | H11807               | UNIT 1 TURBINE BLDG NORTH STA RWELL |

TABLE 1.1-2 (SHEET 1 OF 2)  
UNIT 2 FIRE DOORS

| <u>FIRE DOOR</u> | <u>ACTION CATEGORY</u> | <u>DOOR TYPE</u> | <u>DOOR STATUS</u> | <u>DOOR OPER.</u> | <u>AREA No. 1</u> | <u>DETECTION ZONE No. 1</u> | <u>AREA No. 2</u> | <u>DETECTION ZONE No. 2</u> | <u>ELEV.</u> | <u>F H A DRAWING</u> | <u>LOCATION</u>                       |
|------------------|------------------------|------------------|--------------------|-------------------|-------------------|-----------------------------|-------------------|-----------------------------|--------------|----------------------|---------------------------------------|
| 2C01             | I                      | SW               | UNLK               |                   | 2006              | NONE                        | 0007A             | 1Z43112D14                  | 112          | H-11811              | U2 WATER ANALYSIS ROOM                |
| 2C02             | I                      | EX               | LKCL               |                   | 2005              | 2Z43112D11                  | 0001              | 2Z43112D12                  | 112          | H-11811              | STATION BATTERY ROOM 2B               |
| 2C03             | II                     | EX               | LKCL               |                   | 2004*             | 2Z43112D10                  | 0001              | 2Z43112D12                  | 112          | H-11811              | STATION BATTERY ROOM 2A               |
| 2C05             | II                     | SL               | AHO                | FL                | 2003              | 2Z43112W13                  | 0001              | 1Z43112D01                  | 112          | H-11812              | O L STORAGE TANK ROOM                 |
| 2C05A            | II                     | SL               | AHO                | FL                | 2003              | 2Z43112W13                  | 0001              | 1Z43112D01                  | 112          | H-11812              | O L STORAGE TANK ROOM                 |
| 2C06             | II                     | SL               | AHO                | FL                | 2020              | 2Z43130D22                  | 2014              | 2Z43130D17                  | 130          | H-11814              | EAST DC SWGR ROOM 2B                  |
| 2C07             | II                     | SL               | AHO                | FL                | 2017              | 2Z43130D19                  | 2014              | 2Z43130D17                  | 130          | H-11814              | EAST 600V SWGR ROOM 2B                |
| 2C08             | II                     | SL               | AHO                | FL                | 2019              | 2Z43130D21                  | 2014              | 2Z43130D17                  | 130          | H-11814              | TRANSFORMER ROOM                      |
| 2C09             | I                      | SL               | AHO                | FL                | 2016*             | 2Z43130D18                  | 2014              | 2Z43130D17                  | 130          | H-11814              | WEST 600V SWGR ROOM 2C                |
| 2C10             | I                      | SL               | AHO                | FL                | 2018              | 2Z43130D20                  | 2014              | 2Z43130D17                  | 130          | H-11814              | WEST DC SWGR ROOM 2C                  |
| 2C11             | II                     | SW               | UNLK               |                   | 2023              | 2Z43130W23                  | 0014K             | 2Z43130D17                  | 130          | H-11815              | O L CONDITIONER ROOM                  |
| 2C33             | I                      | SW               | UNLK               |                   | 2021              | 2Z43130D30                  | 2014              | 2Z43130D17                  | 130          | H-11814              | AC DISTRIBUTION ENCLOSURE             |
| 2C34             | I                      | SW               | UNLK               |                   | 2021              | 2Z43130D30                  | 2014              | 2Z43130D17                  | 130          | H-11814              | AC DISTRIBUTION ENCLOSURE             |
| 2R23             | I                      | SW               | LKCL               | AIRL              | 2203F*            | 2T43130D02                  | 2104*             | 2U43130D02                  | 130          | H-11833              | U2 RB/U2 EAST CABLEWAY                |
| 2R26             | I                      | SW               | LKCL               | AIRL              | 2301J             | NONE                        | 2205F*            | 2T43130D04                  | 130          | H-11843              | DRY WASTE STORAGE AREA                |
| 2R32             | I                      | SW               | UNLK               |                   | 2205N             | 2T43164D02                  | 2203I             | NONE                        | 164          | H-11834              | CHILLER ROOM                          |
| 2R52             | I                      | SW               | UNLK               |                   | 2205T             | NONE                        | 2203I             | NONE                        | 185          | H-11835              | RB EXHAUST F LTER ROOM                |
| 2R53             | I                      | SW               | UNLK               |                   | 2205U             | 2T43185W05                  | 2203I             | NONE                        | 185          | H-11835              | U2 RB STAIRWELL/ NW CORNER            |
| 2R61             | I                      | SW               | UNLK               |                   | 2205V             | NONE                        | 2203I             | NONE                        | 203          | H-11836              | U2 RB STAIRWELL/ FLTR                 |
| 2R63             | I                      | SW               | UNLK               |                   | 2205X             | NONE                        | 2203I             | NONE                        | 203          | H-11836              | U2 RB STAIRWELL/ NW CORNER            |
| 2R71             | I                      | SW               | UNLK               |                   | 2203I             | NONE                        | 0201B             | NONE                        | 228          | H-11837              | U2 RB STAIRWELL EL 228'               |
| 2RW02            | II                     | SW               | UNLK               |                   | 2101H             | NONE                        | 2301A             | NONE                        | 112          | H-11820              | EAST CORRIDOR 112 EL RADWASTE         |
| 2RW53            | II                     | SW               | UNLK               |                   | 0101J             | NONE                        | 2301              | NONE                        | 164          | H-11823              | U2 TB DECK / RADWASTE ENTRY 164' EL.  |
| 2RW57            | II                     | SW               | UNLK               |                   | 0101J             | NONE                        | 2301              | NONE                        | 164          | H-11823              | U2 TB DECK / RADWASTE ENTRY 164' EL.  |
| 2T01             | II                     | SW               | UNLK               |                   | 2101H             | NONE                        | 2103              | NONE                        | 112          | H-11820              | EAST CORRIDOR / U2 TURBINE EAST STAIR |

TABLE 1.1-2  
(SHEET 2 OF 2)

| <u>FIRE DOOR</u> | <u>ACTION CATEGORY</u> | <u>DOOR TYPE</u> | <u>DOOR STATUS</u> | <u>DOOR OPER.</u> | <u>AREA No. 1</u> | <u>DETECTION ZONE No. 1</u> | <u>AREA No. 2</u> | <u>DETECTION ZONE No. 2</u> | <u>ELEV.</u> | <u>F H A DRAWING</u> | <u>LOCATION</u>                          |
|------------------|------------------------|------------------|--------------------|-------------------|-------------------|-----------------------------|-------------------|-----------------------------|--------------|----------------------|------------------------------------------|
| 2T02             | II                     | SW               | UNLK               |                   | 2101C             | NONE                        | 2102              | NONE                        | 112          | H-11820              | U2 TURBINE BLDG SOUTH STAIR              |
| 2T19             | II                     | SW               | UNLK               |                   | 2104*             | 2U43130D02                  | 2103              | NONE                        | 130          | H-11821              | EAST CABLEWAY / SE STAIR                 |
| 2T23             | II                     | SW               | UNLK               |                   | 2101J             | 2T43130D05                  | 2102              | NONE                        | 130          | H-11821              | WORKING FLOOR / SOUTH STAIR              |
| 2T29             | II                     | SW               | UNLK               |                   | 2101N             | 2U43147D01                  | 2102              | NONE                        | 147          | H-11822              | U2 TB SOUTH STAIR / U2 TB SWGR 147' EL.. |
| 2T30             | II                     | SW               | UNLK               |                   | 2101M             | 2U43147D03                  | 2103              | NONE                        | 147          | H-11822              | U2 TB EAST STAIR / U2 TB SWGR 147' EL.   |
| 2T40             | II                     | SW               | UNLK               |                   | 0101J             | NONE                        | 2102              | NONE                        | 164          | H-11823              | U2 TB SOUTH STAIR / U2 TB DECK 164' EL.  |
| 2T41             | II                     | SW               | UNLK               |                   | 0101J             | NONE                        | 2103              | NONE                        | 164          | H-11823              | U2 TB EAST STAIR / U2 TB DECK 164' EL.   |

## FIRE DETECTION INSTRUMENTATION

### OPERATING REQUIREMENTS

---

- 1.2.1 As a minimum, the fire detection instrumentation for each fire detection zone shown in Tables 1.2-1 (Unit 1 and Common) and 1.2-2 (Unit 2) shall be FUNCTIONAL.

APPLICABILITY: Whenever equipment in that area is required to be OPERABLE or FUNCTIONAL.

ACTION:

With the number of FUNCTIONAL fire detection instruments less than the minimum number of FUNCTIONAL detectors required by Tables 1.2-1 and 1.2-2 or with the required surveillance interval (including grace period) exceeded, within 1 hour:

CATEGORY I:

Establish an hourly fire watch patrol for the fire area with the nonfunctional fire detection instrument(s) at least once per hour and, and notify onshift fire brigade leader.

OR

Establish alternative compensatory measures per NMP-ES-035-005.

CATEGORY II:

Assign a tracking Fire Action Statement (FAS) for the nonfunctional fire detection instrument(s). If not returned to FUNCTIONAL status within 45 days, establish an hourly fire watch patrol.

### SURVEILLANCE REQUIREMENTS

---

- 2.2.1 The circuit supervision associated with the detector alarms of each of the above required fire detection instruments shall be demonstrated FUNCTIONAL at least once per 62 days.
- 2.2.2 Each of the above required fire detection instruments, which are accessible during plant operation, shall be demonstrated FUNCTIONAL by performance of the following tests:
- a. At least once per 6 months:
    1. For restorable heat detectors, one or more detectors on each signal-initiating circuit shall be tested. Different detectors shall be selected for each test.

SURVEILLANCE REQUIREMENTS (Continued)

---

2. Nonrestorable, line-type, fixed-temperature detectors shall be tested for alarm function. The loop resistance shall be measured, recorded, and compared with a predetermined range. Significant changes in loop resistance deviating outside the predetermined range shall be investigated to determine impact on detector FUNCTIONALITY.
  3. All smoke detectors will be visually inspected in place to identify missing detectors, detectors with impeded smoke entry, abnormally dirty detectors, and detectors no longer suitably located because of occupancy or structural changes.
- b. At least once per 12 months:
1. Smoke detector sensitivity shall be checked to assure that each detector is within its listed and marked sensitivity range.
  2. A test shall be performed to assure that each smoke detector is operative and produces the intended response. Each detector shall be caused to initiate an alarm at its installed location with smoke or other aerosol acceptable to the manufacturer. This test must demonstrate that smoke can enter the chamber and initiate an alarm.
- 2.2.3 Fire detectors which are not accessible during plant operation shall be demonstrated FUNCTIONAL by performance of the test identified in subsection 2.2.2 during each MODE 4 exceeding 72 hours unless performed within the previous required surveillance interval.

## HNP-FHA-9

TABLE 1.2-1 (SHEET 1 OF 3)  
UNIT 1 AND COMMON DETECTION INSTRUMENTATION

## CONTROL BUILDING

| <u>FIRE AREA DESCRIPTION</u> | <u>FIRE AREA/ZONE</u> | <u>TYPE*</u> | <u>NO. OF DEVICES</u> | <u>MINIMUM OPERATING DETECTORS</u> | <u>SYSTEM NUMBER</u> | <u>ACTION CATEGORY</u> | <u>NOTES</u> |
|------------------------------|-----------------------|--------------|-----------------------|------------------------------------|----------------------|------------------------|--------------|
| WORKING FLOOR                | 0001                  | IS           | 20                    | 10                                 | 1Z43112D01           | I                      |              |
| WEST STATION BATTERY RM 1A   | 1004                  | IS           | 2                     | 1                                  | 1Z43112D03           | I                      |              |
| EAST STATION BATTERY RM 1B   | 1005                  | IS           | 2                     | 1                                  | 1Z43112D04           | I                      |              |
| AC INVERTER RM UNIT 1        | 1008                  | IS           | 1                     | 1                                  | 1Z43112D05           | I                      |              |
| RPS BATTERY RMS UNIT 1 N & S | 1009/1010             | IS           | 2                     | 2                                  | 1Z43112D06           | II                     |              |
| ANNUNCIATOR LOGIC CABINET    | 0001                  | IS           | 1                     | 1                                  | 1Z43112D07           | II                     |              |
| EAST CORRIDOR CONTROL BLDG   | 0007A                 | IS           | 6                     | 3                                  | 1Z43112D14           | I                      |              |
| HEATH PHYSICS COLD LAB       | 0007C,D,E             | IS/ST        | 4/2                   | 2/1                                | 1Z43112D15           | II                     |              |
| CB CORRIDOR UNIT 1           | 0014K                 | LT           | 2                     | 1                                  | 1Z43130D02           | I                      |              |
| WEST SWITCHGEAR RM 1C        | 1016                  | IS           | 2                     | 1                                  | 1Z43130D04           | I                      |              |
| EAST SWITCHGEAR RM 1D        | 1017                  | IS           | 2                     | 1                                  | 1Z43130D05           | I                      |              |
| WEST DC SWITCHGEAR RM 1A     | 1018                  | IS           | 1                     | 1                                  | 1Z43130D06           | II                     |              |
| TRANSFORMER RM 1             | 1019                  | IS           | 1                     | 1                                  | 1Z43130D07           | I                      |              |
| EAST DC SWITCHGEAR RM 1B     | 1020                  | IS           | 1                     | 1                                  | 1Z43130D08           | I                      |              |
| HEALTH PHYSICS LAB. 1 & 2    | 0014A-J               | IS           | 22                    | 11                                 | 1Z43130D09           | I                      |              |
| ANNUNCIATOR RM - UNIT 1      | 1015                  | IS           | 1                     | 1                                  | 1Z43130D10           | I                      |              |
| RPS MG SET RM UNIT 1         | 1013                  | IS           | 1                     | 1                                  | 1Z43130D11           | I                      |              |
| RPS VERTICAL CABLE RM        | 0040                  | LT           | 1                     | 1                                  | 1Z43130D13           | I                      |              |
| CABLE SPREAD RM UNITS 1 & 2  | 0024A                 | LT           | 1                     | 1                                  | 1Z43147D04           | I                      |              |
| COMPUTER RM UNITS 1 & 2      | 0024B                 | IS           | 12                    | 8                                  | 1Z43147D06           | I                      |              |
| LPCI INVERTER RM             | 0028                  | IS           | 9                     | 4                                  | 1Z43147D08           | I                      |              |
| CO2 TANK RM                  | 0025                  | IS           | 7                     | 4                                  | 1Z43147D09           | II                     |              |
| CONTROL RMS UNITS 1 & 2      | 0024C                 | IS/ST        | 58/2                  | 30/0                               | 1Z43164D01           | I                      |              |
| CR ANCILLARY RMS             | 0101F,G,H             | ST           | 4                     | 4                                  | 1Z43164D02           | I                      |              |

## DIESEL GENERATOR BUILDING AND OTHER STRUCTURES

| <u>FIRE AREA DESCRIPTION</u> | <u>FIRE AREA/ZONE</u> | <u>TYPE*</u> | <u>NO. OF DEVICES</u> | <u>MINIMUM OPERATING DETECTOR S</u> | <u>SYSTEM NUMBER</u> | <u>ACTION CATEGORY</u> | <u>NOTES</u> |
|------------------------------|-----------------------|--------------|-----------------------|-------------------------------------|----------------------|------------------------|--------------|
| SUB-STATION SWITCH HOUSE     | 0801                  | IS           | 9                     | 5                                   | 1X43127D01           | II                     |              |
| PRODUCTION WAREHOUSE         | N/A                   | IS           | 42                    | 21                                  | 1X43129D07           | II                     |              |
| DIESEL- SWGR / BATTERY RM 1F | 1408/1406             | PE/ST        | 4/1                   | 2/1                                 | 1X43130C08           | I                      | NOTE 1       |
| DIESEL- SWGR / BATTERY RM 1G | 1404/1402             | PE/ST        | 4/1                   | 2/1                                 | 1X43130C09           | I                      | NOTE 1       |
| DIESEL- SWGR / BATTERY RM 1E | 1412/1410             | PE/ST        | 4/1                   | 2/1                                 | 1X43130C07           | I                      | NOTE 1       |
| START-UP BOILER SWGR HSE     | N/A                   | IS           | 1                     | 1                                   | 1X43130D16           | II                     |              |
| OFF-GAS RECOMBINER BLDG      | 1608A                 | IS           | 7                     | 4                                   | 1X43130D14           | II                     |              |

\* Refer to FHA Section 7.0 legend for detection system type.

## HNP-FHA-9

TABLE 1.2-1  
(SHEET 2 OF 3)

## INTAKE STRUCTURE

| <u>FIRE AREA DESCRIPTION</u> | <u>FIRE AREA/ZONE</u> | <u>TYPE*</u> | <u>NO. OF DEVICES</u> | <u>MINIMUM OPERATING DETECTORS</u> | <u>SYSTEM NUMBER</u> | <u>ACTION CATEGORY</u> | <u>NOTES</u> |
|------------------------------|-----------------------|--------------|-----------------------|------------------------------------|----------------------|------------------------|--------------|
| INTAKE STRUCTURE             | 0501                  | ST           | 8                     | 4                                  | 1Y43111D02           | II                     |              |

## REACTOR BUILDING

| <u>FIRE AREA DESCRIPTION</u> | <u>FIRE AREA/ZONE</u> | <u>TYPE*</u> | <u>NO. OF DEVICES</u> | <u>MINIMUM OPERATING DETECTORS</u> | <u>SYSTEM NUMBER</u> | <u>ACTION CATEGORY</u> | <u>NOTES</u> |
|------------------------------|-----------------------|--------------|-----------------------|------------------------------------|----------------------|------------------------|--------------|
| E-TORUS WTR CURTAIN          | 1203/1205             | LT           | 1                     | 1                                  | 1T43087D02           | I                      |              |
| W-TORUS WTR CURTAIN          | 1203/1205             | LT           | 1                     | 1                                  | 1T43087D04           | I                      |              |
| SE PUMP ROOM                 | 1203B                 | LT           | 1                     | 1                                  | 1T43087D08           | II                     |              |
| NE RHR PUMP ROOM             | 1205B                 | LT           | 1                     | 1                                  | 1T43087D09           | II                     |              |
| SW WTR CURTAIN 130' EL.      | 1203F                 | IS           | 8                     | 4                                  | 1T43130D02           | I                      |              |
| S REACTOR BLDG CRD AREA      | 1203F                 | LT           | 2                     | 1                                  | 1T43130D04           | I                      |              |
| SE CORNER 130' EL.           | 1203F                 | IS           | 3                     | 1                                  | 1T43130D05           | I                      |              |
| E-WTR CURTAIN 130' EL.       | 1203F/1205F           | LT           | 2                     | 1                                  | 1T43130D07           | I                      |              |
| NE CORNER 130' EL.           | 1205F                 | IS           | 3                     | 1                                  | 1T43130D08           | II                     |              |
| N REACTOR BLDG CRD AREA      | 1205F                 | LT           | 2                     | 1                                  | 1T43130D09           | I                      |              |
| NW CORNER 130' EL.           | 1205F                 | IS           | 4                     | 2                                  | 1T43130D10           | I                      |              |
| E-WTR CURTAIN 158' EL.       | 1203K/1205I           | IS           | 8                     | 4                                  | 1T43158D04           | I                      |              |
| HVAC ROOM ZONE               | 1205N                 | LT           | 1                     | 1                                  | 1T43164D02           | I                      |              |

## TURBINE BUILDING

| <u>FIRE AREA DESCRIPTION</u> | <u>FIRE AREA/ZONE</u> | <u>TYPE*</u> | <u>NO. OF DEVICES</u> | <u>MINIMUM OPERATING DETECTORS</u> | <u>SYSTEM NUMBER</u> | <u>ACTION CATEGORY</u> | <u>NOTES</u> |
|------------------------------|-----------------------|--------------|-----------------------|------------------------------------|----------------------|------------------------|--------------|
| EAST CABLEWAY                | 1104                  | IS           | 12                    | 6                                  | 1U43130D02           | I                      |              |
| NW SWITCHGEAR AREA           | 1101J                 | IS           | 12                    | 6                                  | 1U43130D05           | II                     |              |
| NE CORRIDOR MCC AREA         | 1101M                 | IS           | 7                     | 4                                  | 1U43147D01           | II                     |              |
| NW CORNER SWGR AREA          | 1101N                 | IS           | 18                    | 9                                  | 1U43147D03           | II                     |              |
| TURBINE BEARING # 1          | 0101B                 | ST           | 1                     | 1                                  | 1U43164D02           | II                     |              |
| TURBINE BEARING # 2          | 0101B                 | ST           | 1                     | 1                                  | 1U43164D04           | II                     |              |
| TURBINE BEARING # 3          | 0101B                 | ST           | 1                     | 1                                  | 1U43164D06           | II                     |              |
| TURBINE BEARING # 4          | 0101B                 | ST           | 1                     | 1                                  | 1U43164D08           | II                     |              |
| TURBINE BEARING # 5          | 0101B                 | ST           | 1                     | 1                                  | 1U43164D10           | II                     |              |
| TURBINE BEARING # 6          | 0101B                 | ST           | 1                     | 1                                  | 1U43164D12           | II                     |              |
| GENERATOR BEARING # 7        | 0101B                 | ST           | 1                     | 1                                  | 1U43164D14           | II                     |              |
| GENERATOR BEARING # 8        | 0101B                 | ST           | 1                     | 1                                  | 1U43164D16           | II                     |              |

\* Refer to FHA Section 7.0 legend for detection system type.



# HNP-FHA-9

TABLE 1.2-1  
(SHEET 3 OF 3)

## RADWASTE BUILDING

| <u>FIRE AREA DESCRIPTION</u> | <u>FIRE AREA/ZONE</u> | <u>TYPE*</u> | <u>NO. OF DEVICES</u> | <u>MINIMUM OPERATING DETECTORS</u> | <u>SYSTEM NUMBER</u> | <u>ACTION CATEGORY</u> | <u>NOTES</u> |
|------------------------------|-----------------------|--------------|-----------------------|------------------------------------|----------------------|------------------------|--------------|
| RADWASTE CONTROL ROOM        | 1301H                 | IS           | 2                     | 1                                  | 1V43132D01           | I                      |              |
| DRUM FILL AND CAP AREA       | 1301J                 | IS           | 2                     | 1                                  | 1V43132D03           | I                      |              |

## COOLING TOWERS

| <u>FIRE AREA DESCRIPTION</u> | <u>FIRE AREA/ZONE</u> | <u>TYPE*</u> | <u>NO. OF DEVICES</u> | <u>MINIMUM OPERATING DETECTOR S</u> | <u>SYSTEM NUMBER</u> | <u>ACTION CATEGORY</u> | <u>NOTES</u> |
|------------------------------|-----------------------|--------------|-----------------------|-------------------------------------|----------------------|------------------------|--------------|
| CT 1A SWITCH HOUSE           | 1801                  | IS           | 2                     | 1                                   | 1W43118D05           | II                     |              |
| CT 1B SWITCH HOUSE           | 1802                  | IS           | 2                     | 1                                   | 1W43118D10           | II                     |              |
| CT 1C SWITCH HOUSE           | 1803                  | IS           | 2                     | 1                                   | 1W43118D15           | II                     |              |

\* Refer to FHA Section 7.0 legend for detection system type

### NOTES:

1. The detector in the adjacent battery room is required to be FUNCTIONAL.

## HNP-FHA-9

TABLE 1.2-2 (SHEET 1 OF 2)  
UNIT 2 FIRE DETECTION INSTRUMENTATION

## CONTROL BUILDING

| <u>FIRE AREA DESCRIPTION</u> | <u>FIRE AREA/ZONE</u> | <u>TYPE*</u> | <u>NO. OF DEVICES</u> | <u>MINIMUM OPERATING DETECTORS</u> | <u>SYSTEM NUMBER</u> | <u>ACTION CATEGORY</u> | <u>NOTES</u> |
|------------------------------|-----------------------|--------------|-----------------------|------------------------------------|----------------------|------------------------|--------------|
| AC INVERTER ROOM             | 2008                  | IS           | 1                     | 1                                  | 2Z43112D08           | I                      |              |
| RPS BATTERY RMS – N & S      | 2009/2010             | IS           | 2                     | 2                                  | 2Z43112D09           | II                     |              |
| WEST STA BATTERY RM 2A       | 2004                  | IS           | 4                     | 2                                  | 2Z43112D10           | I                      |              |
| EAST STA BATTERY RM 2B       | 2005                  | IS           | 4                     | 2                                  | 2Z43112D11           | I                      |              |
| CORRIDORS/GEN WORK AREA      | 0001                  | LT           | 2                     | 1                                  | 2Z43112D12           | I                      |              |
| RPS RM UNIT 2                | 2013                  | IS           | 1                     | 1                                  | 2Z43130D14           | I                      |              |
| ANNUNCIATOR RM UNIT 2        | 2015                  | IS           | 1                     | 1                                  | 2Z43130D15           | I                      |              |
| SOUTH CORRIDOR               | 2014                  | LT           | 2                     | 1                                  | 2Z43130D17           | I                      |              |
| WEST 600V SWGR RM 2C         | 2016                  | IS           | 2                     | 1                                  | 2Z43130D18           | I                      |              |
| EAST 600V SWGR RM 2D         | 2017                  | IS           | 2                     | 1                                  | 2Z43130D19           | I                      |              |
| WEST DC SWGR RM 2A           | 2018                  | IS           | 1                     | 1                                  | 2Z43130D20           | I                      |              |
| TRANSFORMER RM 2CD           | 2019                  | IS           | 1                     | 1                                  | 2Z43130D21           | I                      |              |
| EAST DC SWGR RM 2B           | 2020                  | IS           | 1                     | 1                                  | 2Z43130D22           | I                      |              |
| AC DISTRIBUTION ENCLOSURE    | 2021                  | IS           | 1                     | 1                                  | 2Z43130D30           | I                      |              |

## REACTOR BUILDING

| <u>FIRE AREA DESCRIPTION</u> | <u>FIRE AREA/ZONE</u> | <u>TYPE*</u> | <u>NO. OF DEVICES</u> | <u>MINIMUM OPERATING DETECTORS</u> | <u>SYSTEM NUMBER</u> | <u>ACTION CATEGORY</u> | <u>NOTES</u> |
|------------------------------|-----------------------|--------------|-----------------------|------------------------------------|----------------------|------------------------|--------------|
| W TORUS WATER CURTAIN        | 2203A/2205A           | LT           | 1                     | 1                                  | 2T43087D02           | I                      |              |
| E TORUS WATER CURTAIN        | 2203A/2205A           | LT           | 1                     | 1                                  | 2T43087D04           | I                      |              |
| NE RHR PUMP ROOM             | 2203B                 | LT           | 1                     | 1                                  | 2T43087D07           | II                     |              |
| SE RHR PUMP ROOM             | 2205B                 | LT           | 1                     | 1                                  | 2T43087D08           | II                     |              |
| N REACTOR BLDG CRD AREA      | 2203F                 | LT           | 2                     | 1                                  | 2T43130D02           | I                      |              |
| S REACTOR BLDG CRD AREA      | 2205F                 | LT           | 2                     | 1                                  | 2T43130D04           | II                     |              |
| WTR CURTAIN AREA 130' EL.    | 2203/2205             | IS/LT        | 14/1                  | 7/1                                | 2T43130D05           | I                      |              |
| SS PANEL 2C82-P001           | 2203F                 | PE           | 2                     | 2                                  | 2T43130D06           | I                      |              |
| CHILLER BUILDING             | N/A                   | IS           | 2                     | 1                                  | 2T43130D08           | II                     |              |
| E WATER CURTAIN 158' EL.     | 2203/2205             | IS           | 4                     | 2                                  | 2T43158D04           | I                      |              |
| HVAC CHILLER RM              | 2205N                 | IS           | 13                    | 6                                  | 2T43164D02           | I                      |              |
| REACTOR BLDG SUPPLY FAN      | 2205R                 | IS           | 1                     | 1                                  | 2T43185D08           | II                     |              |
| REFUELING FLR SUPPLY FAN     | 2205Y                 | IS           | 1                     | 1                                  | 2T43203D06           | II                     |              |

\* Refer to FHA Section 7.0 legend for detection system type.

## HNP-FHA-9

TABLE 1.2-2  
(SHEET 2 OF 2)

## TURBINE BUILDING

| <u>FIRE AREA DESCRIPTION</u> | <u>FIRE AREA/ZONE</u> | <u>TYPE*</u> | <u>NO. OF DEVICES</u> | <u>MINIMUM OPERATING DETECTORS</u> | <u>SYSTEM NUMBER</u> | <u>ACTION CATEGORY</u> | <u>NOTES</u> |
|------------------------------|-----------------------|--------------|-----------------------|------------------------------------|----------------------|------------------------|--------------|
| EAST CABLEWAY                | 2104                  | IS           | 11                    | 6                                  | 2U43130D02           | I                      |              |
| SW CORNER SWGR AREA          | 2101J                 | IS           | 19                    | 9                                  | 2U43130D05           | II                     |              |
| SW CORNER SWGR AREA          | 2101N                 | IS           | 19                    | 9                                  | 2U43147D01           | II                     |              |
| SE CORNER SWGR AREA          | 2101M                 | IS           | 9                     | 4                                  | 2U43147D03           | II                     |              |
| TURBINE BEARING # 1          | 0101I                 | ST           | 1                     | 1                                  | 2U43164D02           | II                     |              |
| TURBINE BEARING # 2          | 0101I                 | ST           | 1                     | 1                                  | 2U43164D04           | II                     |              |
| TURBINE BEARING # 3          | 0101I                 | ST           | 1                     | 1                                  | 2U43164D06           | II                     |              |
| TURBINE BEARING # 4          | 0101I                 | ST           | 1                     | 1                                  | 2U43164D08           | II                     |              |
| TURBINE BEARING # 5          | 0101I                 | ST           | 1                     | 1                                  | 2U43164D10           | II                     |              |
| TURBINE BEARING # 6          | 0101I                 | ST           | 1                     | 1                                  | 2U43164D12           | II                     |              |
| GENERATOR BEARING # 7        | 0101I                 | ST           | 1                     | 1                                  | 2U43164D14           | II                     |              |
| GENERATOR BEARING # 8        | 0101I                 | ST           | 1                     | 1                                  | 2U43164D16           | II                     |              |

## RADWASTE BUILDING

| <u>FIRE AREA DESCRIPTION</u> | <u>FIRE AREA/ZONE</u> | <u>TYPE*</u> | <u>NO. OF DEVICES</u> | <u>MINIMUM OPERATING DETECTORS</u> | <u>SYSTEM NUMBER</u> | <u>ACTION CATEGORY</u> | <u>NOTES</u> |
|------------------------------|-----------------------|--------------|-----------------------|------------------------------------|----------------------|------------------------|--------------|
| UNIT 2 RADWASTE CTRL RM      | 2301V                 | IS           | 6                     | 3                                  | 2V43164D01           | I                      |              |

## COOLING TOWERS

| <u>FIRE AREA DESCRIPTION</u> | <u>FIRE AREA/ZONE</u> | <u>TYPE*</u> | <u>NO. OF DEVICES</u> | <u>MINIMUM OPERATING DETECTORS</u> | <u>SYSTEM NUMBER</u> | <u>ACTION CATEGORY</u> | <u>NOTES</u> |
|------------------------------|-----------------------|--------------|-----------------------|------------------------------------|----------------------|------------------------|--------------|
| CT 4 SWGR HOUSE              | 2801                  | IS           | 3                     | 2                                  | 2W43118D16           | II                     |              |
| CT 5 SWGR HOUSE              | 2802                  | IS           | 3                     | 2                                  | 2W43118D17           | II                     |              |
| CT 6 SWGR HOUSE              | 2803                  | IS           | 3                     | 2                                  | 2W43118D18           | II                     |              |

## DIESEL GENERATOR BUILDING AND OTHER STRUCTURES

| <u>FIRE AREA DESCRIPTION</u> | <u>FIRE AREA/ZONE</u> | <u>TYPE*</u> | <u>NO. OF DEVICES</u> | <u>MINIMUM OPERATING DETECTORS</u> | <u>SYSTEM NUMBER</u> | <u>ACTION CATEGORY</u> | <u>NOTES</u> |
|------------------------------|-----------------------|--------------|-----------------------|------------------------------------|----------------------|------------------------|--------------|
| DIESEL - SWGR / BATT RM 2E   | 2404                  | PE           | 4                     | 2                                  | 2X43130C10           | II                     |              |
| DIESEL - SWGR / BATT RM 2F   | 2402/2408             | PE/ST        | 4/1                   | 2/1                                | 2X43130C11           | I                      |              |
| DIESEL - SWGR / BATT RM 2G   | 2406/2409             | PE/ST        | 4/1                   | 2/1                                | 2X43130C12           | I                      |              |
| HOT MACHINE SHOP             | 2604                  | IS           | 10                    | 5                                  | 2X43130D19           | II                     |              |

\* Refer to FHA Section 7.0 legend for detection system type.

## NOTES:

1. The detector in the adjacent battery room is required to be FUNCTIONAL.

## FIRE SUPPRESSION WATER SYSTEM

### OPERATING REQUIREMENTS

---

1.3.1 The fire suppression water system shall be FUNCTIONAL with:

- a. At least two FUNCTIONAL high pressure pumps, each with a capacity of 2500 gpm, with their discharge aligned to the fire suppression header, and
- b. At least two separate water supplies, each with a minimum contained volume of 270,000 gallons, except during normal fire pump testing, fire main flushing, or other periodic fire system surveillances. While periodic fire system surveillance is being performed, the total combined capacity of the two storage tanks shall not be less than 450,000 gallons and shall be restored to greater than 270,000 gallons per tank within 8 hours, and
- c. A FUNCTIONAL flow path capable of taking suction from each of the water supplies and transferring the water through distribution piping with FUNCTIONAL sectionalizing control or isolation valves to the yard hydrants and the first valve ahead of the water flow alarm device on each sprinkler or spray system riser required to be FUNCTIONAL per Operating Requirement 1.4.1, and
- d. Automatic initiation logic for each pump.

APPLICABILITY: At all times.

#### ACTION:

- a. With one pump and/or one water supply nonfunctional or with the required surveillance interval (including grace period) exceeded, restore the nonfunctional equipment to FUNCTIONAL status within 14 days, or perform an engineering evaluation of the effects of one pump and/or one water supply remaining nonfunctional and submit to the Plant Review Board within the next 30 days.
- b. With all three fire pumps nonfunctional or with both water supply tanks nonfunctional, establish a nominal backup fire suppression supply system within 24 hours or begin an orderly plant shutdown. Additionally, do not cascade to other nonfunctional water-based FHA actions. Instead, within 1 hour of all three fire pumps nonfunctional or with both water supply tanks nonfunctional:
  - Prohibit all hot work, unless directly supporting the establishment of a nominal backup fire suppression supply system.
  - Prohibit the storage of and remove transient combustibles from the following areas, unless a continuous fire watch with a fire extinguisher is established: 0014G, 0014K, 0024A, 0024B, 1020, 1203F, 1205B, 2020, and 2205B.
  - Establish an hourly fire watch for the following water suppression systems:

| Unit 1             |             | Unit 2             |             |
|--------------------|-------------|--------------------|-------------|
| Suppression System | Fire Zone   | Suppression System | Fire Zone   |
| 1Z43130W01         | 0014K       | 2Z43130W16         | 0014G       |
| 1Z43147W02         | 0024A       | 2Z431147W03        | 0024A       |
| 1U43130W03         | 1101J       | 2U43130W03         | 2101J       |
| 1T43087W01         | 1203A/1205A | 2T43087W01         | 2203A/2205A |
| 1T43087W03         | 1203A/1205A | 2T43087W03         | 2203A/2205A |
| 1T431301W03        | 1203F/1205F | 2T43130W03         | 2203F/2205F |
| 1T43158W03         | 1203K/1205I | 2T43158W03         | 2203K/2205I |

## SURVEILLANCE REQUIREMENTS

2.3.1 The fire water main system shall be demonstrated FUNCTIONAL:

- a. At least once per 31 days by verifying the contained water supply volume is at least the minimum specified.
- b. At least once per 31 days by starting each pump from ambient conditions, via the auto-start signal, and operating it for at least 30 minutes on recirculation flow.
- c. At least once per 12 months by:
  1. Verifying that each pump develops at least 2500 gpm at a system head of 120 psig.
  2. Verifying that each high pressure pump starts sequentially to maintain the fire suppression water system pressure greater than or equal to 85 psig.
- d. At least once per 18 months by performance of a system flush.
- e. At least once per 3 years by performing a flow test of the system in accordance with guidance provided by the National Fire Protection Association.

2.3.2 Each fire pump diesel engine shall be demonstrated FUNCTIONAL:

- a. At least once per 31 days by verifying the fuel storage tank contains at least 275 gallons of fuel.
- b. At least once per 92 days by verifying that a sample of diesel fuel from the fuel storage tank is obtained in accordance with and is within the acceptance limits given in Technical Specification 5.5.9.
- c. At least once per 24 months, during shutdown, by verifying the diesel starts from ambient conditions, via the auto-start signal, and operates for greater than or equal to 60 minutes while loaded with the fire pump.

SURVEILLANCE REQUIREMENTS (Continued)

---

- d. Subjecting the diesels, to inspections, at the intervals recommended by the vendor for the class of service.
- 2.3.3 The fire pump diesel starting 24-V battery bank and charger shall be demonstrated FUNCTIONAL:
- a. At least once per 7 days by verifying that:
    - 1. The electrolyte level of each pilot cell is above the plates.
    - 2. The pilot cell specific gravity, corrected to 77°F and full electrolyte level, is greater than or equal to 1.205.
    - 3. The pilot cell voltage is greater than or equal to 2.0 V.
    - 4. The overall battery voltage is greater than or equal to 24 V.
  - b. At least once per 92 days by verifying that:
    - 1. The voltage of each connected cell is greater than or equal to 2.0 V under float charge and has not decreased more than 0.17 V from the value observed during the original acceptance test.
    - 2. The specific gravity, corrected to 77°F and full electrolyte level, of each connected cell is greater than or equal to 1.205 and has not decreased more than 0.02 from the value observed during the previous test.
    - 3. The electrolyte level of each connected cell is above the plates.
  - c. At least once per 18 months by verifying that:
    - 1. The batteries and battery racks show no visual indication of physical damage or abnormal deterioration.
    - 2. Cell-to-cell and terminal connections are clean, tight, free of corrosion, and coated with anti-corrosion material.

## SPRAY AND/OR SPRINKLER SYSTEMS

### OPERATING REQUIREMENTS

---

1.4.1 The spray and/or sprinkler systems in Tables 1.4-1 and 1.4-2 shall be FUNCTIONAL.

APPLICABILITY: Whenever equipment protected by the spray and/or sprinkler systems is required to be OPERABLE or FUNCTIONAL.

ACTION: With one or more of the above required spray and/or sprinkler systems nonfunctional or with the required surveillance interval (including grace period) exceeded, within 1 hour :

CATEGORY I:

Establish a continuous fire watch with backup fire suppression equipment, provided radiation levels permit personnel access, and notify the onshift fire brigade leader.

OR

Establish alternative compensatory measures per NMP-ES-035-005.

CATEGORY II:

Assign a tracking Fire Action Statement (FAS) for nonfunctional spray and/or sprinkler system(s). If not returned to FUNCTIONAL status within 45 days, establish an hourly fire watch patrol.

### SURVEILLANCE REQUIREMENTS

---

2.4.1 Each of the above required spray and/or sprinkler systems shall be demonstrated FUNCTIONAL:

- a. At least once per 31 days by verifying that each isolation valve in the flow path, not monitored through an electrically supervised circuit signaling to a constantly manned location, is in its correct position.
- b. At least once per 12 months by cycling each testable isolation valve in the flow path through at least one complete cycle of full travel, and verifying proper operation of electrical supervision of monitored valves.
- c. At least once per 24 months:
  1. By performing a system functional test which includes simulated automatic actuation of the system.

SURVEILLANCE REQUIREMENTS (Continued)

---

2. By performing a visual inspection of the dry pipe spray and/or sprinkler headers to verify their integrity.
  3. By performing a visual inspection of each nozzle's spray pattern.
  4. By cycling each isolation valve in the flow path that is not testable during plant operation through at least one complete cycle of full travel.
- d. At least once per 3 years by performing an air flow test through each open head spray and sprinkler header and verifying each open head spray and sprinkler nozzle is unobstructed.



## HNP-FHA-9

TABLE 1.4-1  
UNIT 1 AND COMMON SUPPRESSION SYSTEM

CONTROL BUILDING

| <u>Elev</u> | <u>Fire Area/Zone</u> | <u>Fire Area Description</u>             | <u>Type*</u> | <u>System Number</u> | <u>ACTION Category</u> |
|-------------|-----------------------|------------------------------------------|--------------|----------------------|------------------------|
| 112         | 1003                  | Turbine Lube Oil Storage Tanks           | DL           | 1Z43112W02           | II                     |
| 130         | 0014K                 | North Corridor Unit 1                    | WP           | 1Z43130W01           | I                      |
| 130         | 1023                  | Turbine Lube Oil Conditioner & Reservoir | WP           | 1Z43130W03           | II                     |
| 130         | 0040                  | RPS Vertical Cableway                    | WP           | 1Z43130W12           | I                      |
| 147         | 0024A                 | Cable Spreading Room                     | PA           | 1Z43147W02           | I                      |

Reactor Building

| <u>Elev</u> | <u>Fire Area/Zone</u> | <u>Fire Area Description</u>         | <u>Type*</u> | <u>System Number</u> | <u>ACTION Category</u> |
|-------------|-----------------------|--------------------------------------|--------------|----------------------|------------------------|
| 087         | 1203a/1205a           | West Torus Water Curtain             | WP           | 1T43087W03           | I                      |
| 087         | 1203a/1205a           | East Torus Water Curtain             | WP           | 1T43087W01           | I                      |
| 087         | 1203C                 | RCIC Room Suppression System         | WP           | 1T43087W05           | I                      |
| 087         | 1205Z                 | HPCI Room Ceiling Suppression System | WP           | 1T43087W07           | I                      |
| 130         | 1203F                 | Working Floor SW Corner              | WP           | 1T43130W01           | I                      |
| 130         | 1203F/1205F           | East Suppression System              | WP           | 1T43130W03           | I                      |
| 130         | 1205F                 | Working Floor North West Corner      | WP           | 1T43130W06           | I                      |
| 158         | 1203K                 | Recirculation Pump ASD "B" Area      | WP           | 1T43158W01           | I                      |
| 158         | 1203K                 | Recirculation Pump ASD "A" Area      | WP           | 1T43158W02           | I                      |
| 158         | 1203k/1205I           | East Suppression System              | WP           | 1T43158W03           | I                      |
| 164         | 1205N                 | HVAC Room South                      | PA           | 1T43164W01           | I                      |
| 164         | 1205N                 | HVAC Room North                      | PA           | 1T43164W03           | I                      |
| 187         | 1205U                 | South West Corridor                  | WP           | 1T43185W03           | I                      |
| 185         | 1205S                 | East Working Floor                   | WP           | 1T43185W04           | I                      |

Turbine Building

| <u>Elev</u> | <u>Fire Area/Zone</u> | <u>Fire Area Description</u>                                                           | <u>Type*</u> | <u>System Number</u> | <u>ACTION Category</u> |
|-------------|-----------------------|----------------------------------------------------------------------------------------|--------------|----------------------|------------------------|
| 112         | 1101I                 | West Cable way                                                                         | WP           | 1U43112W01           | II                     |
| 112         | 1101A                 | West End Condenser A & B                                                               | PA           | 1U43112W02           | II                     |
| 130         | 1104                  | East Cableway                                                                          | WP           | 1U43130W01           | I                      |
| 130         | 1101J                 | Gen Hydrogen Seal Oil Unit                                                             | WS           | 1U43130W03           | II                     |
| 130         | 1101K                 | West End Condenser Bay A & B                                                           | PA           | 1U43130W04           | II                     |
| 164         | 0101D                 | Reactor Feed Pump B                                                                    | WS           | 1U43164W18           | II                     |
| 164         | 0101C                 | Reactor Feed Pump A                                                                    | WS           | 1U43164W19           | II                     |
| 164         | 0101A                 | RFP Oil Conditioner                                                                    | WS           | 1U43164W17           | II                     |
| 164         | 0101B                 | Turbine Bearing Systems (Multiple Systems)<br>1U43164W1, W3, W5, W7, W9, W11, W13, W15 | WS           | 1U43164W1- W15       | II                     |

Intake Structure

| <u>Elev</u> | <u>Fire Area/Zone</u> | <u>Fire Area Description</u>             | <u>Type*</u> | <u>System Number</u> | <u>ACTION Category</u> |
|-------------|-----------------------|------------------------------------------|--------------|----------------------|------------------------|
| 111         | 0501                  | Intake Structure Pump Water Spray System | WS           | 1Y43111W01           | II                     |

\* Refer to FHA Section 7.0 legend for suppression system type.

## HNP-FHA-9

TABLE 1.4-2  
UNIT 2 SUPPRESSION SYSTEM

Control Building

| <u>Elev</u> | <u>Fire Area/Zone</u> | <u>Fire Area Description</u>             | <u>Type*</u> | <u>System Number</u> | <u>ACTION Category</u> |
|-------------|-----------------------|------------------------------------------|--------------|----------------------|------------------------|
| 112         | 2003                  | Turbine Lube Oil Storage Tanks           | DL           | 2Z43112W13           | II                     |
| 130         | 2023                  | Turbine Lube Oil Conditioner & Reservoir | DL           | 2Z43130W23           | II                     |
| 130         | 0014G                 | South Corridor Unit 2                    | WS           | 2Z43130W16           | I                      |
| 147         | 0024A*                | Cable Spreading Room                     | PA           | 2Z43147W03           | I                      |

Reactor Building

| <u>Elev</u> | <u>Fire Area/Zone</u> | <u>Fire Area Description</u>              | <u>Type*</u> | <u>System Number</u> | <u>ACTION Category</u> |
|-------------|-----------------------|-------------------------------------------|--------------|----------------------|------------------------|
| 087         | 2203A/2205A           | East Torus Water Curtain                  | WP           | 2T43087W03           | I                      |
| 087         | 2203A/2205A           | West Torus Water Curtain                  | WP           | 2T43087W01           | I                      |
| 087         | 2205Z                 | HPCI Room Ceiling Suppression System      | WP           | 2T43087W06           | I                      |
| 087         | 2203C                 | RCIC Room Suppression System              | WP           | 2T43087W05           | I                      |
| 130         | 2203F                 | NW Water Curtain (North of Steam Chase)   | WP           | 2T43130W01           | I                      |
| 130         | 2203F/2205F           | East 130 Water Curtain Suppression System | WP           | 2T43130W03           | I                      |
| 158         | 2211                  | Recirculation Pump ASD Room B             | WP           | 2T43158W01           | I                      |
| 158         | 2210                  | Recirculation Pump ASD Room A             | WP           | 2T43158W02           | I                      |
| 158         | 2203K/2205I           | East 158 Water Curtain Suppression System | WP           | 2T43158W03           | I                      |
| 164         | 2205N                 | HVAC Chiller Room                         | PA           | 2T43164W01           | I                      |
| 185         | 2205S                 | NE 185 Water Curtain Suppression System   | WP           | 2T43185W06           | I                      |
| 185         | 2205U                 | West 185 Water Curtain Suppression System | WP           | 2T43185W05           | I                      |
| 185         | 2205S                 | East 185 Water Curtain Suppression System | WP           | 2T43185W04           | II                     |

Turbine Building

| <u>Elev</u> | <u>Fire Area/Zone</u> | <u>Fire Area Description</u>                | <u>Type*</u> | <u>System Number</u> | <u>ACTION Category</u> |
|-------------|-----------------------|---------------------------------------------|--------------|----------------------|------------------------|
| 112         | 2101I                 | West Cableway                               | WP           | 2U43112W01           | II                     |
| 112         | 2101A                 | West End Condenser A & B                    | PA           | 2U43112W02           | II                     |
| 130         | 2104                  | East Cableway                               | WP           | 2U43130W01           | I                      |
| 130         | 2104                  | RFP Oil Conditioner                         | WS           | 2U43130W06           | II                     |
| 130         | 2101K                 | West End Condenser A & B                    | WP           | 2U43130W04           | II                     |
| 130         | 2101J                 | Gen Hydrogen Seal Oil Unit                  | WS           | 2U43130W03           | II                     |
| 164         | 0101K                 | Reactor Feed Pump A                         | WS           | 2U43164W17           | II                     |
| 164         | 0101L                 | Reactor Feed Pump B                         | WS           | 2U43164W18           | II                     |
| 164         | 0101I                 | Turbine Bearing Systems (Multiple Systems ) | WS           | 2U43164W01-W15       | II                     |

\* Refer to FHA Section 7.0 legend for suppression system type.

## LOW PRESSURE CO<sub>2</sub> SYSTEMS

### OPERATING REQUIREMENTS

---

- 1.5.1 The low pressure CO<sub>2</sub> storage systems listed in Table 1.5-1 shall be FUNCTIONAL with a minimum level of 60 percent and a minimum pressure of 275 psig in the associated storage tank.

APPLICABILITY: At all times when the equipment in the CO<sub>2</sub> protected area is required to be OPERABLE or FUNCTIONAL.

ACTION: With a CO<sub>2</sub> system nonfunctional or with the required surveillance interval (including grace period) exceeded, within 1 hour:

CATEGORY I:

Establish a continuous fire watch for the unprotected area(s).

OR

Establish alternative compensatory measures per NMP-ES-035-005.

CATEGORY II:

Assign a tracking Fire Action Statement (FAS) for the nonfunctional carbon dioxide system(s). If not returned to FUNCTIONAL status within 45 days, establish an hourly fire watch patrol.

### SURVEILLANCE REQUIREMENTS

---

- 2.5.1 Each of the above required low pressure CO<sub>2</sub> systems shall be demonstrated FUNCTIONAL:
- a. At least once per 7 days by:
    - 1. Verifying each CO<sub>2</sub> storage tank level and pressure.
    - 2. Performing a visual inspection of each CO<sub>2</sub> storage tank's ancillary equipment.
  - b. At least once per 62 days by verifying that each valve in the flow path is in its correct position.
  - c. At least once per 12 months by verifying:
    - 1. The system valves and associated ventilation dampers actuate automatically and manually upon receipt of an actuation signal.
    - 2. Flow from each nozzle.

HNP-FHA-9

TABLE 1.5-1  
UNIT 1 AND COMMON CARBON DIOXIDE SUPPRESSION SYSTEM

DIESEL GENERATOR BUILDING

| <u>ELEV</u> | <u>FIRE<br/>AREA/ZONE</u> | <u>FIRE AREA DESCRIPTION</u>                  | <u>TYPE*</u> | <u>SYSTEM<br/>NUMBER</u> | <u>ACTION<br/>CATEGORY</u> |
|-------------|---------------------------|-----------------------------------------------|--------------|--------------------------|----------------------------|
| 130         | D/G BLDG.                 | DIESEL GENERATOR BUILDING CO2 STORAGE<br>TANK | CO2          | 1X43130C01               | I                          |

CONTROL BUILDING

| <u>ELEV</u> | <u>FIRE<br/>AREA/ZONE</u> | <u>FIRE AREA DESCRIPTION</u>  | <u>TYPE*</u> | <u>SYSTEM<br/>NUMBER</u> | <u>ACTION<br/>CATEGORY</u> |
|-------------|---------------------------|-------------------------------|--------------|--------------------------|----------------------------|
| 147         | 0024B                     | COMPUTER ROOM CO2 TANK SYSTEM | CO2          | 1Z43147C07               | I                          |

## FIRE HOSE STATIONS

### OPERATING REQUIREMENTS

---

1.6.1 Hose stations listed in Tables 1.6-1 and 1.6-2 shall be FUNCTIONAL.

APPLICABILITY: Whenever equipment in the areas protected by fire hose stations is required to be OPERABLE or FUNCTIONAL.

ACTION:

- a. With one or more of the applicable fire hose stations nonfunctional or with the required surveillance interval (including grace period) exceeded, provide additional fire hose for the unprotected area(s) at a FUNCTIONAL hose station within 1 hour and verify the access/egress path to the nonfunctional hose station is free from obstruction.

OR

Establish alternative compensatory measures per NMP-ES-035-005.

### SURVEILLANCE REQUIREMENTS

---

2.6.1 Each of the applicable fire hose stations shall be demonstrated FUNCTIONAL:

- a. At least once per 31 days by performing a visual inspection of the station to assure all required equipment is at the station.
- b. At least once per 12 months by:
  1. Removing the hose for inspection and re-racking.
  2. Replacing all degraded gaskets in couplings.
- c. At least once per 2 years by:
  1. Partially opening each hose station valve to verify valve FUNCTIONALITY and no flow blockage.
  2. Conducting a hose hydrostatic test at a pressure at least 50 psig greater than the maximum fire main operating pressure.

TABLE 1.6-1

UNIT 1 AND COMMON  
FIRE HOSE STATIONS  
(SHEET 1 OF 2)

|    | <u>LOCATION</u>              | <u>FLOOR ELEVATION</u> | <u>HOSE RACK NUMBER</u> |
|----|------------------------------|------------------------|-------------------------|
| A. | <u>Control Building</u>      |                        |                         |
|    | 1. East Corridor             | 112'-0"                | HS-C01                  |
|    | 2. Working Floor             | 112'-0"                | HS-C02                  |
|    | 3. Working Floor             | 112'-0"                | HS-C03                  |
|    | 4. East Cableway             | 130'-0"                | HS-C10                  |
|    | 5. South Corridor            | 130'-0"                | HS-C11                  |
|    | 6. North Corridor            | 130'-0"                | HS-C12                  |
|    | 7. Deleted                   |                        |                         |
|    | 8. CO <sub>2</sub> Tank Room | 147'-0"                | HS-C21                  |
|    | 9. Outside Control Room      | 164'-0"                | HS-C30                  |
|    | 10. Control Room             | 164'-0"                | HS-C31                  |
|    | 11. Outside Control Room     | 164'-0"                | HS-C32                  |
|    | 12. Control Room Roof        | 180'-0"                | HS-C40                  |
| B. | <u>Reactor Building</u>      |                        |                         |
|    | 1. NW Corner Room            | 97'-0"                 | HS-R01                  |
|    | 2. HPCI Pump Room            | 87'-0"                 | HS-R02                  |
|    | 3. NE Corner Room            | 87'-0"                 | HS-R03                  |
|    | 4. SE Corner Room            | 87'-0"                 | HS-R04                  |
|    | 5. SW Corner Room            | 87'-0"                 | HS-R05                  |
|    | 6. Torus Room                | 87'-0"                 | HS-R06                  |
|    | 7. Torus Room                | 87'-0"                 | HS-R07                  |
|    | 8. Torus Room                | 87'-0"                 | HS-R08                  |
|    | 9. Torus Room                | 87'-0"                 | HS-R09                  |
|    | 10. NW Corner                | 130'-0"                | HS-R10                  |
|    | 11. NE Corner                | 130'-0"                | HS-R11                  |
|    | 12. SE Corner                | 130'-0"                | HS-R12                  |
|    | 13. SW Corner                | 130'-0"                | HS-R13                  |
|    | 14. Working Floor - North    | 158'-0"                | HS-R20                  |
|    | 15. Working Floor - East     | 158'-0"                | HS-R21                  |
|    | 16. Working Floor - South    | 158'-0"                | HS-R22                  |
|    | 17. Working Floor - North    | 185'-0"                | HS-R30                  |
|    | 18. Working Floor - East     | 185'-0"                | HS-R31                  |
|    | 19. Working Floor - South    | 185'-0"                | HS-R32                  |
|    | 20. SW Corridor              | 185'-0"                | HS-R33                  |
|    | 21. Working Floor            | 203'-0"                | HS-R40                  |
|    | 22. Working Floor            | 203'-0"                | HS-R41                  |
|    | 23. Refueling Floor          | 228'-0"                | HS-R50                  |
|    | 24. Refueling Floor          | 228'-0"                | HS-R51                  |
|    | 25. Refueling Floor          | 228'-0"                | HS-R53                  |
|    | 26. SBT Filters              | 164'-0"                | HR-R01                  |

HNP-FHA-9

TABLE 1.6-1  
(SHEET 2 OF 2)

|    | <u>LOCATION</u>         | <u>FLOOR ELEVATION</u> | <u>HOSE RACK NUMBER</u> |
|----|-------------------------|------------------------|-------------------------|
| C. | <u>Turbine Building</u> |                        |                         |
|    | 1. Condensate Pump Area | 112'-0"                | HS-T01                  |
|    | 2. East Corridor        | 112'-0"                | HS-T02                  |
|    | 3. NW Corner Swgr. Area | 130'-0"                | HS-T10                  |
|    | 4. East Cableway        | 130'-0"                | HS-T11                  |
|    | 5. East Cableway        | 130'-0"                | HS-T12                  |
| D. | <u>Intake Structure</u> |                        |                         |
|    | 1. MCC Area             | 111'-0"                | HS-D01                  |
|    | 2. PSW Pump Area        | 111'-0"                | HS-D02                  |
|    | 3. PSW Pump Area        | 111'-0"                | HS-D03                  |

TABLE 1.6-2

UNIT 2  
FIRE HOSE STATIONS  
(SHEET 1 OF 2)

|     | <u>LOCATION</u>          | <u>FLOOR ELEVATION</u> | <u>HOSE RACK NUMBER</u> |
|-----|--------------------------|------------------------|-------------------------|
| A.  | <u>Reactor Building</u>  |                        |                         |
| 1.  | NE Corner Room           | 87'-0"                 | 2HS-R01                 |
| 2.  | SE Corner Room           | 87'-0"                 | 2HS-R02                 |
| 3.  | HPCI Pump Room           | 87'-0"                 | 2HS-R03                 |
| 4.  | SW Corner Room           | 87'-0"                 | 2HS-R04A                |
| 5.  | NW Corner Room           | 87'-0"                 | 2HS-R05A                |
| 6.  | SW Corner Room           | 108'-8"                | 2HS-R04                 |
| 7.  | NW Corner Room           | 110'-7 1/2"            | 2HS-R05                 |
| 8.  | Torus Room               | 87'-0"                 | 2HS-R06                 |
| 9.  | Torus Room               | 87'-0"                 | 2HS-R07                 |
| 10. | Torus Room               | 87'-0"                 | 2HS-R08                 |
| 11. | Torus Room               | 87'-0"                 | 2HS-R09                 |
| 12. | N CRD Area               | 130'-0"                | 2HS-R10                 |
| 13. | N CRD Area               | 130'-0"                | 2HS-R11                 |
| 14. | S CRD Area               | 130'-0"                | 2HS-R12                 |
| 15. | S CRD Area               | 130'-0"                | 2HS-R13                 |
| 16. | Working Floor - North    | 158'-0"                | 2HS-R20                 |
| 17. | Working Floor - South    | 158'-0"                | 2HS-R21                 |
| 18. | Working Floor - South    | 158'-0"                | 2HS-R22                 |
| 19. | Chiller Room             | 164'-0"                | 2HS-R23                 |
| 20. | Working Floor - North    | 185'-0"                | 2HS-R30                 |
| 21. | Working Floor - South    | 185'-0"                | 2HS-R31                 |
| 22. | Working Floor - South    | 185'-0"                | 2HS-R32                 |
| 23. | Stairwell                | 185'-0"                | 2HS-R33                 |
| 24. | Working Floor            | 203'-0"                | 2HS-R40                 |
| 25. | Working Floor            | 203'-0"                | 2HS-R41                 |
| 26. | Exh. Filter & Demin Room | 203'-0"                | 2HS-R42                 |
| 27. | Stack Monitor Room       | 203'-0"                | 2HS-R43                 |
| 28. | Refueling Floor          | 228'-0"                | 2HS-R50                 |
| 29. | Refueling Floor          | 228'-0"                | 2HS-R51                 |
| 30. | Refueling Floor          | 228'-0"                | 2HS-R52                 |
| 31. | Refueling Floor          | 228'-0"                | 2HS-R53                 |
| 32. | SBGT Filter              | 185'-0"                | 2HR-R01                 |
| B.  | <u>Turbine Building</u>  |                        |                         |
| 1.  | East Corridor            | 112'-0"                | 2HS-T01                 |
| 2.  | Condensate Pump Area     | 112'-0"                | 2HS-T04                 |
| 3.  | East Cableway            | 130'-0"                | 2HS-T11                 |
| 4.  | East Cableway            | 130'-0"                | 2HS-T12                 |
| 5.  | SW Corner Swgr. Area     | 130'-0"                | 2HS-T13                 |
| 6.  | Outside LPCI Inv. Room   | 164'-0"                | 2HS-T30                 |



HNP-FHA-9

TABLE 1.6-2

UNIT 2  
(SHEET 2 OF 2)

|    | <u>LOCATION</u>         | <u>FLOOR ELEVATION</u> | <u>HOSE RACK NUMBER</u> |
|----|-------------------------|------------------------|-------------------------|
| C. | <u>Hot Machine Shop</u> |                        |                         |
|    | 1. East Wall            | 130'-0"                | 2HS-HMS01               |
|    | 2. South Wall           | 130'-0"                | 2HS-HMS02               |

## YARD FIRE HYDRANTS

### OPERATING REQUIREMENTS

---

1.7.1 The yard fire hydrants listed in Table 1.7-1 shall be FUNCTIONAL.

APPLICABILITY: Whenever equipment in the areas protected by the yard fire hydrants is required to be OPERABLE or FUNCTIONAL.

ACTION:

With one or more of the yard fire hydrants given in Table 1.7-1 nonfunctional or with the required surveillance interval (including grace period) exceeded, within 1 hour ensure sufficient lengths of 2 1/2-inch-diameter hose are available and ensure one of the hydrants listed in Table 1.7-1 remains FUNCTIONAL to provide service to the unprotected area(s).

OR

Establish alternative compensatory measures per NMP-ES-035-005.

### SURVEILLANCE REQUIREMENTS

---

2.7.1 Each of the yard fire hydrants given in Table 1.7-1 and associated hydrant hose shall be demonstrated FUNCTIONAL:

- a. At least once per 31 days by performing a visual inspection of the hydrant hose to assure all required equipment is FUNCTIONAL.
- b. At least once per 6 months (once during March, April, or May and once during September, October, or November) by visually inspecting each yard fire hydrant and verifying that the hydrant barrel is dry and that the hydrant is not damaged:
- c. At least once per 12 months by:
  1. Conducting a hose hydrostatic test at a pressure of at least 50 psig above maximum fire main operating pressure.
  2. Inspecting all the gaskets and replacing any degraded gaskets in the coupling.
  3. Performing a flow check of each hydrant to verify its FUNCTIONALITY.

HNP-FHA-9

TABLE 1.7-1

YARD FIRE HYDRANTS

| <u>LOCATION</u>                            | <u>HYDRANT<br/>NUMBER</u> |
|--------------------------------------------|---------------------------|
| East Side of the Diesel Generator Building | 1Y43-F314A                |
| In Front of the Intake Structure           | 1Y43-F318D                |
| Southwest of the Diesel Generator Building | 1Y43-F314B                |

## HNP-FHA-9

1.8.1 Deleted

2.8.1 Deleted

## EMERGENCY LIGHTING UNITS

### OPERATING REQUIREMENTS

---

- 1.9.1 All self-contained, battery-powered emergency lighting units listed in Tables 1.9-1 and 1.9-2 (required to support unit shutdown in the event of a fire and coincident loss of offsite power) shall be FUNCTIONAL.

APPLICABILITY: When fuel is in the reactor vessel for the affected unit.

ACTION:

With one or more of the required emergency lighting units nonfunctional or with the required surveillance interval (including grace period) exceeded, restore the nonfunctional unit(s) to FUNCTIONAL status within 14 days or perform an engineering evaluation of the effects on the Fire Protection Program of the unit(s) remaining nonfunctional and submit to the Plant Review Board within the next 30 days.

### SURVEILLANCE REQUIREMENTS

---

- 2.9.1 Each of the required emergency lighting units shall be demonstrated FUNCTIONAL:
- a. At least once per 3 months by checking each unit's power supply, battery condition, lamp head illumination and position.
  - b. Perform one of the following:
    - 1. At least once per 12 months by performing an 8-h discharge test.
- OR
- 2. At least once per 6 months by performing ohmic testing on Teledyne Big Beam battery.

TABLE 1.9-1 (SHEET 1 OF 11)

## UNIT 1 EMERGENCY LIGHTING

| <u>Base Unit<br/>MPL Number</u> | <u>Remote<br/>Number</u> | <u>Lighting<br/>Lamp</u> | <u>Lighting<br/>Function</u> |
|---------------------------------|--------------------------|--------------------------|------------------------------|
| 1R42-E001                       | (BASE UNIT)              | LAMP #1                  | STAIRWAY                     |
|                                 | (BASE UNIT)              | LAMP #2                  | STAIRWAY                     |
|                                 | 1R42-E001R1              | LAMP #1                  | STAIRWAY                     |
|                                 | 1R42-E001R1              | LAMP #2                  | STAIRWAY                     |
| 1R42-E002                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | 1R42-E002R1              | LAMP #1                  | ACCESS                       |
|                                 | 1R42-E002R1              | LAMP #2                  | ACCESS                       |
|                                 | 1R42-E002R2              | LAMP #1                  | ACCESS                       |
|                                 | 1R42-E002R2              | LAMP #2                  | ACCESS                       |
| 1R42-E003                       | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 1R42-E003R2              | LAMP #1                  | 2C71-P001                    |
|                                 | 1R42-E003R2              | LAMP #2                  | 2C71-P001                    |
|                                 | 1R42-E003R3              | LAMP #1                  | 2R25-S065                    |
|                                 | 1R42-E003R3              | LAMP #2                  | 2R25-S065                    |
| 1R42-E005                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                       |
| 1R42-E006                       | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 1R42-E006R2              | LAMP #1                  | ACCESS                       |
|                                 | 1R42-E006R2              | LAMP #2                  | ACCESS                       |
|                                 | 1R42-E006R3              | LAMP #1                  | 1R25-S066                    |
|                                 | 1R42-E006R3              | LAMP #2                  | 1R25-S066                    |
| 1R42-E007                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 1R42-E008                       | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 1R42-E008R1              | LAMP #1                  | ACCESS                       |
|                                 | 1R42-E008R1              | LAMP #2                  | ACCESS                       |
|                                 | 1R42-E008R2              | LAMP #1                  | ACCESS                       |
|                                 | 1R42-E008R2              | LAMP #2                  | ACCESS                       |
|                                 | 1R42-E008R3              | LAMP #1                  | ACCESS                       |
|                                 | 1R42-E008R3              | LAMP #2                  | ACCESS                       |
| 1R42-E009                       | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 1R42-E009R1              | LAMP #1                  | ACCESS                       |
|                                 | 1R42-E009R1              | LAMP #2                  | ACCESS                       |
|                                 | 1R42-E009R2              | LAMP #1                  | ACCESS                       |
|                                 | 1R42-E009R2              | LAMP #2                  | ACCESS                       |
|                                 | 1R42-E009R3              | LAMP #1                  | ACCESS                       |
|                                 | 1R42-E009R3              | LAMP #2                  | ACCESS                       |

TABLE 1.9-1 (SHEET 2 OF 11)

| <u>Base Unit<br/>MPL Number</u> | <u>Remote<br/>Number</u> | <u>Lighting<br/>Lamp</u> | <u>Lighting<br/>Function</u>    |
|---------------------------------|--------------------------|--------------------------|---------------------------------|
| 1R42-E010                       | (BASE UNIT)              | NO LAMPS                 | N/A                             |
|                                 | 1R42-E010R1              | LAMP #1                  | ACCESS                          |
|                                 | 1R42-E010R2              | LAMP #1                  | ACCESS                          |
| 1R42-E011                       | (BASE UNIT)              | LAMP #1                  | ACCESS                          |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                          |
| 1R42-E012                       | (BASE UNIT)              | NO LAMPS                 | N/A                             |
|                                 | 1R42-E012R1              | LAMP #1                  | ACCESS                          |
|                                 | 1R42-E012R1              | LAMP #2                  | ACCESS                          |
| 1R42-E015                       | (BASE UNIT)              | LAMP #1                  | ACCESS                          |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                          |
| 1R42-E016                       | (BASE UNIT)              | LAMP #1                  | STAIRWAY                        |
|                                 | (BASE UNIT)              | LAMP #2                  | STAIRWAY                        |
| 1R42-E017                       | (BASE UNIT)              | LAMP #1                  | ACCESS                          |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                          |
|                                 | 1R42-E017R1              | LAMP #1                  | ACCESS                          |
|                                 | 1R42-E017R1              | LAMP #2                  | ACCESS                          |
| 1R42-E018                       | (BASE UNIT)              | LAMP #1                  | STAIRWAY                        |
|                                 | (BASE UNIT)              | LAMP #2                  | STAIRWAY                        |
|                                 | 1R42-E018R1              | LAMP #1                  | 1E11-F006D                      |
|                                 | 1R42-E018R1              | LAMP #2                  | ACCESS                          |
| 1R42-E019                       | (BASE UNIT)              | LAMP #1                  | ACCESS                          |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                          |
|                                 | 1R42-E019R1              | LAMP #1                  | ACCESS                          |
|                                 | 1R42-E019R1              | LAMP #2                  | 1E11-N003B                      |
| 1R42-E020                       | (BASE UNIT)              | LAMP #1                  | ACCESS                          |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                          |
| 1R42-E021                       | (BASE UNIT)              | LAMP #1                  | STAIRWAY                        |
|                                 | (BASE UNIT)              | LAMP #2                  | STAIRWAY                        |
|                                 | 1R42-E021R1              | LAMP #1                  | ACCESS                          |
| 1R42-E022                       | (BASE UNIT)              | LAMP #1                  | 1T48-F111                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                          |
| 1R42-E023                       | (BASE UNIT)              | LAMP #1                  | ACCESS                          |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                          |
| 1R42-E024                       | (BASE UNIT)              | LAMP #1                  | ACCESS                          |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                          |
|                                 | 1R42-E024R1              | LAMP #1                  | 1B21-N036 ON<br>1H21-P010A RACK |

TABLE 1.9-1 (SHEET 3 OF 11)

| <u>Base Unit<br/>MPL Number</u> | <u>Remote<br/>Number</u> | <u>Lighting<br/>Lamp</u> | <u>Lighting<br/>Function</u>                               |
|---------------------------------|--------------------------|--------------------------|------------------------------------------------------------|
| 1R42-E025                       | (BASE UNIT)              | LAMP #1                  | 1P70-A002A,B,C<br>1P70-F084<br>1P70-F138A,B,C<br>1P70-F141 |
|                                 |                          | LAMP#2                   | 1P70-A002A,B,C<br>1P70-F084<br>1P70-F138A,B,C<br>1P70-F141 |
|                                 |                          | LAMP #3                  | 1P70-A002A,B,C<br>1P70-F084<br>1P70-F138A,B,C<br>1P70-F141 |
| 1R42-E026                       | (BASE UNIT)              | LAMP #1                  | 1R26-M119                                                  |
|                                 | (BASE UNIT)              | LAMP #2                  | 1H21-R120                                                  |
| 1R42-E027                       | (BASE UNIT)              | LAMP #1                  | ACCESS                                                     |
|                                 | 1R42-E027R1              | LAMP #2                  | 1H21-P122,1R26-M121                                        |
| 1R42-E030                       | (BASE UNIT)              | LAMP #1                  | STAIRWAY                                                   |
|                                 | (BASE UNIT)              | LAMP #2                  | STAIRWAY                                                   |
| 1R42-E031                       | (BASE UNIT)              | LAMP #1                  | STAIRWAY                                                   |
|                                 | (BASE UNIT)              | LAMP #2                  | STAIRWAY                                                   |
| 1R42-E033                       | (BASE UNIT)              | LAMP #1                  | ACCESS                                                     |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                                                     |
|                                 | 1R42-E033R1              | LAMP #1                  | ACCESS                                                     |
| 1R42-E035                       | (BASE UNIT)              | LAMP #1                  | ACCESS                                                     |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                                                     |
|                                 | 1R42-E035R1              | LAMP #1                  | ACCESS                                                     |
|                                 | 1R42-E035R1              | LAMP #2                  | ACCESS                                                     |
| 1R42-E037                       | (BASE UNIT)              | LAMP #1                  | ACCESS                                                     |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                                                     |
| 1R42-E038                       | (BASE UNIT)              | LAMP #1                  | 1B21-N042A ON<br>1H21-P004 RACK                            |
|                                 | (BASE UNIT)              | LAMP #2                  | 1B21-R004A ON<br>1H21-P004 RACK                            |
| 1R42-E039                       | (BASE UNIT)              | LAMP #1                  | ACCESS                                                     |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                                                     |
| 1R42-E040                       | (BASE UNIT)              | LAMP #1                  | ACCESS                                                     |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                                                     |



TABLE 1.9-1 (SHEET 4 OF 11)

| <u>Base Unit<br/>MPL Number</u> | <u>Remote<br/>Number</u> | <u>Lighting<br/>Lamp</u> | <u>Lighting<br/>Function</u> |
|---------------------------------|--------------------------|--------------------------|------------------------------|
|                                 | 1R42-E040R1              | LAMP #1                  | ACCESS                       |
| 1R42-E041                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 1R42-E042                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | 1R42-E042R1              | LAMP #1                  | 1R43-P001C                   |
|                                 | 1R42-E042R1              | LAMP #2                  | 1R43-P001C                   |
| 1R42-E043                       | (BASE UNIT)              | LAMP #1                  | 1R22-S005                    |
|                                 | (BASE UNIT)              | LAMP #2                  | 1R22-S005                    |
| 1R42-E044                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 1R42-E047                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | 1R42-E047R1              | LAMP #1                  | 1R43-P001A                   |
|                                 | 1R42-E047R1              | LAMP #2                  | 1R43-P001A                   |
| 1R42-E048                       | (BASE UNIT)              | LAMP #1                  | 1R22-S007                    |
|                                 | (BASE UNIT)              | LAMP #2                  | 1R22-S007                    |
| 1R42-E050                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 1R42-E051                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 1R42-E052                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | 1R42-E052R1              | LAMP #1                  | 1E11-F073B                   |
|                                 | 1R42-E052R1              | LAMP #2                  | 1E11-F119B                   |
| 1R42-E053                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | 1R42-E053R1              | LAMP #1                  | 1E11-F049                    |
|                                 | 1R42-E053R1              | LAMP #2                  | 1E11-F049                    |
| 1R42-E054                       | (BASE UNIT)              | LAMP #1                  | STAIRWAY                     |
|                                 | (BASE UNIT)              | LAMP #2                  | STAIRWAY                     |
| 1R42-E055                       | (BASE UNIT)              | LAMP #1                  | 1R24-S012                    |
|                                 | (BASE UNIT)              | LAMP #2                  | 1R24-S012                    |

TABLE 1.9-1 (SHEET 5 OF 11)

| <u>Base Unit<br/>MPL Number</u> | <u>Remote<br/>Number</u> | <u>Lighting<br/>Lamp</u> | <u>Lighting<br/>Function</u> |
|---------------------------------|--------------------------|--------------------------|------------------------------|
| 1R42-E056                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                       |
| 1R42-E057                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #3                  | 1R43-F016C                   |
| 1R42-E058                       | (BASE UNIT)              | LAMP #1                  | DG1C R&T BOX                 |
|                                 | (BASE UNIT)              | LAMP #2                  | DG1C R&T BOX                 |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                       |
| 1R42-E059                       | (BASE UNIT)              | LAMP #1                  | 1H21-P175                    |
|                                 | (BASE UNIT)              | LAMP #2                  | 1H21-P175                    |
|                                 | 1R42-E059R1              | LAMP #1                  | 1R22-S007                    |
|                                 | 1R42-E059R1              | LAMP #2                  | 1R22-S007                    |
| 1R42-E060                       | (BASE UNIT)              | LAMP #1                  | 1R22-S007                    |
|                                 | (BASE UNIT)              | LAMP #2                  | 1R22-S007                    |
|                                 | (BASE UNIT)              | LAMP #3                  | 1R22-S007                    |
| 1R42-E066                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #3                  | 1R43-F016A                   |
| 1R42-E067                       | (BASE UNIT)              | LAMP #1                  | DG1A R&T BOX                 |
|                                 | (BASE UNIT)              | LAMP #2                  | DG1A R&T BOX                 |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                       |
| 1R42-E069                       | (BASE UNIT)              | LAMP #1                  | 1R22-S005                    |
|                                 | (BASE UNIT)              | LAMP #2                  | 1R22-S005                    |
|                                 | (BASE UNIT)              | LAMP #3                  | 1R22-S005                    |
| 1R42-E070                       | (BASE UNIT)              | LAMP #1                  | STAIRWAY                     |
|                                 | (BASE UNIT)              | LAMP #2                  | STAIRWAY                     |
| 1R42-E071                       | (BASE UNIT)              | LAMP #1                  | 1H21-P173                    |
|                                 | (BASE UNIT)              | LAMP #2                  | 1H21-P173                    |
|                                 | (BASE UNIT)              | LAMP #3                  | 1H21-P173                    |
| 1R42-E072                       | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 1R42-E072R1              | LAMP #1                  | ACCESS                       |
|                                 | 1R42-E072R1              | LAMP #2                  | ACCESS                       |

TABLE 1.9-1 (SHEET 6 OF 11)

| <u>Base Unit<br/>MPL Number</u> | <u>Remote<br/>Number</u> | <u>Lighting<br/>Lamp</u> | <u>Lighting<br/>Function</u> |
|---------------------------------|--------------------------|--------------------------|------------------------------|
| 1R42-E073                       | (BASE UNIT)              | LAMP #1                  | 1R24-S011                    |
|                                 | (BASE UNIT)              | LAMP #2                  | 1R24-S011                    |
|                                 | (BASE UNIT)              | LAMP #3                  | 1R24-S011                    |
| 1R42-E074                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                       |
| 1R42-E075                       | (BASE UNIT)              | LAMP #1                  | 1R25-S116                    |
|                                 | (BASE UNIT)              | LAMP #2                  | 1R24-S012                    |
|                                 | (BASE UNIT)              | LAMP #3                  | 1R24-S012                    |
| 1R42-E076                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | 1C82-P001                    |
|                                 | (BASE UNIT)              | LAMP #3                  | 1C82-P001                    |
| 1R42-E077                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                       |
| 1R42-E078                       | (BASE UNIT)              | LAMP #1                  | 1C82-P002                    |
|                                 | (BASE UNIT)              | LAMP #2                  | 1C82-P002                    |
|                                 | (BASE UNIT)              | LAMP #3                  | 1B21-R004B                   |
| 1R42-E079                       | (BASE UNIT)              | LAMP #1                  | 1H21-P246                    |
|                                 | (BASE UNIT)              | LAMP #2                  | 1R23-S004                    |
|                                 | (BASE UNIT)              | LAMP #3                  | 1R23-S004                    |
| 1R42-E082                       | (BASE UNIT)              | LAMP #1                  | 1R23-S003                    |
|                                 | (BASE UNIT)              | LAMP #2                  | 1R23-S003                    |
|                                 | (BASE UNIT)              | LAMP #3                  | 1H21-P245                    |
| 1R42-E083                       | (BASE UNIT)              | LAMP #1                  | 1C71-P001                    |
|                                 | (BASE UNIT)              | LAMP #2                  | 1C71-P001                    |
|                                 | 1R42-E083R1              | LAMP #1                  | 1R25-S065                    |
|                                 | 1R42-E083R1              | LAMP #2                  | 1R25-S065                    |
| 1R42-E084                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                       |
| 1R42-E086                       | (BASE UNIT)              | LAMP #1                  | STAIRWAY                     |
|                                 | (BASE UNIT)              | LAMP #2                  | STAIRWAY                     |
|                                 | (BASE UNIT)              | LAMP #3                  | STAIRWAY                     |

TABLE 1.9-1 (SHEET 7 OF 11)

| <u>Base Unit<br/>MPL Number</u> | <u>Remote<br/>Number</u> | <u>Lighting<br/>Lamp</u> | <u>Lighting<br/>Function</u> |
|---------------------------------|--------------------------|--------------------------|------------------------------|
| 1R42-E087                       | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 1R42-E087R1              | LAMP #1                  | 1E11-F006C                   |
|                                 | 1R42-E087R1              | LAMP #2                  | 1E11-F006C                   |
|                                 | 1R42-E087R3              | LAMP #1                  | 1E11-F006A                   |
|                                 | 1R42-E087R3              | LAMP #2                  | 1E11-F006A                   |
| 1R42-E088                       | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 1R42-E088R1              | LAMP #1                  | 1E11-F047B                   |
|                                 | 1R42-E088R1              | LAMP #2                  | 1E11-F068B                   |
|                                 | 1R42-E088R2              | LAMP #1                  | ACCESS                       |
|                                 | 1R42-E088R2              | LAMP #2                  | ACCESS                       |
|                                 | 1R42-E088R3              | LAMP #1                  | 1E11-F003B                   |
|                                 | 1R42-E088R3              | LAMP #2                  | 1E11-F003B                   |
| 1R42-E089                       | (BASE UNIT)              | LAMP #1                  | STAIRWAY                     |
|                                 | (BASE UNIT)              | LAMP #2                  | STAIRWAY                     |
| 1R42-E090                       | (BASE UNIT)              | LAMP #1                  | STAIRWAY                     |
|                                 | (BASE UNIT)              | LAMP #2                  | STAIRWAY                     |
| 1R42-E091                       | (BASE UNIT)              | LAMP #1                  | STAIRWAY                     |
|                                 | (BASE UNIT)              | LAMP #2                  | STAIRWAY                     |
| 1R42-E093                       | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 1R42-E093R1              | LAMP #1                  | ACCESS                       |
|                                 | 1R42-E093R1              | LAMP #2                  | ACCESS                       |
|                                 | 1R42-E093R2              | LAMP #1                  | ACCESS                       |
|                                 | 1R42-E093R2              | LAMP #2                  | ACCESS                       |
| 1R42-E096                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                       |
| 1R42-E097                       | (BASE UNIT)              | LAMP #1                  | 1R24-S022                    |
|                                 | (BASE UNIT)              | LAMP #2                  | 1R24-S022                    |
|                                 | (BASE UNIT)              | LAMP #3                  | 1R24-S022                    |
| 1R42-E098                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | 1E11-F017B                   |
|                                 | (BASE UNIT)              | LAMP #3                  | 1E11-F017B                   |
| 1R42-E099                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                       |

TABLE 1.9-1 (SHEET 8 OF 11)

| <u>Base Unit<br/>MPL Number</u> | <u>Remote<br/>Number</u> | <u>Lighting<br/>Lamp</u> | <u>Lighting<br/>Function</u> |
|---------------------------------|--------------------------|--------------------------|------------------------------|
| 1R42-E100                       | (BASE UNIT)              | LAMP #1                  | 1R24-S011                    |
|                                 | (BASE UNIT)              | LAMP #2                  | 1R24-S011                    |
|                                 | (BASE UNIT)              | LAMP #3                  | 1R24-S011                    |
| 1R42-E107                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | 1R42-E107R1              | LAMP #1                  | ACCESS                       |
|                                 | 1R42-E107R1              | LAMP #2                  | ACCESS                       |
|                                 | 1R42-E107R2              | LAMP #1                  | 1E11-F018B                   |
|                                 | 1R42-E107R2              | LAMP #2                  | 1E11-F018B                   |
| 1R42-E108                       | (BASE UNIT)              | LAMP #1                  | LAMP HEADS<br>NOT REQUIRED   |
|                                 | (BASE UNIT)              | LAMP #2                  | LAMP HEADS<br>NOT REQUIRED   |
|                                 | 1R42-E108R1              | LAMP #1                  | 1E11-F018A                   |
|                                 | 1R42-E108R1              | LAMP #2                  | 1E11-F018A                   |
| 1R42-E109                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                       |
| 1R42-E111                       | (BASE UNIT)              | LAMP #1                  | 1E51-F104;<br>1E51-F105      |
|                                 | (BASE UNIT)              | LAMP #2                  | 1E51-F104;<br>1E51-F105      |
|                                 | (BASE UNIT)              | LAMP #3                  | 1E51-F104;<br>1E51-F105      |
| 1R42-E112                       | (BASE UNIT)              | LAMP #1                  | 1E51-F019                    |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                       |
| 1R42-E113                       | (BASE UNIT)              | LAMP #1                  | 1E51-F012                    |
|                                 | (BASE UNIT)              | LAMP #2                  | 1E51-F012                    |
|                                 | (BASE UNIT)              | LAMP #3                  | 1E51-F022                    |
| 1R42-E115                       | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 1R42-E115R1              | LAMP #1                  | 1E11-F011B                   |
|                                 | 1R42-E115R1              | LAMP #2                  | 1E11-F011B                   |
|                                 | 1R42-E115R2              | LAMP #1                  | 1E11-F104B                   |
|                                 | 1R42-E115R2              | LAMP #2                  | 1E11-F003B                   |

TABLE 1.9-1 (SHEET 9 OF 11)

| <u>Base Unit<br/>MPL Number</u> | <u>Remote<br/>Number</u> | <u>Lighting<br/>Lamp</u> | <u>Lighting<br/>Function</u> |
|---------------------------------|--------------------------|--------------------------|------------------------------|
| 1R42-E117                       | (BASE UNIT)              | LAMP #1                  | 1E51-F010                    |
|                                 | (BASE UNIT)              | LAMP #2                  | 1E51-F029                    |
|                                 | (BASE UNIT)              | LAMP #3                  | 1E51-F031                    |
| 1R42-E118                       | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 1R42-E118R1              | LAMP #1                  | 1R24-S021                    |
|                                 | 1R42-E118R1              | LAMP #2                  | 1R24-S021                    |
| 1R42-E120                       | (BASE UNIT)              | LAMP #1                  | 1E11-F016B                   |
|                                 | (BASE UNIT)              | LAMP #2                  | 1E11-F016B                   |
|                                 | (BASE UNIT)              | LAMP #3                  | 1E11-F016B                   |
| 1R42-E122                       | (BASE UNIT)              | LAMP #1                  | LAMP HEADS<br>NOT REQUIRED   |
|                                 | (BASE UNIT)              | LAMP #2                  | LAMP HEADS<br>NOT REQUIRED   |
|                                 | 1R42-E122R1              | LAMP #1                  | 1R25-S002                    |
|                                 | 1R42-E122R1              | LAMP #2                  | ACCESS                       |
|                                 |                          |                          |                              |
| 1R42-E123                       | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 1R42-E123R1              | LAMP #1                  | 1R25-S001                    |
|                                 | 1R42-E123R1              | LAMP #2                  | ACCESS                       |
|                                 | 1R42-E123R2              | LAMP #1                  | ACCESS                       |
|                                 | 1R42-E123R2              | LAMP #2                  | ACCESS                       |
| 1R42-E124                       | (BASE UNIT)              | LAMP #1                  | 1R25-S064                    |
|                                 | (BASE UNIT)              | LAMP #2                  | 1R25-S064                    |
|                                 | (BASE UNIT)              | LAMP #3                  | 1R25-S064                    |
| 1R42-E125                       | (BASE UNIT)              | LAMP #1                  | 1R24-S025                    |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | 1R42-E125R1              | LAMP #1                  | 1R25-S004                    |
|                                 | 1R42-E125R1              | LAMP #2                  | 1R25-S004                    |
| 1R42-E126                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | 1R24-S027                    |
|                                 | (BASE UNIT)              | LAMP #3                  | 1R25-S006                    |
| 1R42-E127                       | (BASE UNIT)              | LAMP #1                  | 1R24-S009                    |
|                                 | (BASE UNIT)              | LAMP #2                  | 1R24-S009                    |
|                                 | 1R42-E127R1              | LAMP #1                  | 2R24-S009                    |
| 1R42-E128*                      | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |

TABLE 1.9-1 (SHEET 10 OF 11)

| <u>Base Unit<br/>MPL Number</u> | <u>Remote<br/>Number</u> | <u>Lighting<br/>Lamp</u> | <u>Lighting<br/>Function</u> |
|---------------------------------|--------------------------|--------------------------|------------------------------|
| 1R42-E130                       | (BASE UNIT)              | LAMP #1                  | 2P41-F316A                   |
|                                 | (BASE UNIT)              | LAMP #2                  | 2P41-F316A                   |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                       |
| 1R42-E131                       | (BASE UNIT)              | LAMP #1                  | 2P41-F316B                   |
|                                 | (BASE UNIT)              | LAMP #2                  | 2P41-F316B                   |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                       |
| 1R42-E132                       | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 1R42-E132R1              | LAMP #1                  | 1P41-F310B                   |
|                                 | 1R42-E132R1              | LAMP #2                  | 1P41-F310B                   |
|                                 | 1R42-E132R2              | LAMP #1                  | ACCESS                       |
| 1R42-E133                       | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 1R42-E133R1              | LAMP #1                  | 1P41-F310A                   |
|                                 | 1R42-E133R1              | LAMP #2                  | 1P41-F310A                   |
|                                 | 1R42-E133R2              | LAMP #1                  | ACCESS                       |
| 1R42-E262                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 1R42-E263                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | 1R42E263R1               | LAMP #1                  | ACCESS                       |
|                                 | 1R42E263R1               | LAMP #2                  | ACCESS                       |
| 1R42-E264                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 1R42-E265                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 1R42-E266                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 1R42-E267                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | 1R42E267R1               | LAMP #1                  | ACCESS                       |
| 1R42-E268                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | 1R42E268R1               | LAMP #1                  | ACCESS                       |
|                                 | 1R42E268R1               | LAMP #2                  | ACCESS                       |

TABLE 1.9-1 (SHEET 11 OF 11)

| <u>Base Unit<br/>MPL Number</u> | <u>Remote<br/>Number</u> | <u>Lighting<br/>Lamp</u> | <u>Lighting<br/>Function</u> |
|---------------------------------|--------------------------|--------------------------|------------------------------|
| 1R42-E269                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | 1R42E269R1               | LAMP #1                  | ACCESS                       |
|                                 | 1R42E269R1               | LAMP #2                  | ACCESS                       |
| 1R42-E270                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 1R42-E271                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 1R42-E272*                      | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 1R42-E272R1              | LAMP #1                  | 1R22-S001                    |
|                                 | 1R42-E272R2              | LAMP #2                  | 1R22-S002                    |
| 1R42-E273*                      | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 1R42-E273R1              | LAMP #1                  | 1R22-S003                    |
|                                 | 1R42-E273R2              | LAMP #2                  | 1R22-S004                    |
| 1R42-E274*                      | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 1R42-E275*                      | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 1R42-E276*                      | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 1R42-E276R1              | LAMP #1                  | 1R22-S008                    |
|                                 | 1R42-E276R2              | LAMP #2                  | 1R22-S009                    |
| 1R42-E277*                      | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |

\*These emergency lights are associated with multiple spurious operation (MSO) resolutions.



## HNP-FHA-9

TABLE 1.9-2 (SHEET 1 OF 10)

## UNIT 2 EMERGENCY LIGHTING

| <u>Base Unit<br/>MPL Number</u> | <u>Remote<br/>Number</u> | <u>Lighting<br/>Lamp</u> | <u>Lighting<br/>Function</u>            |
|---------------------------------|--------------------------|--------------------------|-----------------------------------------|
| 2R42-E001                       | (BASE UNIT)              | NO LAMPS                 | N/A                                     |
|                                 | 2R42-E001R3              | LAMP #1                  | ACCESS                                  |
|                                 | 2R42-E001R3              | LAMP #2                  | ACCESS                                  |
| 2R42-E002*                      | (BASE UNIT)              | LAMP #1                  | ACCESS                                  |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                                  |
|                                 | 2R42-E002R1*             | LAMP #1                  | ACCESS                                  |
|                                 | 2R42-E002R1*             | LAMP #2                  | ACCESS                                  |
| 2R42-E003*                      | (BASE UNIT)              | LAMP #1                  | ACCESS                                  |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                                  |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                                  |
| 2R42-E004*                      | (BASE UNIT)              | LAMP #1                  | ACCESS                                  |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                                  |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                                  |
| 2R42-E009                       | (BASE UNIT)              | LAMP #1                  | ACCESS                                  |
| 2R42-E011                       | (BASE UNIT)              | NO LAMPS                 | ACCESS                                  |
|                                 | 2R42-E011R1              | LAMP #1                  | ACCESS                                  |
|                                 | 2R42-E011R1              | LAMP #2                  | ACCESS                                  |
| 2R42-E015                       | (BASE UNIT)              | LAMP #1                  | ACCESS                                  |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                                  |
| 2R42-E017                       | (BASE UNIT)              | LAMP #1                  | ACCESS                                  |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                                  |
| 2R42-E018                       | (BASE UNIT)              | NO LAMPS                 | N/A                                     |
|                                 | 2R42-E018R1              | LAMP #1                  | 2C82-P001 (2C82-R004,5,6)               |
|                                 | 2R42-E018R1              | LAMP #2                  | 2H21-P173 (2E11-R071, 2T48-R070 & R072) |
|                                 | 2R42-E018R2              | LAMP #1                  | 2C82-P001 (2C82-R004,5,6)               |
|                                 | 2R42-E018R2              | LAMP #2                  | 2C82-P001 (2C82-R004,5,6)               |
|                                 | 2R42-E018R3              | LAMP #1                  | 2T48-F111                               |
|                                 | 2R42-E018R3              | LAMP #2                  | 2T48-F111                               |
| 2R42-E020                       | (BASE UNIT)              | LAMP #1                  | ACCESS                                  |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                                  |

## HNP-FHA-9

TABLE 1.9-2 (SHEET 2 OF 10)

## UNIT 2 EMERGENCY LIGHTING

| <u>Base Unit<br/>MPL Number</u> | <u>Remote<br/>Number</u> | <u>Lighting<br/>Lamp</u> | <u>Lighting<br/>Function</u> |
|---------------------------------|--------------------------|--------------------------|------------------------------|
| 2R42-E021                       | (BASE UNIT)              | LAMP #1                  | 2R24-S011                    |
|                                 | (BASE UNIT)              | LAMP #2                  | 2R24-S011                    |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                       |
| 2R42-E022                       | (BASE UNIT)              | LAMP #1                  | STAIRWAY                     |
|                                 | (BASE UNIT)              | LAMP #2                  | STAIRWAY                     |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                       |
| 2R42-E023                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                       |
| 2R42-E024                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 2R42-E025                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
| 2R42-E026                       | (BASE UNIT)              | LAMP #1                  | STAIRWAY                     |
|                                 | (BASE UNIT)              | LAMP #2                  | STAIRWAY                     |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                       |
| 2R42-E028                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                       |
| 2R42-E029                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | 2R42-E029R1              | LAMP #1                  | ACCESS                       |
| 2R42-E032                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | 2R42-E032R2              | LAMP #1                  | 2B21-N036                    |
| 2R42-E033                       | (BASE UNIT)              | LAMP #1                  | STAIRWAY                     |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                       |
| 2R42-E034                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 2R42-E036                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 2R42-E037                       | (BASE UNIT)              | LAMP #1                  | 2R24-S025                    |
|                                 | (BASE UNIT)              | LAMP #2                  | 2R24-S025                    |
|                                 | 2R42-E037R1              | LAMP #1                  | 2R22-S005                    |
|                                 | 2R42-E037R1              | LAMP #2                  | 2R22-S005                    |

## HNP-FHA-9

TABLE 1.9-2 (SHEET 3 OF 10)

| <u>Base Unit<br/>MPL Number</u> | <u>Remote<br/>Number</u> | <u>Lighting<br/>Lamp</u> | <u>Lighting<br/>Function</u> |
|---------------------------------|--------------------------|--------------------------|------------------------------|
| 2R42-E038                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 2R42-E039                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                       |
| 2R42-E040                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                       |
| 2R42-E041                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 2R42-E043                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | 2R24-S027                    |
|                                 | (BASE UNIT)              | LAMP #3                  | 2R24-S027                    |
| 2R42-E044                       | (BASE UNIT)              | LAMP #1                  | 2R43-P003A                   |
|                                 | 2R42-E044R1              | LAMP #1                  | 2R43-P003A                   |
|                                 | 2R42-E044R2              | LAMP #1                  | ACCESS                       |
| 2R42-E045                       | (BASE UNIT)              | LAMP #1                  | 2R43-F099A                   |
|                                 | (BASE UNIT)              | LAMP #2                  | 2R43-P001A                   |
|                                 | (BASE UNIT)              | LAMP #3                  | 2R43-P001A                   |
| 2R42-E048                       | (BASE UNIT)              | LAMP #1                  | 2R22-S005                    |
|                                 | (BASE UNIT)              | LAMP #2                  | 2R22-S005                    |
|                                 | (BASE UNIT)              | LAMP #3                  | 2R22-S005                    |
| 2R42-E049                       | (BASE UNIT)              | LAMP #1                  | 2R43-J001C R&T BOX           |
|                                 | 2R42-E049R1              | LAMP #1                  | 2R43-P003C                   |
|                                 | 2R42-E049R2              | LAMP #1                  | 2R43-P003C                   |
| 2R42-E050                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
| 2R42-E051                       | (BASE UNIT)              | LAMP #1                  | 2R43-F099C                   |
|                                 | (BASE UNIT)              | LAMP #2                  | 2R43-P001C                   |
|                                 | (BASE UNIT)              | LAMP #3                  | 2R43-P001C                   |
| 2R42-E054                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | 2R25-S006                    |
|                                 | (BASE UNIT)              | LAMP #3                  | 2R25-S006                    |
| 2R42-E055                       | (BASE UNIT)              | LAMP #1                  | 2R22-S007                    |
|                                 | (BASE UNIT)              | LAMP #2                  | 2R22-S007                    |
|                                 | (BASE UNIT)              | LAMP #3                  | 2R22-S007                    |

## HNP-FHA-9

TABLE 1.9-2 (SHEET 4 OF 10)

| <u>Base Unit<br/>MPL Number</u> | <u>Remote<br/>Number</u> | <u>Lighting<br/>Lamp</u> | <u>Lighting<br/>Function</u> |
|---------------------------------|--------------------------|--------------------------|------------------------------|
| 2R42-E057                       | (BASE UNIT)              | LAMP #1                  | STAIRWAY                     |
|                                 | (BASE UNIT)              | LAMP #2                  | STAIRWAY                     |
| 2R42-E060                       | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 2R42-E060R3              | LAMP #1                  | 2R24-S011                    |
|                                 | 2R42-E060R3              | LAMP #2                  | 2R24-S011                    |
| 2R42-E061                       | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 2R42-E061R1              | LAMP #1                  | 2R24-S011                    |
|                                 | 2R42-E061R1              | LAMP #2                  | 2R24-S011                    |
|                                 | 2R42-E061R2              | LAMP #1                  | 2R24-S011                    |
|                                 | 2R42-E061R2              | LAMP #2                  | 2R24-S011                    |
| 2R42-E064                       | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 2R42-E064R1              | LAMP #1                  | 2R26-M121                    |
|                                 | 2R42-E064R1              | LAMP #2                  | 2H21-P122                    |
|                                 | 2R42-E064R2              | LAMP #1                  | ACCESS                       |
|                                 | 2R42-E064R2              | LAMP #2                  | ACCESS                       |
| 2R42-E068                       | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 2R42-E068R1              | LAMP #1                  | 2P70-A002A,B,C               |
|                                 | 2R42-E068R1              | LAMP #2                  | 2P70-A002A,B,C               |
|                                 | 2R42-E068R2              | LAMP #1                  | 2P70-F084                    |
|                                 | 2R42-E068R2              | LAMP #2                  | 2P70-F084                    |
|                                 | 2R42-E068R3              | LAMP #1                  | 2P70-A002A,B,C               |
|                                 | 2R42-E068R3              | LAMP #2                  | 2P70-A002A,B,C               |
| 2R42-E070*                      | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 2R42-E071                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | 2R42-E071R1              | LAMP #1                  | ACCESS                       |
|                                 | 2R42-E071R2              | LAMP #1                  | 2B21-N031A                   |
|                                 |                          |                          | 2B21-N042A                   |
|                                 |                          |                          | 2B21-R004A                   |
| 2R42-E072*                      | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 2R42-E073*                      | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 2R42-E074*                      | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 2R42-E074R1*             | LAMP #1                  | ACCESS                       |

## HNP-FHA-9

TABLE 1.9-2 (SHEET 5 OF 10)

| <u>Base Unit<br/>MPL Number</u> | <u>Remote<br/>Number</u> | <u>Lighting<br/>Lamp</u> | <u>Lighting<br/>Function</u> |
|---------------------------------|--------------------------|--------------------------|------------------------------|
| 2R42-E075                       | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 2R42-E075R1              | LAMP #1                  | 2H21-P246                    |
|                                 | 2R42-E075R1              | LAMP #2                  | 2R23-S004                    |
|                                 | 2R42-E075R2              | LAMP #1                  | 2R23-S004                    |
|                                 | 2R42-E075R2              | LAMP #2                  | 2R23-S004                    |
| 2R42-E076                       | (BASE UNIT)              | LAMP #1                  | 2R25-S001                    |
|                                 | 2R42-E076R1              | LAMP #1                  | 2H21-P245                    |
|                                 | 2R42-E076R1              | LAMP #2                  | 2R23-S003                    |
|                                 | 2R42-E076R2              | LAMP #1                  | 2R23-S003                    |
|                                 | 2R42-E076R2              | LAMP #2                  | 2R23-S003                    |
| 2R42-E077                       | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 2R42-E077R2              | LAMP #1                  | ACCESS                       |
|                                 | 2R42-E077R2              | LAMP #2                  | ACCESS                       |
|                                 | 2R42-E077R3              | LAMP #1                  | ACCESS                       |
|                                 | 2R42-E077R3              | LAMP #2                  | ACCESS                       |
| 2R42-E078*                      | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                       |
| 2R42-E079                       | (BASE UNIT)              | LAMP #1                  | 2R43-J001A R&T BOX           |
|                                 | (BASE UNIT)              | LAMP #2                  | 2R43-J001A R&T BOX           |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                       |
| 2R42-E082                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                       |
| 2R42-E083                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                       |
| 2R42-E084                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 2R42-E085                       | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 2R42-E085R1              | LAMP #1                  | ACCESS                       |
|                                 | 2R42-E085R1              | LAMP #2                  | ACCESS                       |
| 2R42-E086                       | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 2R42-E086R1              | LAMP #1                  | ACCESS                       |
|                                 | 2R42-E086R1              | LAMP #2                  | ACCESS                       |
|                                 | 2R42-E086R3              | LAMP #1                  | ACCESS                       |
|                                 | 2R42-E086R3              | LAMP #2                  | ACCESS                       |

## HNP-FHA-9

TABLE 1.9-2 (SHEET 6 OF 10)

| <u>Base Unit<br/>MPL Number</u> | <u>Remote<br/>Number</u>                                                | <u>Lighting<br/>Lamp</u>                             | <u>Lighting<br/>Function</u>                                                               |
|---------------------------------|-------------------------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------------------------------------------|
| 2R42-E087                       | (BASE UNIT)<br>2R42-E087R1                                              | NO LAMPS<br>LAMP #1                                  | N/A<br>2E11-F049                                                                           |
| 2R42-E088                       | (BASE UNIT)<br>(BASE UNIT)<br>2R42-E088R1<br>2R42-E088R1                | LAMP #1<br>LAMP #2<br>LAMP #1<br>LAMP #2             | STAIRWAY<br>ACCESS<br>2E11-F104B<br>2E11-F104B                                             |
| 2R42-E089                       | (BASE UNIT)<br>(BASE UNIT)<br>2R42-E089R1<br>2R42-E089R1                | LAMP #1<br>LAMP #2<br>LAMP #1<br>LAMP #2             | STAIRWAY<br>STAIRWAY<br>2E11-F047B/F048B<br>2E11-F047B/F048B                               |
| 2R42-E090                       | (BASE UNIT)<br>(BASE UNIT)<br>2R42-E090R1<br>2R42-E090R1                | LAMP #1<br>LAMP #2<br>LAMP #1<br>LAMP #2             | STAIRWAY<br>STAIRWAY<br>ACCESS<br>STAIRWAY                                                 |
| 2R42-E091                       | (BASE UNIT)<br>2R42-E091R1<br>2R42-E091R2<br>2R42-E091R3<br>2R42-E091R3 | NO LAMPS<br>LAMP #1<br>LAMP #1<br>LAMP #1<br>LAMP #2 | N/A<br>2E11-F068B<br>2E11-F068B<br>2E11-F011B/F004B<br>2E11-F011B/F004B                    |
| 2R42-E092                       | (BASE UNIT)<br>2R42-E092R1<br>2R42-E092R2                               | LAMP #1<br>LAMP #1<br>LAMP #2                        | ACCESS<br>2E11-N003B<br>2E11-F018B                                                         |
| 2R42-E093*                      | (BASE UNIT)<br>2R42-E093R1*                                             | NO LAMPS<br>LAMP #1                                  | N/A<br>ACCESS                                                                              |
| 2R42-E094                       | (BASE UNIT)<br>(BASE UNIT)<br>2R42-E094R1                               | LAMP #1<br>LAMP #2<br>LAMP #1                        | ACCESS<br>ACCESS<br>2B21-R004B                                                             |
| 2R42-E098                       | (BASE UNIT)<br><br>(BASE UNIT)<br><br>(BASE UNIT)                       | LAMP #1<br><br>LAMP #2<br><br>LAMP #3                | 2C82-P001<br>(2C82-R004, 5, 6)<br>2H21-P173 (2E11-R071,<br>2T48-R090, 2T48-R072)<br>ACCESS |
| 2R42-E099                       | (BASE UNIT)<br>2R42-E099R1<br>2R42-E099R1<br>2R42-E099R3<br>2R42-E099R3 | NO LAMPS<br>LAMP #1<br>LAMP #2<br>LAMP #1<br>LAMP #2 | N/A<br>ACCESS<br>ACCESS<br>2E11-F006B/F003B<br>2E11-F006B/F003B                            |

## HNP-FHA-9

TABLE 1.9-2 (SHEET 7 OF 10)

| <u>Base Unit<br/>MPL Number</u> | <u>Remote<br/>Number</u> | <u>Lighting<br/>Lamp</u> | <u>Lighting<br/>Function</u> |
|---------------------------------|--------------------------|--------------------------|------------------------------|
| 2R42-E100                       | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 2R42-E100R1              | LAMP #1                  | 2H21-P120                    |
|                                 | 2R42-E100R1              | LAMP #2                  | 2R26-M119                    |
|                                 | 2R42-E100R2              | LAMP #1                  | ACCESS                       |
|                                 | 2R42-E100R2              | LAMP #2                  | ACCESS                       |
| 2R42-E104                       | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 2R42-E104R1              | LAMP #1                  | 2R24-S022                    |
|                                 | 2R42-E104R1              | LAMP #2                  | 2R24-S022                    |
|                                 | 2R42-E104R2              | LAMP #1                  | 2R24-S022                    |
|                                 | 2R42-E104R2              | LAMP #2                  | 2R24-S022                    |
|                                 | 2R42-E104R3              | LAMP #1                  | 2R24-S012                    |
|                                 | 2R42-E104R3              | LAMP #2                  | 2R24-S022                    |
| 2R42-E105                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | 2R42-E105R1              | LAMP #1                  | 2R25-S002                    |
|                                 | 2R42-E105R1              | LAMP #2                  | 2R25-S037                    |
| 2R42-E106                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | 2R42-E106R1              | LAMP #1                  | 2R25-S064                    |
|                                 | 2R42-E106R1              | LAMP #2                  | 2R25-S064                    |
|                                 | 2R42-E106R2              | LAMP #1                  | 2R25-S066                    |
|                                 | 2R42-E106R2              | LAMP #2                  | 2R25-S066                    |
| 2R42-E107                       | (BASE UNIT)              | LAMP #1                  | STAIRWAY                     |
|                                 | (BASE UNIT)              | LAMP #2                  | STAIRWAY                     |
|                                 | (BASE UNIT)              | LAMP #3                  | STAIRWAY                     |
| 2R42-E110                       | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 2R42-E110R1              | LAMP #1                  | ACCESS                       |
|                                 | 2R42-E110R1              | LAMP #2                  | ACCESS                       |
|                                 | 2R42-E110R3              | LAMP #1                  | 2E11-F119B                   |
|                                 | 2R42-E110R3              | LAMP #2                  | 2E11-F119B                   |
| 2R42-E111                       | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 2R42-E111R1              | LAMP #1                  | 2R24-S012                    |
|                                 | 2R42-E111R1              | LAMP #2                  | 2R24-S012                    |
|                                 | 2R42-E111R2              | LAMP #1                  | 2R24-S012                    |
|                                 | 2R42-E111R2              | LAMP #2                  | 2R24-S012                    |
|                                 | 2R42-E111R3              | LAMP #1                  | 2R24-S012                    |
|                                 | 2R42-E111R3              | LAMP #2                  | 2R24-S012                    |
| 2R42-E112                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |

## HNP-FHA-9

TABLE 1.9-2 (SHEET 8 OF 10)

| <u>Base Unit<br/>MPL Number</u> | <u>Remote<br/>Number</u> | <u>Lighting<br/>Lamp</u> | <u>Lighting<br/>Function</u> |
|---------------------------------|--------------------------|--------------------------|------------------------------|
| 2R42-E113                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | 2R42-E113R1              | LAMP #1                  | 2E51-F104                    |
|                                 | 2R42-E113R1              | LAMP #2                  | 2E51-F104                    |
|                                 | 2R42-E113R2              | LAMP #1                  | 2E51-F105                    |
|                                 | 2R42-E113R2              | LAMP #2                  | 2E51-F105                    |
| 2R42-E114                       | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 2R42-E114R1              | LAMP #1                  | ACCESS                       |
|                                 | 2R42-E114R1              | LAMP #2                  | 2R25-S004                    |
|                                 | 2R42-E114R2              | LAMP #1                  | ACCESS                       |
|                                 | 2R42-E114R2              | LAMP #2                  | ACCESS                       |
| 2R42-E115                       | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 2R42-E115R2              | LAMP #1                  | ACCESS                       |
|                                 | 2R42-E115R2              | LAMP #2                  | ACCESS                       |
| 2R42-E116                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | 2R42-E116R1              | LAMP #1                  | 2P41-R306B                   |
|                                 | 2R42-E116R1              | LAMP #2                  | 2P41-R306B                   |
|                                 | 2R42-E116R2              | LAMP #1                  | ACCESS                       |
|                                 | 2R42-E116R2              | LAMP #2                  | ACCESS                       |
| 2R42-E117                       | (BASE UNIT)              | LAMP #1                  | 1R24-S010                    |
|                                 | (BASE UNIT)              | LAMP #2                  | 1R24-S010                    |
|                                 | 2R42-E117R1              | LAMP #1                  | ACCESS                       |
|                                 | 2R42-E117R1              | LAMP #2                  | ACCESS                       |
| 2R42-E118                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | 2R42-E118R1              | LAMP #1                  | ACCESS                       |
|                                 | 2R42-E118R1              | LAMP #2                  | ACCESS                       |
|                                 | 2R42-E118R2              | LAMP #1                  | ACCESS                       |
|                                 | 2R42-E118R2              | LAMP #2                  | ACCESS                       |
| 2R42-E126                       | (BASE UNIT)              | LAMP #1                  | 2E11-F018A                   |
|                                 | (BASE UNIT)              | LAMP #2                  | 2E11-F018A                   |
| 2R42-E128                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | 2R42-E128R1              | LAMP #1                  | KEY BOXES                    |
|                                 | 2R42-E128R2              | LAMP #1                  | KEY BOXES                    |
| 2R42-E129                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 2R42-E130                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 2R42-E131                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |



## HNP-FHA-9

TABLE 1.9-2 (SHEET 9 OF 10)

| <u>Base Unit<br/>MPL Number</u> | <u>Remote<br/>Number</u> | <u>Lighting<br/>Lamp</u> | <u>Lighting<br/>Function</u> |
|---------------------------------|--------------------------|--------------------------|------------------------------|
| 2R42-E132                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 2R42-E133                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | 2R42-E133R1              | LAMP #1                  | ACCESS                       |
| 2R42-E134                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 2R42-E135                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | 2R42-E135R1              | LAMP #1                  | ACCESS                       |
| 2R42-E136                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #3                  | ACCESS                       |
| 2R42-E137                       | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 2R42-E138*                      | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 2R42-E138R1              | LAMP #1                  | 2R22-S001                    |
|                                 | 2R42-E138R2              | LAMP #2                  | 2R22-S002                    |
| 2R42-E139*                      | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 2R42-E139R1              | LAMP #1                  | 2R22-S003                    |
|                                 | 2R42-E139R2              | LAMP #2                  | 2R22-S004                    |
| 2R42-E140*                      | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 2R42-E141*                      | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 2R42-E142*                      | (BASE UNIT)              | NO LAMPS                 | N/A                          |
|                                 | 2R42-E142R1              | LAMP #1                  | 2R22-S008                    |
|                                 | 2R42-E142R2              | LAMP #2                  | 2R22-S009                    |
| 2R42-E143*                      | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 2R42-E144*                      | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |

# HNP-FHA-9

TABLE 1.9-2 (SHEET 10 OF 10)

| <u>Base Unit<br/>MPL Number</u> | <u>Remote<br/>Number</u> | <u>Lighting<br/>Lamp</u> | <u>Lighting<br/>Function</u> |
|---------------------------------|--------------------------|--------------------------|------------------------------|
| 2R42-E145*                      | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |
| 2R42-E146*                      | (BASE UNIT)              | LAMP #1                  | ACCESS                       |
|                                 | (BASE UNIT)              | LAMP #2                  | ACCESS                       |

\*These emergency lights are associated with multiple spurious operation (MSO) resolutions.

WASTE SEPARATION AND TEMPORARY STORAGE FACILITY (WSTSF) SPRINKLER SYSTEM

OPERATING REQUIREMENTS

---

1.10.1 The WSTSF (also called Low Level Radwaste or LLRW) Sprinkler System shall be FUNCTIONAL.

APPLICABILITY: At all times.

ACTIONS:

- a. With the WSTSF Sprinkler System nonfunctional and radiation levels permitting personnel access, within 2 hours establish a continuous fire watch with backup fire suppression equipment.
- b. With the WSTSF Sprinkler System nonfunctional and radiation levels not permitting personnel access, within 2 hours establish an hourly fire watch patrol with backup fire suppression equipment.

SURVEILLANCE REQUIREMENTS

---

There are no surveillance requirements associated with this item.

## **APPENDIX D**

### **BTP APCS 9.5-1 Compliance**

Georgia Power Company (GPC) originally documented its evaluation of compliance to BTP APCS 9.5-1 in the "Evaluation of the Hatch Nuclear Plant Fire Protection Program." The Nuclear Regulatory Commission (NRC) approved the Hatch Fire Protection Program in its Safety Evaluation Report dated October 4, 1978, based on this GPC submittal. An Operating License Condition was incorporated which required GPC to "maintain in effect and fully implement all provisions of the approved fire protection plan."

In accordance with the guidelines in NRC Generic Letter 86-10, GPC has requested an amendment to its Operating License for revision of the fire protection License Condition, in conjunction with the incorporation of the Fire Protection Program into the Final Safety Analysis Report (FSAR). Because of the plant changes resulting from the backfit requirements of Appendix R to 10 CFR 50 and fire protection improvements in general, the original comparison to BTP 9.5-1 is no longer current. This appendix updates the original comparison (Section IV of "Evaluation of the Hatch Nuclear Plant Fire Protection Program").

In response to GPC's application dated July 25, 1986, the NRC issued Amendment Nos. 133 and 70 dated November 24, 1986, to Facility Operating Licenses Nos. DPR-57 and NPF-5. The amendments revise the fire protection License Conditions (License Condition 2.C(3) for Unit 1 and 2.C(3)(b) for Unit 2) to provide consistency with the standard fire protection License Condition contained in NRC Generic Letter 86-10. The amendments revise Technical Specifications for Units 1 and 2 to delete the fire protection surveillance and operability requirements (these are now located in appendix B of the Fire Hazards Analysis and Fire Protection Program) and add requirements for review of changes to the fire protection program and procedures and submittal of special reports for fire protection equipment and surveillance requirements.

#### **IV. POSITIONS**

The following sections describe the compliance of Hatch Nuclear Plant (HNP) with the intent of the positions of Section IV of Branch Technical Position APCSB 9.5-1.

##### **IV.A THE OVERALL FIRE PROTECTION PROGRAM**

**IV.A.1** To implement the fire protection program, an organizational structure has been developed which designates administrative and functional responsibilities for fire protection. The guidelines of NFPA 6 were used in the formulation of the Hatch program.

The ultimate responsibility for the overall fire protection program at Plant Hatch rests with the vice president of Nuclear Generation for GPC. He assesses program effectiveness through reviews of the audits performed by the Quality Assurance Department at Plant Hatch. He may require program modifications based on this review. He has on his staff or as a consultant, engineers who meet the eligibility requirements for Member Grade membership in the Society of Fire Protection Engineers.

The implementation of the site program is delegated to the general manager. Authority and accountability for overview and implementation of the site program have been further delegated to the engineering group with fire protection responsibilities. Specific requirements and responsibilities related to administrative control of fire hazards, manual firefighting, fire brigade, maintenance of fire protection equipment, etc., have been delegated to various plant departments and are clearly defined in plant procedures.

**IV.A.2** The overall fire protection program has been evaluated by considering the potential fire hazards throughout the plant as discussed in the updated Fire Hazard Analysis.

**IV.A.3** The primary and backup fire suppression capability provided for each fire area is described in the updated Fire Hazard Analysis.

**IV.A.4** Primary and backup fire suppression capability provided for each area as discussed in the updated Fire Hazard Analysis.

Portions of the fire protection systems for HNP were designed such that no single active failure will prevent water from being provided to both hose stations and sprinkler or deluge systems that receive water from the fire protection water tanks. The fire protection system has been intertied to the plant service water system in the reactor building. The fire pump house is elevated above the maximum postulated flood level and designed to withstand winds of up to 100 mph and an ice load of 25 lb/ft<sup>2</sup>.

The potential for lightning caused fires is minimized by lightning arrestors and the ground grid system. In the event of a fire caused by lightning, the fire fighting procedure for that particular fire will be followed.

**IV.A.5** Protection against postulated piping failures in fluid systems outside containment has been evaluated for both Unit 1 and Unit 2. This evaluation is presented in appendix N to the HNP-1 FSAR and in supplement 15A of the HNP-2 FSAR. Those areas containing automatic fire protection systems are identified in the updated Fire Hazard Analysis and the effects of inadvertent operation on safety-related equipment have been considered in the design. Piping for fire protection systems is seismically supported in areas where its failure could affect safety-related systems.

**IV.A.6** The fire protection programs (plans, personnel, and equipment) for fire areas in which new reactor fuel may be stored and for adjacent fire areas which could affect the fuel storage were fully operational before new fuel was stored in the particular area.

**IV.A.7** The HNP fire protection program and the fire detection and suppression equipment have been installed and are operational on both units.

**IV.A.8** HNP is a two-unit site with both units operational. The fire protection program is being continually upgraded and maintained to provide necessary fire protection capability and administrative controls to protect both units from fire hazards. The nuclear plant general manager has the responsibility for fire protection for both units.

**IV.A.9** Simultaneous fires in more than one fire area were not considered.

#### **IV.B. GENERAL GUIDELINES FOR PLANT PROTECTION**

##### **IV.B.1 BUILDING DESIGN**

**IV.B.1.a** The layouts of the safety-related structures showing fire walls are shown in the figures of the updated Fire Hazard Analysis. Areas containing safety-related equipment are also identified in the updated Fire Hazard Analysis. Each area containing safety-related components has been reviewed to identify any unacceptable fire hazards. However, not all safety-related equipment is required for safe plant shutdown. Redundant systems necessary for safe shutdown are protected in accordance with the requirements of Appendix R to 10 CFR 50, as documented in detailed analyses performed by the plant architect/engineers and summarized in the updated Fire Hazards Analysis. Where compliance with these requirements is not warranted, appropriate exemption requests have been submitted to NRC.

**IV.B.1.b** A fire hazard analysis of HNP was made during initial plant design. The updated Fire Hazard Analysis describes the current configuration of the plant.

**IV.B.1.c** HNP 1 and 2 have a shared cable spreading room which is separated from other areas of the plant by concrete walls, floor, and ceiling having a fire resistance rating of 3 h. Cables for redundant safety divisions of each unit are routed in compliance with accepted separation criteria. Shutdown of either unit can be achieved using its remote shutdown system, which is independent of the cables of the cable spreading room in accordance with III.L of Appendix R. An evaluation of the cable spreading room is presented in the updated Fire Hazard Analysis.

**IV.B.1.d** Interior walls, structural components, thermal insulation materials, radiation shielding materials, and soundproofing are of noncombustible or fire retardant types.

Paint coating systems used at HNP have all had flame spread tests performed in accordance with Section 2 of American National Standards Institute (ANSI) N101.2-1972, with the exception of some used in the Unit 1 portion of the control building. All tested systems had flame spread rates of forty-five or less.

**IV.B.1.e** Metal roof deck construction was not used at HNP. Some concrete forms utilizing Robertson Q-Floor made from steel sheets conforming to ASTM A245-64 were left in place after the concrete was poured. The Q-Floor is covered by at least 8 in. of concrete in areas required to have 3-h rating.

**IV.B.1.f** Suspended ceilings and their supports are of noncombustible construction. Concealed spaces were evaluated and are discussed, where applicable, in the updated Fire Hazard Analysis.

**IV.B.1.g** Transformers installed inside buildings are all either dry type or are insulated and cooled with nonflammable liquid.

**IV.B.1.h** The locations of flammable oil filled transformers are shown in the figures in the updated Fire Hazard Analysis. The turbine building is less than 50 ft. from these transformers. Each of these transformers is individually fire protected by an automatic water spray system designed to provide 0.25 gal/min to each square foot of surface area in accordance with NFPA Standard No. 15.

**IV.B.1.i** Floor drains are provided throughout the plant to remove water from normal sources. Fires are not normal events and water from some deluge or sprinkler system and from hose streams might temporarily exceed the capacity of the drain system in some areas. However,

analyses have shown that these occurrences would not jeopardize any safety-related systems. Equipment is installed on pads or pedestals. Drains in areas containing combustible liquids are provided with leak tight covers to prevent the spread of fire throughout the drain systems. All water drains in potentially radioactive areas are routed to the radwaste building.

The limiting factor for the amount of water that can be drained from the reactor building area is the capacity of the sump pumps located in the floor drain sumps. The sumps are located in the southwest and southeast diagonal rooms. As described in HNP-2-FSAR subsection 9.3.3, each floor drain sump is provided with two 50 gal/min sump pumps. Should the capacity of the sump pumps be exceeded and the sumps overflow, the leak detection system will isolate all of the diagonal rooms and the HPCI room from each other and from the torus area to confine the water to that particular room, thus preventing damage to any redundant equipment. All of the safety-related panels and MCCs required for safe plant shutdown that are located in the reactor building are located on pads or designed such that it would require at least a 6-in. accumulation of water before they could be affected. In addition, redundant panels, or MCCs, are located on opposite sides of the reactor building. Since these panels and MCCs are located in open areas, it is very unlikely that enough water could accumulate to affect both divisions of a system required for safe shutdown.

The reactor recirculation M-G set rooms are provided with 6-in. curbing and air tight doors to prevent water from reaching other areas.

In the turbine and control buildings, water will flow to the basement, which is designed to withstand flooding. As in the reactor building, safety-related equipment is elevated above the floor level by pads that will protect them from flooding.

**IV.B.1.j** Fire walls are shown in the figures in the updated Fire Hazard Analysis. Penetrations in these barriers, including conduits and piping, are sealed to provide fire resistance equivalent to the rating of wall or, an engineering evaluation was performed to justify a lesser rating, in accordance with Generic Letter 86-10.

Door openings are protected with equivalent rated fire doors, frames, and hardware that are listed by UL. Fire doors in fire-rated walls will be locked or alarmed except for those in heavily trafficked areas. The alarms will be designed to provide a signal in the control room. The doors that are in heavily trafficked areas will be checked daily to ensure that they are maintained in the proper position.

## **IV.B.2. CONTROL OF COMBUSTIBLES**

**IV.B.2.a** Safety-related systems are isolated from combustible material wherever practicable. Redundant equipment required for safe shutdown is separated in accordance with the criteria of Appendix R to 10 CFR 50, such that any fire will affect only a single safe shutdown pathway.

- A. Each emergency diesel generator has a 1000-gal fuel oil day tank located in individual



rooms of concrete construction with a 3-h fire rating and a dike high enough to contain the oil should the tank rupture.

- B. Turbine generator lubricating oil storage tanks, lubricating oil reservoirs, turbine oil conditioners, turbine lubricating oil piping, and turbine generator bearings (these are not safety-related systems) are all protected by either manual or automatic suppression systems. In addition, these are all separated from systems required for safe plant shutdown by walls that have a minimum of 3-h fire rating, as discussed in the description of these areas in the updated Fire Hazard Analysis.
- C. The recirculation pumps are located inside the primary containment. These pumps are not required for safe shutdown of the plant. In addition, the primary containment is inerted during power operation.

**IV.B.2.b** No bulk combustible gas storage (either compressed or cryogenic) is permitted in safety-related structures. Bulk hydrogen storage tanks are located outdoors with their long axes parallel to safety-related buildings.

**IV.B.2.c** The use of plastic materials is minimized throughout the plant. It is estimated that electric cable of polyvinyl chloride (PVC) insulation comprises less than 3 percent of the total cable in the plant. This insulation comprises the largest use of PVC or plastic in the plant with the exception of the PVC fill used in the cooling towers.

**IV.B.2.d** The design of flammable liquid storage facilities at the site is consistent with the requirements of NFPA 30, Flammable and Combustible Liquids Code.

### **IV.B.3 ELECTRICAL CABLE CONSTRUCTION, CABLE TRAYS, AND CABLE PENETRATIONS**

**IV.B.3.a** All cable tray construction is of noncombustible materials. Where barriers of flame retardant coatings are required, materials have been used which have been substantiated by appropriate fire tests.

**IV.B.3.b** Fire protection guidelines outlined in section IV.D.3 of Branch Technical Position APCSB 9.5-1 are addressed in the specific areas of the updated Fire Hazard Analysis.

**IV.B.3.c** Automatic water sprinkler systems are provided in the east and west cableways, with manual hose stations and portable hand extinguishers provided as backup. There are no safety-related components other than cables in the east or west cableways. Cable trays, other than those in areas where compliance to Appendix R to 10 CFR 50 dictates an automatic

suppression system, are not protected by fixed suppression systems and are dependent on manual hose stations and portable fire extinguishers for fire protection. Cables are designed to allow wetting without electrical faulting. The effect of sprinkler water discharge is discussed in the response to IV.A.5.

**IV.B.3.d** Penetrations of fire barriers are sealed to give a fire rating at least equivalent to that of the barrier, unless an engineering analysis was performed to justify a less rating. This is consistent with Generic Letter 86-10.

Fire ratings are substantiated by tests which meet the requirements of ASTM E-119, including the hose stream test. The application or end use of the fire barrier or fire retardant material is unchanged from the tested configuration.

**IV.B.3.e** Same as IV.B.3.d.

**IV.B.3.f** Cables supplied for HNP are from manufacturers such as:

- Okonite
- Raychem
- Cerro
- Brand Rex
- Boston Insulated Wire & Cable
- Samuel Moore
- Southwire
- Continental Wire & Cable

All the manufacturers supplying cables for Unit 2 have supplied flame test data which meet IEEE 383-1974 or Insulated Power Cable Engineers Association (IPCEA) vertical tray flame test S-19-81. IEEE-383 was not in existence at the time cable was purchased for HNP-1. The cable purchased met the state-of-the-art, as it existed at that time, with respect to flame retardance. Further discretion, based upon past experience with the SCS fossil fuel plants, was used in evaluating cable with respect to flame retardance.

Since the issuance of IEEE-383, documentation has been received which will qualify 70 percent of the cable types purchased for Unit 1. The types include all of the power and general purpose control cables. The only types not meeting IEEE-383-1974 are some of the instrumentation and communication cables.

**IV.B.3.g** The flame retardant nature of the cable used minimizes the amount of gases that would be released in the event of a cable fire. The potential for the release of chlorides has been reduced because only about 3 percent of all cables used were of the PVC insulated type.

**IV.B.3.h** Cable trays, raceways, conduits, trenches, and culverts are used for cable only. Miscellaneous storage is not permitted in these areas. Piping for flammable or combustible liquids or gases is not installed in these areas.

**IV.B.3.i** The main control room, cable spreading room, computer room, and the diesel generator building are the only areas equipped with ventilation systems designed for exhausting smoke. The main control room has a manually actuated smoke removal system capable of venting at a rate of 11,500 ft<sup>3</sup>/min by manually operating two dampers. Both the main control room and cable spreading room removal systems will discharge directly to the outside atmosphere through the reactor building vent. The diesel generator building ventilation systems are discussed in subsection 9.4.5 of the HNP-2-FSAR.

**IV.B.3.j** All cables entering the control room terminate there. The routing is up through the floor of the control room from the cable spreading room by way of numerous sleeves sealed with an approved 3-h-rated fire seal. A minimal amount of panel-to-panel interconnecting wiring for each unit is run in overhead conduits or trays in the control room. There are no floor trenches or culverts in the control room.

There are two 24-in. and two 12-in. cable trays located above the control panels in each unit's area of the control room. These cable trays are the open bottom aluminum type. The cable trays are used for panel-to-panel control cable and they contain no safety-related circuits. Fire detection is provided by smoke detection as well as visual inspection.

#### **IV.B.4 VENTILATION**

The only two areas in the control building that have smoke removal capability are the main control room and the cable spreading room. The method for smoke removal is through normal operation of the systems as described in HNP-2-FSAR paragraph 9.4.1.2 and paragraph 9.4.7.2.5. If the fire dampers have been actuated, they will have to be reopened prior to smoke removal. The ventilation system for the diesel generator building also has the capability to remove smoke and CO<sub>2</sub>.

The ventilation systems for the turbine buildings, control building (except for those listed above), reactor buildings, and radwaste buildings are not designed to either remove smoke or shut down and isolate fires. The only provisions for fire isolation are the use of fire dampers in all fire walls and barriers, where ventilation ducts penetrate. These dampers are all designed to close at approximately 160°F.

Portable smoke handling equipment has been provided for HNP. This equipment has sufficient capacity to remove smoke from a postulated fire and is conveniently located for use by members of the fire brigade who will be trained in its use. At least three units of smoke handling equipment have been provided for each unit. The diesel generator building ventilation is discussed in subsection 9.4.5 of the HNP-2-FSAR.

**IV.B.4.a** Any smoke that would be removed from the control room or cable spreading room and cable spreading room in the event of a fire would pass through the reactor building vent stack. The vent stack is equipped with radiation monitoring devices that will indicate radiation levels. These are the only areas designed for smoke removal. Normal ventilation from areas containing radioactive materials is monitored prior to release.

**IV.B.4.b** Operation of the ventilation systems for the control room and cable spreading room in the manner required to remove smoke will not violate any controlled areas of the plant including containment functions for protection of the public and maintaining habitability for operations personnel.

**IV.B.4.c** The mechanical ventilation systems were not designated with their power supplies and controls outside the areas served by the system, except in the diesel generator building. The design of the mechanical ventilation systems is such that if a failure would occur, the item of equipment would fail to the safe position; thus, the routing of control and power cables outside the fire area was not justified.

**IV.B.4.d** Fixed water spray systems are installed in all charcoal filters in the plant.

**IV.B.4.e** The fresh air supply intakes to areas containing safety-related equipment of systems are located away from the exhaust air outlets and smoke vents of other areas.

**IV.B.4.f** Stairwells have fire doors that will minimize smoke infiltration during a fire. Stairwells and elevators are enclosed in masonry towers with 2-h fire ratings. Elevators will not be used during fire emergencies.

**IV.B.4.g** The smoke venting capabilities of the control room and cable spreading room are approximately 1.55 cfm/ft<sup>2</sup> and 1.64 cfm/ft<sup>2</sup>, respectively, which exceed the 1.5 cfm/ft<sup>2</sup> requirement. The smoke and CO<sub>2</sub> purge rate for each diesel generator room is 39 cfm/ft<sup>2</sup>, and for each day tank room is 3.9 cfm/ft<sup>2</sup>.

**IV.B.4.h** Self-contained breathing apparatuses of the pressure demand type are available for both fire fighters and control room personnel. The operating life of each breathing apparatus is approximately 30 min. An air compressor designed for the purpose of refilling the air cylinders on the emergency breathing apparatus has been provided.

At present there are 46 MSA, type 401, emergency breathing apparatus on site with 64 spare cylinders. Considering the number of personnel required for a fire team and for safe shutdown of the plant from the control room, this equipment will provide sufficient emergency breathing capacity.

The compressor for refilling emergency breathing apparatus cylinders has been provided in a special receptacle in the diesel generator building for manual connection in the event of loss of offsite power. A procedure has been written for operation of the compressor.

**IV.B.4.i** The cable spreading room, diesel generator rooms, diesel generator day tank rooms, and the computer room are the only areas where total CO flooding is used in safety-related structures. Intake and exhaust ventilation systems for these rooms are designed to close upon initiation of the system to maintain necessary gas concentration.

#### **IV.B.5 LIGHTING AND COMMUNICATIONS**

**IV.B.5.a** The emergency lighting fixtures for this plant were selected to be appropriate to the area in which they were installed. This does not necessarily include or exclude sealed beam units but does allow for the appropriate selection of the fixture. The emergency power supplies have sufficient capacity to carry the required load for at least 8 h, in compliance with III.J of Appendix R to 10 CFR 50.

**IV.B.5.b** Sealed beam battery powered portable hand lights are provided for emergency use.

**IV.B.5.c** The plant communications system consists of telephones, a paging system, and sound powered headsets. Power is supplied to the plant phone system servers via a UPS with battery backup that is rated to provide approximately 4 hours of runtime.

The independent telephone system's power can be supplied from Units 1 or 2 essential transformers with a manual throw over switch. This provides a continuous power supply for operation of designated telephones within the Control Room and Emergency Facilities.

The paging system is powered from the plant vital ac bus. This vital ac bus is supplied by an inverter which is supplied by the vital dc batteries. This configuration will allow uninterruptable service of the paging system.

Sound powered phones are supplied for use during shutdown activities from outside the control room.

Portable radio communication units are provided on site and are available for use during fire emergencies. The radio system is a 450-MHz multiple-frequency system and may operate independent of repeaters. Radio communication will continue to be available with any single loss of equipment or power supplies. Multiple base stations are provided to ensure reliable communication.

**IV.B.5.d** The radio system uses a form of repeaters only to improve communication quality. The radio system will operate independent of repeaters.

#### **IV.B.6 ADMINISTRATIVE PROCEDURES, CONTROLS, AND FIRE BRIGADE**

**IV.B.6.a** NFPA guidelines are used as a basis for HNP procedures and training.

**IV.B.6.b** Procedures have been developed dealing specifically with combustible materials storage and will prohibit bulk storage inside or adjacent to safety-related systems or buildings.

**IV.B.6.c** Plant procedures have been written for this type of work.

- A. Such a procedure controls welding and cutting operations. Anyone receiving a welding and cutting permit will have been trained in fire prevention and firefighting.
- B. Leak testing and air flow determination procedures are in place. Open flames or combustion generation smoke will not be permitted for leak testing.
- C. The small amount of wood in the plant is fire retardant.

The warehouse facilities have been provided with automatic sprinkler systems and with hose stations with portable extinguishers available for backup protection.

Procedures for fire brigade training, control of combustibles, control of ignition sources, and firefighting have been written in accordance with the supplemental guidance contained in "Nuclear Plant Fire Protection Functional Responsibilities, Administrative Controls and Quality Assurance," with the exception that fire brigade members attend fire brigade retraining and fire drills once per calendar quarter, and that fire brigade members attend fire fighting practice sessions once per calendar year.

**IV.B.6.d** Plant Hatch has a self-sufficient fire brigade which has been organized using the guidance of NFPA standards. A shift supervisor is designated a fire brigade leader per the HNP general Fire Protection Program Administrative Control procedure. If fire brigade response is necessary, the fire brigade leader will coordinate with the appropriate shift supervisor in the firefighting activities. The Fire Emergency Support Group, comprised of personnel outside of the Operations Department, supports the fire brigade as necessary with additional manpower and equipment. Agreements have been made with local fire departments to provide backup support, when needed. Local fire department personnel will be used under the direction of fire brigade personnel who are trained in radiation protection.

**IV.B.6.e** HNP organization, training, and equipment are consistent with this section.

- A. HNP has procedures and designated personnel to maintain and inspect this equipment.
- B-C. All shift supervisors and plant equipment operators have been trained in the use of firefighting equipment. The training involves the use of periodic drills. Local fire department personnel will be used under the direction of fire brigade personnel who are trained in radiation protection.
- D. The fire brigade is organized using the guidance of NFPA standards. The fire brigade has been trained on initial fire attacks. A set of current NFPA books is available at the plant site for reference.

#### IV.B.7 QUALITY ASSURANCE

The GPC Quality Assurance Program was not applied to the original fire protection systems in the design and construction phase. The system specifications were established by the SCS Mechanical Engineering Department fire protection personnel. There is no QA documentation for the design and construction of these original systems. The operating QA program addressed training of personnel, adherence to operating procedures, and surveillance testing of plant equipment and systems, including the fire protection system. However, all fire protection work done after January 1981 has been part of the plant's QA program.

The following is a description of current procedures for fire protection administrative and training activities.

##### A. Fire Brigade Training

The Hatch administrative procedures address training of fire brigade personnel. A brief outline of subject material is given in the procedure for classroom sessions with requirements for initial and quarterly refresher training. The procedure has been revised to include a detailed outline of the fire protection training program, frequency of drills, and a description of practice sessions held at HNP.

##### B. Control of Combustibles

An administrative procedure for control of combustibles has been developed for use at HNP. The NRC's supplemental guide entitled "Nuclear Plant Fire Protection Functional Responsibilities, Administrative Controls and Quality Assurance," has been utilized for guidance in development of this procedure. The procedure includes measures to ensure limitations on use and storage of combustibles in areas containing safety-related cabling or equipment, management actions necessary before allowing temporary storage of combustibles in safety-related areas, inspection of these areas on a specified frequency to minimize buildup of combustibles, and marking, labeling, or posting of affected areas containing critical equipment.

##### C. Control of Ignition Sources

Administrative controls have been established to protect safety-related equipment from damage due to fires caused by welding or cutting. A permit is required for this type work in any plant area other than those designated as welding and cutting areas. The procedure outlines precautions to be taken for area preparation (i.e., avoiding accumulation of trash, covering vital equipment, and providing appropriate fire extinguishers at the work area) and area inspection during and upon completion of the work activity. Controls also exist which prohibit use of open flames or combustion smoke for leak testing. Administrative procedures also prohibit smoking in numerous plant areas.

D. Firefighting Procedures

Firefighting procedures have been established to cover such items as notification of a fire and fire emergency procedures. The procedures outline the actions to be taken by the individual discovering a fire, actions of control room personnel, and fire brigade actions. Response to the support group at HNP, known as the fire emergency support group, is also described in the procedures.

Emergency procedures for fighting fire in several plant areas have been instituted at HNP. These procedures describe actions to be taken by personnel during the fire with instructions on use of firefighting equipment. The current procedures include the following information:

- Identification of combustibles in safety-related areas.
- Location of firefighting equipment.
- Access and egress routes from fire areas.
- Identification of toxic hazards.
- Use of ventilation equipment.

GPC believes that the fire protection system design (before January 1981), although not audited by a formal QA program in the design and construction phase, does meet high quality standards. GPC policy dictates, for economic reasons, that fire protection be an integral part of the overall plant design for both fossil and nuclear power plants in order to adequately protect the plants from unacceptable losses due to fires.

Any items procured for fire protection at HNP are controlled to appropriate levels of quality as determined by an engineering evaluation. The system designer also prepares the preoperational test procedures for systems and equipment procured for fire protection. This test procedure preparation is described in chapter 14 of the HNP-2-FSAR.

Following successful completion of the acceptance test, HNP personnel control fire protection inspections, tests, administrative controls, fire drills, and training activities in accordance with



the operating QA program as described in the HNP-2-FSAR section 17.2.

The ten QA criteria of section C of Appendix A to Branch Technical Position APCSB 9.5-1 have been applied commensurate with controls described in the operational QA program. The QA program for fire protection will be under the management control of the QA organization.

#### **IV.C FIRE DETECTION AND SUPPRESSION**

##### **IV.C.1 FIRE DETECTION**

**IV.C.1.a** The control room has been specified as the location for receipt of fire alarm signals. Personnel requirements in the control room meet the requirements of the NRC. All above ground valves controlling the water supply to the fixed water extinguishing systems are locked in their proper position.

The automatic fixed water suppression systems have either flow or pressure switches that initiate an alarm when water flows from a system in an area. The circuitry for these devices is periodically checked to ensure continued operability. If one of these devices fails to function, additional backup detection is provided when the fire pump starts. Starting of the fire pump initiates an alarm in the control room even if the flow or pressure switch circuitry in the area of the fire fails to function. Response from the control room will require the location of the operating sprinkler system or hose and, therefore, the location of the fire. A local alarm is sounded using a separate circuit, but the same flow or pressure switch. The tamper alarm circuitry is checked every 6 months as per NFPA code.

The detection system is further described in the updated Fire Hazard Analysis.

The smoke detectors do meet the minimum UL test requirements for response times of 2 min for paper, plastic packing, and gasoline test fires, and 4 min for wood test fires.

**IV.C.1.b** Fire detection systems give audible and visual alarm and annunciation in the control room. Local audible and/or visual alarms are also provided.

**IV.C.1.c** All fire alarms are distinctive and unique. They have a different sound from any plant working system.

**IV.C.1.d** Fire detection and annunciation systems are connected to the plant emergency power supply.

## **IV.C.2 FIRE PROTECTION WATER SUPPLY SYSTEMS**

**IV.C.2.a** An underground yard main loop is installed which is capable of furnishing any anticipated fire water requirements. This loop system is designed in accordance with NFPA No. 24.

All piping in the loop is of lined cast iron or lined ductile iron to reduce internal tuberculation. Means of flushing the system are provided for periodic flushing. NFPA approved visually indicating post indicator valves are provided throughout the loop to isolate portions of the main for maintenance or repair without shutting off the entire system.

The fire main system is a separate and independent system with the exception of the intertie to the service water system, which has been provided as an alternate source of water supply for the system. Except for a tie-in to the service air compressors to supply cooling water, it serves no purpose other than fire protection and is dependent on no other system for operation. Wells are provided for makeup to the two 300,000-gal fire protection water storage tanks.

**IV.C.2.b** A common yard fire main loop serves both HNP 1 and 2. Stop valves are provided to permit maintaining the individual loops around each unit. Two 300,000-gal fire protection water storage tanks are provided for the plant. The water supply for these tanks comes from deep wells and is capable of refilling a storage tank within 8 h. The storage makeup supply system is sized for the largest single expected flow. Simultaneous fires in more than one fire area were not considered.

**IV.C.2.c** A single 70-gal/min 125-psi, pressure maintaining pump (jockey pump) is provided to keep the system filled and pressurized during low flow drawoffs and leakages. A 2500-gal/min electric motor-driven fire pump will start automatically on decrease in water pressure below the operating pressure of the jockey pump. If the demand exceeds the capacity of the electric motor-driven fire pump or upon failure of this pump, a lower pressure will start one of two diesel-driven pumps. A continuing pressure drop will start the second diesel-driven pump. All pumps are located inside the fire protection pump house. Alarms indicating pump running, drive availability, or failure to start are provided in the control room. Fire pump installation is consistent with NFPA 20, "Standard for the Installation of Centrifugal Fire Pumps."

The applicable guidelines for the electric fire pump motor and controller are found in chapter 7 of NFPA No. 20. Information is provided below which demonstrates how the HNP fire pump motor and controls meet or deviate from each of the requirements of the corresponding numbered part of Chapter 7 of NFPA No. 20.

7-1.1.1            The Westinghouse Electric Corporation Type 4160-V metal-clad switchgear is listed for electric motor-driven pump service.

## HNP-FHA-9

- 7-1.1.2 The switchgear meets the requirement.
- 7-1.1.3 A nameplate is on the door of the switchgear frame stating that the breaker is for the electric fire pump. The other requirements are met.
- 7-1.1.4 Westinghouse service representatives are available when needed.
- 7-2.1 The switchgear breaker is not in sight of the electric motor.
- 7-2.2 The switchgear breaker is located in another building and is not subject to water escaping from pumps or pump connections.
- 7-2.3 The switchgear breaker is serviced from the front of the unit.
- 7-3.1 The switchgear is located in an electrical equipment room.
- 7-3.2 The switchgear is attached to a steel channel embedded in a concrete floor which is part of a Seismic Category I building.
- 7-3.3 The switchgear housing is Seismic Category I and protects the breaker as specified.
- 7-3.4.1 The switchgear will meet this requirement.
- 7-3.4.2 See 7-6.2.
- 7-3.4.3 The switchgear will meet this requirement.
- 7-3.5 Fuses and/or circuit breakers are provided in the dc control circuit.
- 7-3.6 The circuit breaker is used as a disconnect switch and meets the code requirement to be externally operable.
- 7-3.7.1 A wiring diagram is furnished and is stored in the plant record file as are all wiring diagrams for HNP.
- 7-3.7.2 The switchgear meets this requirement.
- 7-3.8 The electrical system will meet this requirement.
- 7-3.9 Instruction books as well as drawings are furnished with the equipment and are filed in the record section of HNP.
- 7-4.1 HNP has no isolating switch as such. HNP has the capability of drawing out the 4-kV breaker and locking it in this drawout position for circuit isolation.
- 7-4.2.1 The switchgear will meet this requirement.

## HNP-FHA-9

- 7-4.2.2 The switchgear breaker will meet this requirement.
- 7-4.2.3 The switchgear breaker will meet this requirement.
- 7-4.2.4 The switchgear breaker will meet this requirement.
- 7-4.2.5 The switchgear breaker will meet this requirement.
- 7-4.2.6 The switchgear breaker will meet this requirement.
- 7-4.2.7(a) The switchgear breaker is of the time delay of not over 20 s. It is standard motor protection practice to set breakers at 140 percent of the motor full load current and the fire pump breaker is set at this value.
- 7-4.2.7(b) Not applicable.
- 7-4.2.8 The switchgear breaker short-circuit rating is greater than the available short-circuit current of the circuit. No current limiting fuses are needed.
- 7-4.2.9 A short-circuit study was made to establish the available short-circuit current at the switchgear and this information was factored into the purchase of the switchgear.
- 7-4.2.10 A nameplate is attached to the door of the switchgear breaker.
- 7-4.3 It is standard practice to use a switchgear breaker instead of a starter for all 4-kV motor control.
- 7-4.4 See 7-6.6.
- 7-4.5(a) There is an annunciator in the main control room that indicates the pump is running. The power supply for the annunciator is monitored continuously.
- 7-4.5(b) There is an annunciator in the main control room that indicates bus potential on all three phases of the switchgear. There is an alarm on loss of power on the bus.
- 7-4.6 Auxiliary contacts on the breaker are used to provide pump indication.
- 7-5.1 The switchgear breaker is closed by (1) drop in water pressure, (2) deluge or sprinkler valve opening, (3) manually starting at either the pushbutton station in the main control room or in the pump house.
- 7-5.2.1 See 7-6.4.
- 7-5.2.2 The fire pumps started automatically from the following two control signals: (1) drop in pressure on water main, or (2) opening of any deluge or sprinkler valve. When the deluge or sprinkler valve opens, a relay is energized whose contact

## HNP-FHA-9

closes to close the breaker and start the pump. The power source for the circuit is from the station battery.

- 7-5.2.3 HNP does not have electrical pumps operating in parallel.
- 7-5.2.4 The breaker can be operated mechanically with loss of control power.
- 7-5.2.5 The electrical fire pump can be shut down manually at a pushbutton station at the fire pump house.
- 7-5.3.1 The switchgear breaker system employed meets this requirement.
- 7-5.3.2 The electric fire pump can only be stopped manually from a pushbutton station located at the fire pump station.
- 7-5.3.3 See 7-5.2.4.
- 7-5.4 The electric fire pump can only be stopped manually from a pushbutton station located at the fire pump station.
- 7-6.2 HNP has an ammeter mounted on the switchgear and bus potential.
- 7-6.3 The circuit breaker used as an isolating device is rated for load interrupting and does not require this restriction.
- 7-6.4 The pressure switch and the switchgear breaker are located in separate buildings.
- 7-6.5 The control voltage is from the class IE station battery system.
- 7-6.6 There are bus potential indicating lights in the main control room to indicate potential on all three phases of the switchgear bus to which the electric fire pump is connected. The control power for these indicating lamps comes from the secondary winding of the bus potential transformers.
- 7-6.7 Necessary provisions are made in the switchgear construction to protect personnel from accidental contact with high voltage.
- 7-6.8 The circuit breaker provided is capable of interrupting a short circuit on the load side of the breaker.
- 7-7 Not applicable.

Since the fire pumps are in a separate building from any safety-related components, a fire that could affect the fire pumps would not affect the ability to safely shut down the plant.

In the unlikely event of a loss of all three fire protection pumps, the fire protection system can be crosstied with the plant service water system to supply water to the fire protection systems. Only one of the three pumps is required for firefighting in the HNP buildings. A failure of any pump to operate will result in an alarm, and one of the backup pumps would supply the required water. Although the monitoring circuits are not electrically supervised, the power supply is monitored. In addition, periodic tests and inspections ensure that the pumps remain operable.

Separate monitoring has been provided for the electric-driven fire pump and the combination of the two diesel-driven fire pumps.

The sprinkler system for the fire protection pumphouse has been certified by the manufacturer and installer to be in accordance with NFPA 13. The insuring authority, Nuclear Energy Property Insurance Association (NEPIA), has accepted this system as meeting the requirements of NFPA 13.

Floor-to-ceiling 2-h-rated fire barriers have been provided between the pumps, and the existing sprinkler system has been raised to the ceiling of the fire pumphouse.

**IV.C.2.d** Two 300,000-gal fire protection water storage tanks are provided and are interconnected such that the pumps can take suction from either tank. The fire water makeup capacity is capable of refilling either tank in less than 8 h.

**IV.C.2.e** The fire water (total capacity and flowrate) was calculated on the basis of the largest expected flowrate for a period of 2 h. The flowrate is based (conservatively) on 1000 gal/min for manual hose stations plus the greater of all the sprinkler heads or deluge nozzles opened and flowing in the largest designed fixed water suppression system.

**IV.C.2.f** Not applicable to HNP.

**IV.C.2.g** Outside manual hose installations are sufficient to reach any location with an effective hose stream. This is accomplished with hydrants installed at approximately 250-ft intervals on the yard main system. Post indicator isolation valves at the connection to each hydrant from the yard main were used for visual indication. Hose houses equipped with hose and combination nozzles are appropriately located throughout the plant area. Threads compatible with those used by the local fire departments are provided on all hydrants, hose couplings, and standpipe risers. Use of these hydrants, at quantities flow greater than the jockey pump can provide, will cause the fire pumps to start, providing an alarm in the main control room.

### **IV.C.3 WATER SPRINKLER AND HOSE STANDPIPE SYSTEMS**

**IV.C.3.a** The automatic sprinkler systems and manual hose station hose standpipe systems are not independently connected to the plant underground system but are fed by a main loop inside the turbine and control building and a separate main loop inside the reactor building. Every standpipe within each building is individually connected to the inside main loop. The inside main loop for the turbine building is fed from the main yard loop on one end and from the reactor building main loop on the other end. Each standpipe and sprinkler system is equipped with OS&Y gate valves for shutoff. Flow is alarmed in the fire protection pump house. There is no safety-related equipment which does not itself require automatic sprinkler fire protection which might be subjected to water discharge from an automatic system. This equipment is susceptible to damage from water spray. However, the sprinkler systems were installed to put out a fire in this equipment. There is no other safety-related equipment located in these areas that is not associated with the above listed equipment.

**IV.C.3.b** Valves at sprinkler control stations are designed to give a local alarm if moved to the wrong position. In addition, the sprinkler valves will alarm in the control room when placed out of normal position(s).

All valves controlling water supply to the fixed water suppression systems are locked in their proper position. Those valves that are not locked are designed to provide a signal in a constantly manned location if moved to the wrong position. The circuitry for such alarms is tested every 6 months and all valve positions are checked monthly.

**IV.C.3.c** See the updated Fire Hazard Analysis Report.

**IV.C.3.d** Manual hose stations are located throughout the plant. An effective hose stream can be directed to any area in the plant. Standpipes and hose cabinets are each equipped with 75 ft. of 1 ½-in. woven jacket fire hose and nozzles. Individual standpipes are a minimum of 4-in. diameter for multiple hose stations and 2 ½-in. diameter for single hose connections. These systems are consistent with the requirements of NFPA No. 14, "Standpipe and Hose Systems for Sizing, Spacing and Pipe Support Requirements." Standpipes are equipped with shutoff valves for isolating each standpipe system from the main fire header.

Safety-related equipment is contained in the reactor, control, diesel generator, and intake structure buildings. Hose stations are located throughout the reactor and control buildings. There are no hose stations in the diesel generator building; however, manual firefighting capability is provided for this building from fire hydrants located near the building. The intake structure has been provided with hose stations and an outside fire hydrant. Sufficient hose lengths are available at the plant to run a hose to any area in the plant for firefighting, including the intake structure. Sufficient additional hose sections are available such that safety-related areas in the reactor and control buildings can be reached from other than the nearest hose

station. A fire in the diesel generator building would not prevent the use of the nearby fire hydrants.

**IV.C.3.e** Appropriate hose nozzles are supplied in each area based on the fire hazard in the area. Electrically safe nozzles are provided at locations where electrical equipment and cabling warrant.

**IV.C.3.f** Flammable liquid fire hazards involving quantities of hazardous liquids which constitute a large fire hazard are protected with automatic systems. Equipment or storage tanks containing hazardous liquids in the plant have been identified and analyzed, and necessary fire protection has been provided, either with automatic sprinkler systems or proper portable extinguishers. No fixed foam suppression systems are used at HNP.

#### **IV.C.4 HALON SUPPRESSION SYSTEMS**

A Halon fire suppression system is used at HNP in the records storage vault near the simulator building, and in the simulator area (including under the simulator subfloor) of the simulator building. A fire in this area has no effect on the ability of the plant to be safely shutdown.

#### **IV.C.5 CARBON DIOXIDE SUPPRESSION SYSTEMS**

Carbon dioxide suppression systems are used as a backup system to protect the cable spread room and as primary protection in the computer room, emergency diesel generators rooms, diesel generator day tank rooms, and associated switchgear in the diesel generator building. These systems are consistent with the requirements of NFPA No. 12, "Carbon Dioxide Extinguishing Systems." Consideration was given to CO<sub>2</sub> concentration and soak time.

Total CO<sub>2</sub> flooding systems are designed to minimize the cooling effects on equipment in these rooms as opposed to sudden cooling by a direct CO<sub>2</sub> impingement by nozzles directed at specific components.

Ventilation systems in these areas are designed with interlocking systems which isolate the room to prevent loss of fire extinguishing agent with automatic gravity shutting dampers on fan ducts. These dampers close when fans are turned off and open by air movement from the fan when the fan is operating. The dampers also act as pressure relieving devices for the room as they will open at 1-in. differential water pressure.

The possibility of the CO<sub>2</sub> system being out of service due to personnel safety considerations is controlled by the shift foreman.

The cable spreading room and the computer room design concentrations are in compliance with NFPA Standard No. 12, Section 2421, which recommends a 50-percent concentration for "dry electrical, wiring insulation hazards in general." Calculations show a total discharge of 5201 lb



of CO<sub>2</sub> discharged in less than 2 min for the cable spreading room. This includes 738 ft<sup>3</sup> at design concentration for leakage. The calculations for the computer room show a total discharge of 795 lb of CO<sub>2</sub> discharged in less than 2 min, also in compliance with section 2421. This provides 864 ft<sup>3</sup> at design concentration for leakage.

The diesel generator rooms and adjoining day tank room concentrations are in compliance with section 232 of NFPA 12. Approximately 48 percent, or 1506 lb, of CO<sub>2</sub> are provided. Oil as the primary hazard requires a theoretical minimum CO<sub>2</sub> concentration of 28 percent for extinguishment. Test results show that 50-percent concentration was achieved. Procedures call for a 15-min soak time. Portable analyzers are available to monitor oxygen concentration. Air masks would be used for fighting fires in areas with high CO<sub>2</sub> concentrations.

#### **IV.C.6 PORTABLE EXTINGUISHERS**

Portable fire extinguishers are provided in the plant in accordance with NFPA 10. Dry chemical extinguishers are installed where appropriate with due consideration given to clean up problems after use and possible adverse effects on equipment installed in the area.

#### **IV.D GUIDELINES FOR SPECIFIC PLANT AREAS**

Each area of the plant including primary and secondary containment has been evaluated for fire hazards and the availability of firefighting equipment. The evaluations of these areas are presented in the updated Fire Hazards Analysis. Activities that take place during refueling or maintenance are controlled by plant procedures that require due consideration to activities that may introduce additional fire hazards.

## **SAFE SHUTDOWN SYSTEM METHODOLOGY**

The program for compliance with the Appendix R analysis for safe shutdown is outlined below and described in this appendix.

### 9.5.1 Introduction

### 9.5.2 Summary

#### 9.5.2.1 Appendix R Requirements

#### 9.5.2.2 Systems Required for Safe Shutdown (General Electric Analysis)

#### 9.5.2.3 Safe Shutdown Paths

##### 9.5.2.3.1 Path 1

##### 9.5.2.3.2 Path 2

##### 9.5.2.3.3 Path 3

#### 9.5.2.4 Circuits Required for Safe Shutdown Equipment

#### 9.5.2.5 Analysis By Fire Area

#### 9.5.2.6 Alternatives for Required Circuits

#### 9.5.2.7 Unit 1 Safe Shutdown Equipment List

##### 9.5.2.7-1 Table of Unit 1 Safe Shutdown Equipment List

#### 9.5.2.8 Unit 1 Summary of Required Actions List

##### 9.5.2.8.1 Summaries of Fire Areas not Containing Safe Shutdown Circuits or Equipment

###### 9.5.2.8.1.1 Loss of Offsite Power and Drywell Cooling

###### 9.5.2.8.1.2 RPV Overfill Due to HPCI Runaway

###### 9.5.2.8.1.3 Drywell Overpressurization Due to Failure of the Nitrogen Inerting System

###### 9.5.2.8.1.4 Loss of Drywell Temperature Indication

###### 9.5.2.8.1.5 Loss of Intake Structure Ventilation

###### 9.5.2.8.1.6 Loss of Wide Range RPV Level Indication

###### 9.5.2.8.1.7 Diesel Generator Loading

###### 9.5.2.8.1.8 Loss of Power to R24-S018A/B

##### 9.5.2.8.2 Summaries for Fire Areas Containing Safe Shutdown Circuits or Equipment

#### 9.5.2.9 Unit 2 Safe Shutdown Equipment List

##### 9.5.2.9-1 Table of Unit 2 Safe Shutdown Equipment List

9.5.2.10 Unit 2 Summary of Required Actions List

9.5.2.10.1 Summaries of Fire Areas not Containing Safe Shutdown Circuits or Equipment

- 9.5.2.10.1.1 Loss of Offsite Power and Drywell Cooling
- 9.5.2.10.1.2 RPV Overfill Due to HPCI Runaway
- 9.5.2.10.1.3 Drywell Overpressurization Due to Failure of the Nitrogen Inerting System
- 9.5.2.10.1.4 Loss of Drywell Temperature Indication
- 9.5.2.10.1.5 Loss of Intake Structure Ventilation
- 9.5.2.10.1.6 Loss of Wide Range RPV Level Indication
- 9.5.2.10.1.7 Diesel Generator Loading
- 9.2.2.10.1.8 Loss of Power to 2R24-S018A/B

9.5.2.10.2 Summaries for Fire Areas Containing Safe Shutdown Circuits or Equipment

### 9.5.1 INTRODUCTION

On February 19, 1981, a new rule, 10 CFR 50.48 and 10 CFR 50 Appendix R, which introduced new fire protection requirements at nuclear power plants licensed to operate prior to January 1, 1979, became effective. Since there were no outstanding issues in the NRC approved SER for BTP 9.5-1 Appendix A at Hatch Nuclear Plant (HNP), only the requirements of sections III.G, III.J, and III.L of Appendix R were backfit items for HNP. The requirements of III.O do not apply to HNP by virtue of an inerted containment. Several clarifications concerning this regulation have been issued via workshops, information notices, and generic letters.

The program to ensure compliance with 10 CFR 50.48 and Appendix R involves an analysis documented in the Fire Hazards Analysis and Fire Protection Program. The first step in the analysis process was the development of a safe shutdown scenario, performed by General Electric (GE). A Safe Shutdown Equipment List (SSEL) was developed by Bechtel and modified by Southern Company Services, Inc., and Bechtel using the GE analysis. The required equipment was analyzed to determine the circuits that could affect each piece of equipment from a power, control, and associated circuit standpoint. The required circuits were traced using their raceways. The raceways were walked down to determine their location. Appendix R raceway as-built drawings were generated. The plant was divided into fire areas with the boundaries justified or upgraded. Appendix R circuits were analyzed to ensure safe shutdown capability in any fire area using either path 1, 2, or 3.

### 9.5.2 SUMMARY

#### 9.5.2.1 APPENDIX R REQUIREMENTS

The minimum requirements of the shutdown paths, as defined in 10 CFR 50.48 and Appendix R for any specific fire area are:

- A. The reactor shall be able to achieve and maintain subcritical (hot shutdown) conditions.
- B. The reactor shall be capable of achieving and maintaining cold shutdown conditions within 72 h following the initiating event.
- C. There shall be no fuel clad damage experienced during the shutdown.
- D. Reactor pressure shall be maintained within design limits.
- E. Containment pressure shall be maintained within design limits.
- F. The shutdown system(s) shall be capable of achieving their functions independent of the availability of normal offsite power.

- G. All systems and components not affected by the fire may be assumed to be available and function normally (i.e., application of the arbitrary single failure criterion is not required).
- H. Reactor coolant makeup shall be capable of maintaining the reactor coolant level above the top of the core.

### **9.5.2.2      SYSTEMS REQUIRED FOR SAFE SHUTDOWN**

The major systems and equipment required were defined by GE in “Minimum Systems Required for Safe Shutdown During a Fire in Edwin I. Hatch Nuclear Power Station Units 1 and 2,” (NEDO-24372) and further refined in “Safe Shutdown Appendix R Analyses for Edwin I. Hatch Nuclear Power Station Units 1 and 2,” (MDE-03-0186).

The plant is assumed to be aligned in normal plant operating configuration and the reactor is assumed to be operating at 100% power when an area fire occurs. The fire is accompanied by a reactor scram, closure of the main steam isolation valves (MSIVs), and possible loss of offsite power (LOSP). Events of LOSP and isolation are considered because of their potential consequences. Only systems equipped with emergency power or with readily available manual action (in the event of LOSP) are used to achieve and maintain cold shutdown. Isolation of the MSIVs results in reactor pressurization, reactor inventory loss, and suppression pool heatup. Thus, the reactor vessel, fuel clad, and containment are threatened.

Following the scram, the operator(s) must achieve and maintain safe shutdown conditions in accordance with the criteria above. The equipment required for a safe shutdown must perform the following functions:

- Prevent excessive reactor pressurization.
- Provide adequate makeup inventory.
- Depressurize the reactor.
- Remove decay heat from the reactor.
- Prevent the rupture of any primary coolant boundary.

Long-term decay heat removal will be performed using the suppression pool and the residual heat removal (RHR) system. This will be accomplished by use of alternate shutdown cooling for paths 1 and 2, and shutdown cooling for path 3.

The emergency operating procedures will be utilized to mitigate the consequences of a postulated fire. The procedures were developed from the Emergency Procedure Guidelines (EPG) which are symptom-oriented instructions that were developed by the BWR Owners Group. In view of the low probability and postulated severity of the area fire with the potential LOSP and isolation, the same realistic evaluation method used to develop the EPG is appropriate for analyzing fire events. The key inputs and assumptions are briefly described as follows:

- A. Realistic decay heat is modeled with the mean value of 1979 ANS decay heat.
- B. The safety/relief valves (S/RVs) operate at nominal setpoints with ASME-rated nameplate flow capacity.
- C. Initial reactor water level is at nominal level.
- D. Initial suppression pool volume and temperature, RHR service water temperature and flowrate, and RHR heat exchanger capacity are assumed to be at the most limiting conditions allowed by Technical Specifications.

### 9.5.2.3 SAFE SHUTDOWN PATHS

Analyses were performed to determine three paths of minimum equipment required to safely shut down HNP for a design basis fire. The safe shutdown equipment should be capable of being powered from the emergency onsite power source. If the equipment is not powered from emergency onsite power, loss of this equipment can be justified or mitigated by manual operator actions.

#### 9.5.2.3.1 PATH 1

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED] va [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED] ge [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED]

#### 9.5.2.3.2 PATH 2

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED]  
[REDACTED]

[REDACTED]  
[REDACTED]

[REDACTED]  
[REDACTED]

[REDACTED]

[REDACTED]

#### 9.5.2.3.3 PATH 3

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]





#### 9.5.2.4 CIRCUITS REQUIRED FOR SAFE SHUTDOWN EQUIPMENT

All cables and raceways, with routings, required for essential functions of equipment identified in the Safe Shutdown Equipment List were identified. Fire areas based on the location of existing fire-rated barriers and the response to Branch Technical Position APCSB 9.5-1 analysis were established. Cables and equipment in each fire area which could affect the shutdown capability of the plant were identified. Areas common to Units 1 and 2 were analyzed for the effects of a fire on the shutdown of each unit simultaneously.

Three types of associated circuits are as follows:

- Type A     Nonsafe shutdown circuits which share a common power supply with safe shutdown circuits.
- Type B     Circuits of equipment whose spurious operation could adversely affect the safe shutdown of the plant.
- Type C     Nonsafe shutdown circuits which share a common enclosure with safe shutdown circuits and are not electrically protected by an automatic fault protection device or are not inherently self-protected because the circuit lacks sufficient energy to cause circuit damage (e.g., certain instrumentation circuits) or will propagate a fire into the common enclosure.

The criteria utilized at HNP to address the three types of associated circuits are described below:

- Type A     Ensure that all the ac associated circuits on the Appendix R power supply have protected devices that will interrupt a fault current prior to the initiation of a trip in any upstream interrupting device causing a loss of a common power supply. Ensure that all the dc associated circuits have protective devices that provide an acceptable degree of coordination and selectivity when taking credit for the fault limiting ability of the branch circuit cable impedance.

- Type B    Ensure that the equipment, whose spurious operation could adversely affect the safe shutdown of the plant, is mechanically locked in position or manually operable such that circuit faults due to a fire would not jeopardize safe shutdown. Once it is determined that manual operator actions are required due to a fire, these actions will be incorporated into the appropriate procedures, or new procedures will be established.
- Type C    These associated circuits are electrically protected by automatic fault interrupting devices, do not carry sufficient energy to cause cable damage, and will not propagate fire into a common enclosure in another fire area.

The coordination and selectivity of all HNP circuit protecting devices are basically good when taking credit for the fault limiting ability of the branch circuit cable impedance. When considering an Appendix R type fire scenario where part of the cable impedance might be lost, there is the possibility of DC molded case circuit breakers connected in series simultaneously tripping. This would be considered a decrease in selectivity. However, the probability of the loss of selectivity is low because the cable insulation exposed to a fire is likely to degrade over a period of time and the resulting fault level would be far below the conservative bolted fault value considered for the HNP coordination study. Therefore, multiple high impedance faults are not considered credible and their effects on equipment will not be analyzed.

#### **9.5.2.5      ANALYSIS BY FIRE AREA**

The safe shutdown path (1 or 2) least impacted by the fire in each area was identified. It is assumed that the other path is unavailable for shutdown. For a postulated fire in each area, all fire-induced circuit faults (hot shorts between multiple conductors within a single cable, open circuits, and shorts to ground) and their effects on the safe shutdown equipment identified in paragraph 9.5.2.3 were determined. Hot shorts between conductors of different cables need not be postulated. The fire-induced faults to the shutdown path were evaluated and all cables and equipment which require protection were identified. Protection was accomplished using the criteria listed in reference 1 (0.3.2), III.G.2a, b, and c. If a circuit was evaluated and found not required by reason of function, fault mechanism, or manual operation, that circuit was no longer considered a required safe shutdown circuit for the area under consideration. For fire areas where protection of one path cannot be achieved, such as the control room, alternative shutdown equipment was identified, as required (i.e., the remote shutdown systems, path 3). The criteria of reference 1 (0.3.2), III.G.3a and b, and III.L was utilized.

#### **9.5.2.6      ALTERNATIVES FOR REQUIRED CIRCUITS**

Circuits required to be protected are addressed in this appendix. Raceways, raceway supports, and raceway interferences were evaluated and protected, if necessary, in accordance with the fire barrier manufacturers recommendations or an exemption was requested. All affected raceway support stresses were evaluated for loads from the supported equipment and the additional weight due to the fire barrier material on the equipment and supports. If the support stress exceeded applicable allowances in any of the required combinations, the supports were modified and/or a new support was added to maintain conduit and cable tray support stresses within these limits.

## HNP-FHA-9

Rerouting of circuits was accomplished where feasible and cost effective. This method reroutes a circuit into an area where no protection is required or where manual actions can be performed. This change usually involved finding an area where shutdown can be achieved using a different path.

The manual operator actions required to achieve and maintain safe shutdown were identified. Manual operator actions identified were used to prepare post-fire shutdown procedures and to perform the Emergency Lighting Review, to satisfy 10 CFR 50.48 and Appendix R, section III.J.

HNP-FHA-9

**TABLE 9.5.2.7-1**

**UNIT 1 SAFE SHUTDOWN EQUIPMENT LIST**





































### 9.5.2.8 UNIT 1 SUMMARY OF REQUIRED ACTIONS

#### INTRODUCTION

All actions necessary to shut down Unit 1 which are required as a result of a fire in each fire area are indicated in the fire area summaries found in 9.5.2.8.1 or 9.5.2.8.2.

Each fire area summary, developed from the pertinent fire area analysis, indicates the path and diesel generator(s) to be used for shutdown. Each summary lists all equipment associated with the designated shutdown path for the fire area which may be affected as a result of a fire in the subject fire area. Any action required to ensure satisfactory operation of the equipment for safe shutdown is listed with the equipment.

Certain fire areas contain no Unit 1 safe shutdown circuits or equipment. The only actions required for a fire in such an area are those associated with generic issues.

Safe shutdown equipment that would be affected by generic issues is analyzed. Such resulting actions required for this equipment are listed in the summary found in 9.5.2.8.1. These actions apply to all fire areas utilizing the indicated path of shutdown.

#### 9.5.2.8.1 SUMMARIES FOR FIRE AREAS NOT CONTAINING UNIT 1 SAFE SHUTDOWN CIRCUITS OR EQUIPMENT

The summary is applicable to the following fire areas:

|      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|
|      | 0703 | 0809 | 1302 | 1804 | 2010 | 2203 | 2406 | 2607 |
|      | 0704 | 0810 | 1405 | 1805 | 2013 | 2205 | 2407 | 2608 |
|      | 0801 | 1003 | 1406 | 1806 | 2014 | 2210 | 2408 | 2610 |
| 0201 | 0802 | 1009 | 1606 | 1807 | 2015 | 2211 | 2409 | 2612 |
|      | 0803 | 1010 | 1608 | 2003 | 2018 | 2301 | 2601 | 2801 |
|      | 0804 |      | 1609 | 2004 | 2020 | 2401 | 2602 | 2802 |
| 0601 | 0805 |      | 1611 | 2005 | 2021 | 2402 | 2603 | 2803 |
| 0602 | 0806 | 1201 | 1801 | 2006 |      | 2403 | 2604 | 2804 |
| 0603 | 0807 |      | 1802 | 2008 |      | 2404 | 2605 | 2807 |
| 0702 | 0808 | 1301 | 1803 | 2009 | 2201 | 2405 | 2606 |      |

**9.5.2.8.1.1 LOSS OF OFFSITE POWER AND DRYWELL COOLING**

In order to shut down Unit 1 following a fire in the fire areas not containing safe shutdown circuits or equipment, Diesel Generators 1A and 1C are available and the operator may use path 1 or 2 shutdown procedures and perform the following actions:

Affected  
EquipmentRequired ActionsPath 1

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Path 2

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

**9.5.2.8.1.1 LOSS OF OFFSITE POWER AND DRYWELL COOLING (Cont'd.)**Affected  
EquipmentRequired ActionsPath 2 (cont'd.)

|            |  |
|------------|--|
| [REDACTED] |  |
| [REDACTED] |  |
| [REDACTED] |  |
| [REDACTED] |  |
| [REDACTED] |  |
| [REDACTED] |  |
| [REDACTED] |  |
| [REDACTED] |  |
| [REDACTED] |  |

**9.5.2.8.1.2 RPV OVERFILL DUE TO HPCI RUNAWAY**

In order to prevent RPV overfill due to HPCI runaway, the operator must perform one of the following actions:

Affected  
EquipmentRequired Actions

|           |                                                                                                                                                                                                                                                                                                                     |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| E41-F001  | Close valve via switch S3 in panel H11-P601,<br>or                                                                                                                                                                                                                                                                  |
| E41-F002  | Close valve via switch S1 in panel H11-P601,<br>or                                                                                                                                                                                                                                                                  |
| E41-F003  | Close valve via switch S2 in panel H11-P601,<br>or                                                                                                                                                                                                                                                                  |
| E41-F124  | Trip the HPCI turbine by energizing trip solenoid E41-F124 via switch S19 in panel H11-P601. This switch must be held in the TRIP position until one of the valves in the HPCI steam supply line is closed, or links TT-75 and TT-76 in panel H11-P601 are opened, or breaker 27 in panel R25-S002 is opened.<br>or |
| E41-F3052 | Open links TT-75 and TT-76 in panel H11-P601, or open breaker 27 in panel R25-S002, to fail the HPCI governor valve closed and prevent any subsequent automatic restarts.                                                                                                                                           |

### 9.5.2.8.1.3 DRYWELL OVERPRESSURIZATION DUE TO FAILURE OF THE NITROGEN INERTING SYSTEM

In order to offset the affects of inerting containment isolation valves that have failed open following a fire in fire areas 0024 and 1205, the operator must perform the following actions:

| <u>Affected Equipment</u> | <u>Required Actions</u>       |
|---------------------------|-------------------------------|
| T48-F111                  | Manually close valve T48-F111 |

### 9.5.2.8.1.4 LOSS OF DRYWELL TEMPERATURE INDICATION

If drywell temperature indication is lost and the drywell cooling system cannot be operated, per existing plant procedures the operators should commence an orderly depressurization and the plant should be placed in the SDC or ASDC mode of operation.

### 9.5.2.8.1.5 LOSS OF INTAKE STRUCTURE VENTILATION

To ensure operation of intake structure ventilation following a fire outside the intake structure, perform one of the following manual actions:

| <u>Affected Equipment</u> | <u>Required Actions</u>                                                                     |
|---------------------------|---------------------------------------------------------------------------------------------|
| 1X41-C009A                | Open 30-A breaker SA in 1R23-S003, frame 3, and verify closed or close 1R23-S003, frame 4B. |
| 1X41-C009B                | Open 30-A breaker SA in 1R23-S004, frame 8, and verify closed or close 1R23-S004, frame 4B. |
| 1X41-C009C                | Open 30-A breaker SA in 2R23-S003, frame 2, and verify closed or close 2R23-S003, frame 4B. |

### 9.5.2.8.1.6 LOSS OF WIDE RANGE RPV LEVEL INDICATION

In order to supply Division I power to RPV Level Indicator C32-R655 for a path 1 shutdown, the operator must perform the following actions:



### Affected Equipment

### Required Actions

C32-R655

Open links TT-5 & 6 and close links LL-27 & 28, in panel H11-P602 and open links AA-1 & 2 and close links CC-25 & 26, in panel H11-P612.

#### 9.5.2.8.1.7 DIESEL GENERATOR LOADING

In order to shut down Unit 1 following a fire with a loss of offsite power, the operator must use Diesel Generator 1A and/or 1C and perform the following actions to ensure the loading is below the maximum rating of 3250 kW:

### Affected Equipment

### Required Actions

### Path 1

██████████

\_\_\_\_\_

\_\_\_\_\_

FR.

### Path 2

██████████

\_\_\_\_\_

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] FR.

Path 3

[REDACTED]

[REDACTED]

[REDACTED] FR.

[REDACTED]

[REDACTED]

[REDACTED] FR.

[REDACTED]

[REDACTED] FR

**9.5.2.8.1.8 LOSS OF POWER TO R24-S018A/B**

In order to shut down Unit 1 following a fire with a loss of power to R24-S018A/B or R24-S018B, the operator may use path 1, 2, or 3 shutdown procedures and perform the following actions:

Affected  
Equipment

Required Actions

Path 1

[REDACTED]

[REDACTED]

Path 2

[REDACTED]

[REDACTED]

Path 3

[REDACTED]

[REDACTED]

**9.5.2.8.2 SUMMARIES FOR FIRE AREAS CONTAINING SAFE SHUTDOWN  
CIRCUITS OR EQUIPMENT**

FIRE AREA 0001

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C and perform the following actions:

Affected  
Equipment

Required Actions

R25-S065

To mitigate the effects of a loss of this equipment, perform the following:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] P601 to restore power to  
E11-R602B and C32-R655.

FIRE AREA 0002

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C.

FIRE AREA 0007

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures and Diesel Generator 1C.

FIRE AREA 0014

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C and perform the following actions:

| <u>Affected Equipment</u> | <u>Required Actions</u> |
|---------------------------|-------------------------|
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |

FIRE AREA 0014 (Cont'd.)

| <u>Affected Equipment</u> | <u>Required Actions</u> |
|---------------------------|-------------------------|
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |

FIRE AREA 0024

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 3 shutdown procedures using Diesel Generators 1A and 1C and perform the following actions:

| <u>Affected Equipment</u> | <u>Required Actions</u> |
|---------------------------|-------------------------|
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |

FIRE AREA 0024 (Cont'd.)

| <u>Affected Equipment</u> | <u>Required Actions</u> |
|---------------------------|-------------------------|
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |

FIRE AREA 0024 (Cont'd.)

| <u>Affected Equipment</u> | <u>Required Actions</u> |
|---------------------------|-------------------------|
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |

## FIRE AREA 0024 (Cont'd.)

[illegible]



## FIRE AREA 0024 (Cont'd.)

[illegible]

FIRE AREA 0024 (Cont'd.)

| <u>Affected Equipment</u> | <u>Required Actions</u> |
|---------------------------|-------------------------|
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
|                           | [REDACTED]              |
|                           | [REDACTED]              |
|                           | [REDACTED]              |
|                           | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
|                           | [REDACTED]              |
|                           | [REDACTED]              |
|                           | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
|                           | [REDACTED]              |
|                           | [REDACTED]              |
|                           | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |

FIRE AREA 0024 (Cont'd.)

Affected  
Equipment

Required Actions

Open 30-A breaker SF in R23-S004, frame 9, and manually close or

[REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED]

[REDACTED]  
[REDACTED]

[REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]  
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

FIRE AREA 0024 (Cont'd.)

| <u>Affected Equipment</u> | <u>Required Actions</u> |
|---------------------------|-------------------------|
| [REDACTED]                | [REDACTED]              |
|                           | [REDACTED]              |
|                           | [REDACTED]              |
|                           | [REDACTED]              |
|                           | [REDACTED]              |
|                           | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
|                           | [REDACTED]              |
|                           | [REDACTED]              |
|                           | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
|                           | [REDACTED]              |
|                           | [REDACTED]              |
|                           | [REDACTED]              |

FIRE AREA 0025

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C.

FIRE AREA 0028

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C.

FIRE AREA 0031

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C and perform the following actions:  
Affected

| <u>Equipment</u> | <u>Required Actions</u>                             |
|------------------|-----------------------------------------------------|
| P41-F310B        | Close valve using control switch in panel H11-P652. |

FIRE AREA 0040

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C.

FIRE AREA 0101

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C.

FIRE AREA 0401

In order to shut down Unit 1 following a fire in this fire area, the operator may use path 1 or 2 shutdown procedures. Offsite power will not be affected and Diesel Generators 1A or 1C will not be required.

FIRE AREA 0501

In order to shut down Unit 1 following a fire in this fire area, the operator must use RCIC for hot shutdown and the shutdown procedures for the path of cold shutdown equipment affected by the fire (path 1 or 2) and perform the following actions:

Affected

Equipment

Required Actions

Path 1

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

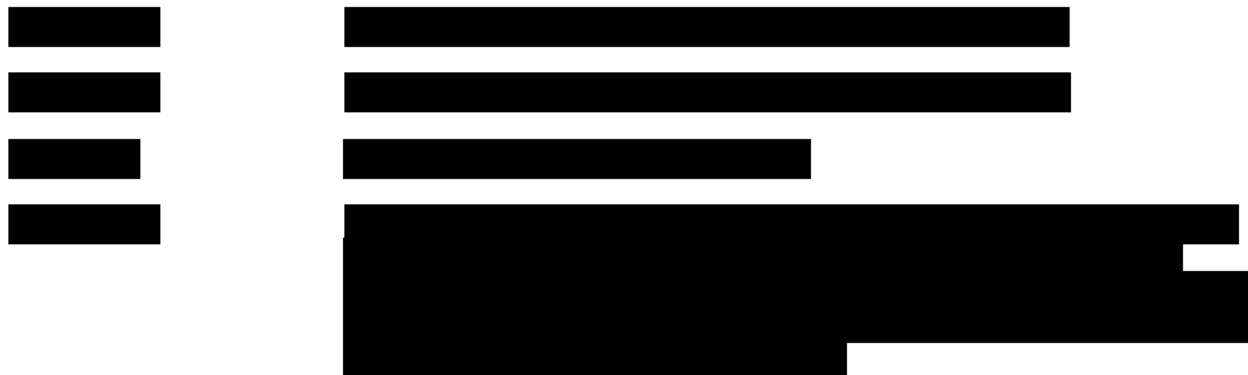
[REDACTED]

[REDACTED]

FIRE AREA 0501 (Cont'd.)



Path 2



FIRE AREA 1004

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C.

FIRE AREA 1005

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 1A.

FIRE AREA 1006

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 1A.

FIRE AREA 1008

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 1A.

FIRE AREA 1013

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 1A and perform the following actions:

Affected  
EquipmentRequired Actions

|            |            |
|------------|------------|
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |

FIRE AREA 1015

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C.

FIRE AREA 1016

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C.

FIRE AREA 1017

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 1A.

FIRE AREA 1018

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C.

FIRE AREA 1019

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C, and perform the following actions:

Affected  
Equipment

Required Actions

[REDACTED]

[REDACTED]

FIRE AREA 1020

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 1A.

FIRE AREA 1023

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C.

FIRE AREA 1101

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generators 1C, and perform the following actions:

Affected  
Equipment

Required Actions

[REDACTED]

[REDACTED]

FIRE AREA 1102

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C.

FIRE AREA 1103

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C.



FIRE AREA 1104

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 1A and perform the following actions:

| <u>Affected Equipment</u> | <u>Required Actions</u> |
|---------------------------|-------------------------|
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |

FIRE AREA 1105

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C and perform the following actions:

| Affected Equipment | Required Actions         |
|--------------------|--------------------------|
| [REDACTED]         | [REDACTED]<br>[REDACTED] |
| [REDACTED]         | [REDACTED]               |
| [REDACTED]         | [REDACTED]<br>[REDACTED] |
| [REDACTED]         | [REDACTED]               |
| [REDACTED]         | [REDACTED]<br>[REDACTED] |
| [REDACTED]         | [REDACTED]               |
| [REDACTED]         | [REDACTED]<br>[REDACTED] |

FIRE AREA 1203

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C and perform the following actions:

| Affected Equipment | Required Actions                       |
|--------------------|----------------------------------------|
| [REDACTED]         | [REDACTED]<br>[REDACTED]               |
| [REDACTED]         | [REDACTED]<br>[REDACTED]               |
| [REDACTED]         | [REDACTED]<br>[REDACTED]               |
| [REDACTED]         | [REDACTED]<br>[REDACTED]               |
| [REDACTED]         | [REDACTED]                             |
| [REDACTED]         | [REDACTED]                             |
| [REDACTED]         | [REDACTED]<br>[REDACTED]               |
| [REDACTED]         | [REDACTED]<br>[REDACTED]               |
| [REDACTED]         | [REDACTED]<br>[REDACTED]               |
| [REDACTED]         | [REDACTED]<br>[REDACTED]<br>[REDACTED] |
| [REDACTED]         | [REDACTED]<br>[REDACTED]               |
| [REDACTED]         | [REDACTED]<br>[REDACTED]               |
| [REDACTED]         | [REDACTED]<br>[REDACTED]<br>[REDACTED] |

FIRE AREA 1203 (Cont'd)

| <u>Affected Equipment</u> | <u>Required Actions</u> |
|---------------------------|-------------------------|
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |

FIRE AREA 1205

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 1A and perform the following actions:

| <u>Affected Equipment</u> | <u>Required Actions</u> |
|---------------------------|-------------------------|
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |

FIRE AREA 1205 (Cont'd)

[illegible]

FIRE AREA 1401

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 1A.

FIRE AREA 1402

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 1A.

FIRE AREA 1403

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 1A.

FIRE AREA 1404

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 1A and perform the following actions:

| <u>Affected<br/>Equipment</u> | <u>Required Actions</u> |
|-------------------------------|-------------------------|
|-------------------------------|-------------------------|

|            |            |
|------------|------------|
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |

FIRE AREA 1407

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C.

FIRE AREA 1408

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C and perform the following actions:

| <u>Affected<br/>Equipment</u> | <u>Required Actions</u> |
|-------------------------------|-------------------------|
|-------------------------------|-------------------------|

|            |            |
|------------|------------|
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |

FIRE AREA 1409

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C.

FIRE AREA 1410

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C.

FIRE AREA 1411

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C.

FIRE AREA 1412

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C and perform the following actions:

| <u>Affected Equipment</u> | <u>Required Actions</u> |
|---------------------------|-------------------------|
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |

FIRE AREA 1601

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C.

FIRE AREA 1602

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 1A.

FIRE AREA 1603

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 1A and perform the following actions:

| <u>Affected Equipment</u> | <u>Required Actions</u> |
|---------------------------|-------------------------|
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |

FIRE AREA 1604

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 1A and perform the following actions:

| <u>Affected Equipment</u> | <u>Required Actions</u> |
|---------------------------|-------------------------|
| [REDACTED]                | [REDACTED]              |

FIRE AREA 1605

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C.

FIRE AREA 1610

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C.

FIRE AREA 1612

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 1A.

FIRE AREA 2016

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C.

FIRE AREA 2017

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 1A.

FIRE AREA 2019

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 1A.

FIRE AREA 2023

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C.

FIRE AREA 2101

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C.



FIRE AREA 2102

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C.

FIRE AREA 2103

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 1C.

FIRE AREA 2104

In order to shut down Unit 1 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 1A.

HNP-FHA-9

**TABLE 9.5.2.9-1**  
**UNIT 2 SAFE SHUTDOWN EQUIPMENT LIST**







































### 9.5.2.10 UNIT 2 SUMMARY OF REQUIRED ACTIONS

#### INTRODUCTION

All actions necessary to shut down Unit 2 which are required as a result of a fire in each fire area are indicated in the fire area summaries found in 9.5.2.10.1 or 9.5.2.10.2.

Each fire area summary, developed from the pertinent fire area analysis, indicates the path and diesel generators to be used for shutdown. Each summary lists all equipment associated with the designated shutdown path for the fire area which may be affected as a result of a fire in the subject fire area. Any action required to ensure satisfactory operation of the equipment for safe shutdown is listed with the equipment.

Certain fire areas contain no Unit 2 safe shutdown circuits or equipment. The only actions required for a fire in such an area are those associated with generic issues.

Safe shutdown equipment that would be affected by generic issues is analyzed. Such resulting actions required for this equipment are listed in the summary found in 9.5.10.1. These actions apply to all fire areas utilizing the indicated path of shutdown.

#### 9.5.2.10.1 SUMMARIES FOR FIRE AREAS NOT CONTAINING UNIT 2 SAFE SHUTDOWN CIRCUITS OR EQUIPMENT

This summary is applicable to the following fire areas:

|      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|
|      | 0703 | 1003 | 1018 | 1301 | 1409 | 1608 | 1806 | 2211 |
|      | 0704 | 1004 | 1019 | 1302 | 1410 | 1609 | 1807 | 2301 |
| 0201 | 0802 | 1005 | 1023 | 1401 | 1411 | 1610 | 2003 | 2606 |
|      | 0803 | 1006 |      | 1402 | 1412 | 1611 | 2008 | 2608 |
|      | 0804 | 1008 |      | 1403 | 1601 | 1612 | 2009 | 2801 |
|      | 0805 | 1009 |      | 1404 | 1602 | 1801 | 2010 | 2802 |
| 0601 | 0806 | 1010 | 1201 | 1405 | 1603 | 1802 |      | 2803 |
| 0602 | 0807 | 1013 | 1205 | 1406 | 1604 | 1803 |      | 2804 |
| 0603 | 0808 | 1015 |      | 1407 | 1605 | 1804 | 2201 | 2807 |
| 0702 | 0809 |      |      | 1408 | 1606 | 1805 | 2210 |      |
|      | 0810 |      |      |      |      |      |      |      |

**9.5.2.10.1.1 LOSS-OF-OFFSITE POWER AND DRYWELL COOLING**

In order to shut down Unit 2 following a fire with a loss of offsite power and a loss of drywell cooling, the operator may use path 1 or 2 shutdown procedures using Diesel Generator 2A or 2C and perform the following actions:

Affected  
EquipmentRequired ActionsPath 1

|            |            |
|------------|------------|
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |

Path 2

|            |            |
|------------|------------|
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |

**9.5.2.10.1.2 RPV OVERFILL DUE TO HPCI RUNAWAY**

To prevent RPV overfill due to HPCI runaway, the operator must perform one of the following actions:

| <u>Affected Equipment</u> | <u>Required Actions</u>                                                                                                                                                                                                                                                                                                 |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2E41-F001                 | Close valve via switch S3 in panel 2H11-P601,<br>or                                                                                                                                                                                                                                                                     |
| 2E41-F002                 | Close valve via switch S1 in panel 2H11-P601,<br>or                                                                                                                                                                                                                                                                     |
| 2E41-F003                 | Close valve via switch S2 in panel 2H11-P601,<br>or                                                                                                                                                                                                                                                                     |
| 2E41-F124                 | Trip the HPCI turbine by energizing trip solenoid 2E41-F124 via switch S19 in panel 2H11-P601. This switch must be held in the TRIP position until one of the valves in the HPCI steam supply line is closed, or links TT-75 and TT-76 in panel 2H11-P601 are opened, or breaker 25 in panel 2R25-S002 is opened.<br>or |
| 2E41-F3052                | Open links TT-75 and TT-76 in panel 2H11-P601, or open breaker 25 in panel 2R25-S002, to fail the HPCI governor valve closed and prevent any subsequent automatic restarts.                                                                                                                                             |

**9.5.2.10.1.3 DRYWELL OVERPRESSURIZATION DUE TO FAILURE OF THE NITROGEN INERTING SYSTEM**

In order to offset the affects of inerting containment isolation valves that have failed open following a fire in fire area 2205, the operator must perform the following actions:

| <u>Affected Equipment</u> | <u>Required Actions</u>        |
|---------------------------|--------------------------------|
| 2T48-F111                 | Manually close valve 2T48-F111 |

**9.5.2.10.1.4 LOSS OF DRYWELL TEMPERATURE INDICATION**

If drywell temperature indication is lost and the drywell cooling system can not be operated, per existing plant procedures the operators should commence an orderly depressurization and the plant should be placed in the SDC or ASDC mode of operation.

**9.5.2.10.1.5 LOSS OF INTAKE STRUCTURE VENTILATION**

To ensure operation of intake structure ventilation following a fire outside the intake structure, perform one of the following manual actions:

| <u>Affected Equipment</u> | <u>Required Actions</u>                                                                     |
|---------------------------|---------------------------------------------------------------------------------------------|
| 1X41-C009A                | Open 30-A breaker SA in 1R23-S003, frame 3, and verify closed or close 1R23-S003, frame 4B. |
| 1X41-C009B                | Open 30-A breaker SA in 1R23-S004, frame 8, and verify closed or close 1R23-S004, frame 4B. |
| 1X41-C009C                | Open 30-A breaker SA in 2R23-S003, frame 2, and verify closed or close 2R23-S003, frame 4B. |

**9.5.2.10.1.6 LOSS OF WIDE RANGE RPV LEVEL INDICATION**

In order to supply Division I power to RPV Level Indicator 2C32-R655 for a path 1 shutdown, the operator must perform the following actions:

| <u>Affected Equipment</u> | <u>Required Actions</u> |
|---------------------------|-------------------------|
| [REDACTED]                | [REDACTED]              |

**9.5.2.10.1.7 DIESEL GENERATOR LOADING**

In order to shut down Unit 2 following a fire with a loss of offsite power, the operator must use Diesel Generator 2A and/or 2C and perform the following actions to ensure the loading is below the maximum rating of 3250 kW:

| <u>Affected Equipment</u> | <u>Required Actions</u> |
|---------------------------|-------------------------|
| <u>Path 1</u>             |                         |
| [REDACTED]                | [REDACTED]              |
|                           | [REDACTED] FR.          |

[REDACTED]

[REDACTED]

[REDACTED] FR.

Path 2

[REDACTED]

[REDACTED]

[REDACTED] FR.

[REDACTED]

[REDACTED] FR.

Path 3

[REDACTED]

[REDACTED] FR.

[REDACTED]

[REDACTED] FR.

[REDACTED]



**9.5.2.10.1.8 LOSS OF POWER TO 2R24-S018A/B**

In order to shut down Unit 2 following a fire with a loss of power to 2R24-S018A or 2R24-S018B, the operator may use path 1, 2, or 3 shutdown procedures and perform the following actions:

Affected  
Equipment

Required Actions

Path 1

[REDACTED]

[REDACTED]

Path 2

[REDACTED]

[REDACTED]

Path 3

[REDACTED]

[REDACTED]

**9.5.2.10.2 SUMMARIES FOR FIRE AREAS CONTAINING SAFE SHUTDOWN CIRCUITS OR EQUIPMENT**FIRE AREA 0001

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 0002

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 0007

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 0014

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C and perform the following actions:

Affected  
EquipmentRequired Actions

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

FIRE AREA 0024

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 3 shutdown procedures using Diesel Generators 2A and 2C and perform the following actions:

Affected  
EquipmentRequired Actions

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

FIRE AREA 0024 (Cont'd.)

| <u>Affected Equipment</u> | <u>Required Actions</u> |
|---------------------------|-------------------------|
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |

FIRE AREA 0024 (Cont'd.)

Affected  
Equipment

Required Actions

|            |            |
|------------|------------|
| [REDACTED] | [REDACTED] |
|            | [REDACTED] |
|            | [REDACTED] |
| [REDACTED] | [REDACTED] |
|            | [REDACTED] |
|            | [REDACTED] |
| [REDACTED] | [REDACTED] |
|            | [REDACTED] |
|            | [REDACTED] |
| [REDACTED] | [REDACTED] |
|            | [REDACTED] |
|            | [REDACTED] |
| [REDACTED] | [REDACTED] |
|            | [REDACTED] |
|            | [REDACTED] |
| [REDACTED] | [REDACTED] |
|            | [REDACTED] |
|            | [REDACTED] |
| [REDACTED] | [REDACTED] |
|            | [REDACTED] |
|            | [REDACTED] |
| [REDACTED] | [REDACTED] |
|            | [REDACTED] |
|            | [REDACTED] |

FIRE AREA 0024 (Cont'd.)

Affected  
Equipment

Required Actions

|            |            |
|------------|------------|
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |

## FIRE AREA 0024 (Cont'd.)

| Affected Equipment | Required Actions                                     |
|--------------------|------------------------------------------------------|
| [REDACTED]         | [REDACTED]<br>[REDACTED]                             |
| [REDACTED]         | [REDACTED]<br>[REDACTED]                             |
| [REDACTED]         | [REDACTED]<br>[REDACTED]                             |
| [REDACTED]         | [REDACTED]                                           |
| [REDACTED]         | [REDACTED]<br>[REDACTED]<br>[REDACTED]<br>[REDACTED] |
| [REDACTED]         | [REDACTED]<br>[REDACTED]                             |
| [REDACTED]         | [REDACTED]                                           |
| [REDACTED]         | [REDACTED]<br>[REDACTED]                             |
| [REDACTED]         | [REDACTED]<br>[REDACTED]                             |
| [REDACTED]         | [REDACTED]<br>[REDACTED]                             |

FIRE AREA 0024 (Cont'd.)

Affected  
Equipment

Required Actions

|            |            |
|------------|------------|
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |

## FIRE AREA 0024 (Cont'd.)

[illegible]



FIRE AREA 0024 (Cont'd.)

| <u>Affected Equipment</u> | <u>Required Actions</u> |
|---------------------------|-------------------------|
| [REDACTED]                | [REDACTED]              |
|                           | [REDACTED]              |
|                           | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
|                           | [REDACTED]              |
|                           | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
|                           | [REDACTED]              |
|                           | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
|                           | [REDACTED]              |
|                           | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
|                           | [REDACTED]              |
|                           | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
|                           | [REDACTED]              |
|                           | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
|                           | [REDACTED]              |
|                           | [REDACTED]              |

## FIRE AREA 0024 (Cont'd.)

[illegible]

FIRE AREA 0024 (Cont'd.)

Affected  
Equipment

Required Actions

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

FIRE AREA 0025

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 0028

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 0031

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 0040

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C and perform the following actions:

Affected  
EquipmentRequired Actions

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

FIRE AREA 0101

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 0401

In order to shut down Unit 2 following a fire in this fire area, the operator may use path 1 or 2 shutdown procedures. Offsite power will not be affected and Diesel Generators 2A or 2C will not be required.

## HNP-FHA-9

### FIRE AREA 0501

In order to shut down Unit 2 following a fire in this fire area, the operator must use RCIC for hot shutdown and the shutdown procedures for the path of cold shutdown equipment unaffected by the fire (path 1 or 2) and perform the following actions:

#### Affected Equipment

#### Required Actions

##### Path 1

|            |            |
|------------|------------|
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |

##### Path 2

|            |            |
|------------|------------|
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |

FIRE AREA 0501(Cont'd)

[REDACTED]

FIRE AREA 0801

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 1016

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 1017

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 2A, and perform the following actions:

Affected  
Equipment

Required Actions

[REDACTED]

[REDACTED]

FIRE AREA 1020

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 1101

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 1102

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 1103

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 1104

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 2A, and perform the following actions:

Affected  
Equipment

Required Actions

[REDACTED]

[REDACTED]

FIRE AREA 1105

In order to shut down Unit 2 following a fire in the fire area, the operator must use path 1 shutdown procedures using Diesel Generator 2A and perform the following actions:

Affected  
Equipment

Required Action

[REDACTED]

[REDACTED]

FIRE AREA 1203

In order to shut down Unit 2 following a fire in this area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 2004

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 2005

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 2A.

FIRE AREA 2006

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 2A.

FIRE AREA 2013

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 2A and perform the following actions:

Affected  
Equipment

Required Actions

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

FIRE AREA 2014

In order to shut down Unit 2 following a fire in this area, the operator must use path 1 shutdown procedures using Diesel Generator 2A and perform the following actions:

Affected  
Equipment

Required Action

[REDACTED]

[REDACTED]

FIRE AREA 2015

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C and perform the following actions:

Affected  
Equipment

Required Actions

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

FIRE AREA 2016

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.



FIRE AREA 2017

In order to shut down Unit 2 following a fire in this area, the operator must use the path 1 shutdown procedures using Diesel Generator 2A.

FIRE AREA 2018

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 2019

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 2A, and perform the following actions:

Affected  
Equipment

Required Actions

[REDACTED]

[REDACTED]

FIRE AREA 2020

In order to shut down Unit 2 following a fire in this area, the operator must use path 1 shutdown procedures using Diesel Generator 2A and perform the following actions:

Affected  
Equipment

Required Action

[REDACTED]

[REDACTED]

FIRE AREA 2021

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 2023

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 2101

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 2102

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 2103

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 2104

In order to shut down Unit 2 following a fire in this fire area, the operator must use the path 1 procedures using Diesel Generator 2A and perform the following actions:

| <u>Affected Equipment</u> | <u>Required Action</u> |
|---------------------------|------------------------|
| [REDACTED]                | [REDACTED]             |
| [REDACTED]                | [REDACTED]             |
| [REDACTED]                | [REDACTED]             |
| [REDACTED]                | [REDACTED]             |
| [REDACTED]                | [REDACTED]             |
| [REDACTED]                | [REDACTED]             |
| [REDACTED]                | [REDACTED]             |
| [REDACTED]                | [REDACTED]             |

FIRE AREA 2104(Cont'd)

|            |            |
|------------|------------|
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |

FIRE AREA 2203

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C and perform the following actions:

| <u>Affected Equipment</u> | <u>Required Actions</u> |
|---------------------------|-------------------------|
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |

FIRE AREA 2203 (Cont'd.)

|            |            |
|------------|------------|
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |

FIRE AREA 2203 (Cont'd.)

Affected  
Equipment

Required Actions

|            |            |
|------------|------------|
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] |

FIRE AREA 2203 (Cont'd.)Affected  
EquipmentRequired Actions

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

FIRE AREA 2205

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 2A and perform the following actions:

Affected  
EquipmentRequired Action

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

FIRE AREA 2205 (Cont'd.)

| <u>Affected Equipment</u> | <u>Required Actions</u> |
|---------------------------|-------------------------|
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |
| [REDACTED]                | [REDACTED]              |

FIRE AREA 2401

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 2402

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 2403

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 2404

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C and perform the following actions:

Affected  
Equipment

Required Actions

[REDACTED]

[REDACTED] 2H11-P654. [REDACTED]

[REDACTED]

[REDACTED] 2H11-P654. [REDACTED]

FIRE AREA 2405

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 2A.

FIRE AREA 2406

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 2A.

FIRE AREA 2407

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 2A.



FIRE AREA 2408

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C and perform the following actions:

| <u>Affected Equipment</u> | <u>Required Action</u> |
|---------------------------|------------------------|
| [REDACTED]                | [REDACTED]             |
| [REDACTED]                | [REDACTED]             |

FIRE AREA 2409

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 2A and perform the following actions:

| <u>Affected Equipment</u> | <u>Required Action</u> |
|---------------------------|------------------------|
| [REDACTED]                | [REDACTED] starts.     |
| [REDACTED]                | [REDACTED] starts.     |

FIRE AREA 2601

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 2602

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 2A.

FIRE AREA 2603

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 2604

In order to shut down Unit 2 following a fire in this fire area, the operator may use path 1 or 2 shutdown procedures using Diesel Generator 2A or 2C and perform the following actions:

Affected

Equipment

Required Actions

[REDACTED]

[REDACTED]

FIRE AREA 2605

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 2607

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 2610

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 2 shutdown procedures using Diesel Generator 2C.

FIRE AREA 2612

In order to shut down Unit 2 following a fire in this fire area, the operator must use path 1 shutdown procedures using Diesel Generator 2A.

## **APPENDIX H**

### **APPLICATION OF NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) CODES**

#### **1.0 GENERAL**

The fire detection and suppression systems were installed at Plant Hatch following the special hazards design basis technique allowed by the National Fire Protection Association codes. This technique utilized a combination of NFPA 13, 15, 72A, 72B, 72C, 72D, and 72E to ensure the maximum effectiveness of the system to limit the fire hazard at Plant Hatch and to take into account the unique structural configuration and protection problems inherent in a power plant.

These codes and regulations are basically tailored for protection of rooms or areas with relatively regular surfaces and features. This is a situation seldom realized in the highly congested conditions encountered in the majority of the rooms in a power plant. In recognition of such conditions and of the special hazards encountered in a nuclear power plant, sound engineering judgment must be exercised in the design and installation of its fire protection systems rather than routine, absolute compliance with rules which are not always appropriate to the situation.

Occasionally, minor deviations from the codes, principally in sprinkler head or detector placement relative to the ceiling, must be taken because of congestion; e.g., cable trays, piping, ducting, in the area of a suppression system. Such deviations are taken only when they will result in equal or superior protection to that which would result from an inflexible conformance to codes or regulations, if such were possible.

#### **2.0 SPECIFIC CODE DEVIATIONS**

The following paragraphs outline certain general code deviations that have been necessary in past installations of fire protection systems. Nuclear Regulatory Commission (NRC) approval of these deviations from NFPA codes was granted in the October 1978 or April 1982 Safety Evaluation Report. Each of the following paragraphs contains a justification for the requested code deviation.

##### **2.1 DEPARTURE FROM NFPA 13, 14, AND 15 WITH RESPECT TO HANGER SELECTION AND SPACING**

NFPA criteria governing the hanger design, selection, and spacing criteria for fire suppression systems outlined in NFPA 13, 14, and 15 do not provide for a seismic hanger support system.

In order to achieve the necessary system integrity for a Class 1 support system, the piping configuration is subjected to a sophisticated rigid analysis for hanger location. The type of hanger assemblies required to withstand the excessive loads and movement above NFPA allowances results in each hanger assembly as a unique design requirement. The resulting installation is an engineered system of superior integrity as opposed to the generalized

instructions set forth by NFPA for such structures as warehouse, health care facilities, and general office structures.

It is, therefore, necessary to depart from these codes for pipe supports.

## **2.2 DEPARTURE FROM NFPA 13, 14, AND 15 WITH RESPECT TO COMPONENT SELECTION**

The NFPA codes specify the use of components listed for fire service by Underwriters Laboratory (UL). Components listed by UL are used to the extent practicable, but not all components are UL listed.

UL does not list every component utilized in the fire protection systems. In selected cases, more stringent operability requirements, contrary to fire protection desires, dictate the selection of nuclear grade devices. However, in each case, an engineering evaluation is performed to ensure all criteria are satisfied prior to the final selection.

Closed head directional spray nozzles are utilized because of the ability of the nozzle to deliver better water dispersion with the excessive congestion that exists. The directional spray nozzles were reviewed by the NRC and accepted for use in the subject utility during the initial Fire Protection Reevaluation. Additional considerations for head selection included overspray control for equipment and devices not involved with the specific hazard.

The component selection is judged equal to or better than NFPA guidelines due to the ability to provide water coverage and protection for the hazard while controlling water overspray and flooding potential.

Multibushing reductions are used in a limited number of cases due to nonavailable American Society of Testing Materials (ASTM) A-234 forged steel reducing fittings and excessive congestion for the pipe runs. Flow capability and pressure retention are verified at the conclusion of installation by flow test and hydrostatic pressure tests. In light of the quality control provisions required for this facility, fabrication material, acceptance testing, and frequency of inspection, each system is judged superior in quality and exceeds the provisions set forth by NFPA guidelines.

## **2.3 DEPARTURES FROM NFPA 13 AND 15 WITH RESPECT TO SPRINKLER HEAD/NOZZLE PLACEMENT**

Sprinkler head/nozzle placement does not follow NFPA 13 and 15 criteria in all locations. Deviations exist where congestion will not allow placement of the device within NFPA allowable tolerances. An engineering analysis (as permitted by the special hazards philosophy discussed in the NFPA codes) is performed on each head/nozzle that cannot be located per NFPA guidelines. This analysis is performed on a case-by-case basis to ensure that the system performance meets or exceeds NFPA criteria. As a result of excessive congestion of ductwork, trays, and piping, sprinkler head placement was selected for water distribution requirements, head obstruction, heat stratification, and heat banking to ensure timely delivery of a sufficient head flux level so the sprinkler head actuates. In addition, the sprinkler densities and the

selection of lower operating temperature elements, which exceed the minimum directions provided by NFPA, were incorporated to maintain acceptable time lag for suppression system operation.

In view of the material presented above, the system departures from NFPA are judged equal or better than the location criteria outlined for conventional structures through the applicable sections of NFPA 13 and 15.

#### **2.4 DEPARTURES FROM NFPA 72E WITH RESPECT TO DETECTOR PLACEMENT**

Smoke/heat/fire detector placement does not follow NFPA 72E criteria in all locations. The location of each detector utilized several variables, such as smoke and heat stratification, heating, ventilation, and air-conditioning (HVAC) airflow(s), ceiling congestion, distance from floor to ceiling, as well as the building's configuration and the manufacturer's recommendations (as instructed by NFPA 72E) when placing the detectors. Detectors are placed per NFPA 72E, when the engineering analysis provides an acceptable system performance. The NRC recognizes the lack of solid criteria provided by NFPA 72E, as well as the limited state-of-the-art knowledge in fire detection equipment and location. In view of this art of detection, the detection equipment and installation are judged as equal to the NFPA 72E series with respect to installed equipment.

#### **2.5 DEPARTURES FROM NFPA 13, 14, 15, AND 20 WITH RESPECT TO WELDING PROVISIONS**

Exemption is taken from the no welding provisions of NFPA 13, 14, 15, and 20. Justification for this exemption resides in the controls required for hot work activities, which are in accordance with other NFPA guidelines. These controls and the requirements for Seismic Class 1 installation and restricted movement during modification or maintenance activities often require welded assemblies. These features, in conjunction with the fire watch and extensive training of site personnel, assure that potential fire conditions are controlled in an acceptable manner.

#### **2.6 DEPARTURES FROM NFPA 20 WITH RESPECT TO ELECTRIC FIRE PUMP CONTROLLERS**

The applicable guidelines for the electric fire pump motor and controller are found in Chapter 7 of NFPA No. 20. Information is provided below which demonstrates how the HNP fire pump motor and controls meet each of the requirements of the corresponding numbered part of Chapter 7 of NFPA No. 20.

- 7-1.1.1      The Westinghouse Electric Corp. Type 4160-V metal-clad switchgear is listed for electric motor-driven pump service.
- 7-1.1.2      The switchgear meets the requirement.

## HNP-FHA-9

- 7-1.1.3 A nameplate is on the door of the switchgear frame designating the breaker for the electric fire pump. The other requirements are met.
- 7-1.1.4 Westinghouse service representatives are available when needed.
- 7-2.1 The switchgear breaker is not in sight of the electric motor.
- 7-2.2 The switchgear breaker is located in another building and is not subject to water escaping from pumps or pump connections.
- 7-2.3 The switchgear breaker is serviced from the front of the unit.
- 7-3.1 The switchgear is located in an electrical equipment room.
- 7-3.2 The switchgear is attached to a steel channel embedded in a concrete floor which is part of a Seismic Category I building.
- 7-3.3 The switchgear housing is Seismic Category I and protects the breaker as specified.
- 7-3.4.1 The switchgear will meet this requirement.
- 7-3.4.2 See 7-6.2.
- 7-3.4.3 The switchgear will meet this requirement.
- 7-3.5 Fuses and/or circuit breakers are provided in the dc control circuit.
- 7-3.6 The circuit breaker is used as a disconnect switch and meets the code requirement to be externally operable.
- 7-3.7.1 A wiring diagram is furnished and is stored in the plant record file as is all wiring diagrams for Plant Hatch.
- 7-3.7.2 The switchgear meets this requirement.
- 7-3.8 The electrical system will meet this requirement.
- 7-3.9 Instruction books as well as drawings are furnished with the equipment and are filed in the record section of Plant Hatch.
- 7-4.1 HNP has no isolating switch as such. HNP has the capability of drawing out the 4-kV breaker and locking it in this drawout position for circuit isolation.
- 7-4.2.1 The switchgear will meet this requirement.
- 7-4.2.2 The switchgear breaker will meet this requirement.

## HNP-FHA-9

- 7-4.2.3 The switchgear breaker will meet this requirement.
- 7-4.2.4 The switchgear breaker will meet this requirement.
- 7-4.2.5 The switchgear breaker will meet this requirement.
- 7-4.2.7 The switchgear breaker will meet this requirement.
- 7-4.2.7(a) The switchgear breaker is of the time delay type and has a time delay of not over 20 s. It is standard motor protection practice to set breakers at 140 percent of the motor full-load current, and the fire pump breaker is set at this value.
- 7-4.2.7(b) Not applicable.
- 7-4.2.8 The switchgear breaker short-circuit rating is greater than the available short-circuit current of the circuit. No current limiting fuses are needed.
- 7-4.2.9 A short-circuit study was made to establish the available short-circuit current at the switchgear, and this information was factored into the purchase of the switchgear.
- 7-4.2.10 A nameplate is attached to the door of the switchgear breaker.
- 7-4.3 It is standard practice to use a switchgear breaker instead of a starter for all 4-kV motor control.
- 7-4.4 See 7-6.6.
- 7-4.5(a) There is an annunciator in the main control room (MCR) that indicates the pump is running. The power supply for the annunciator is monitored continuously.
- 7-4.5(b) There is an annunciator in the MCR that indicates bus potential on all three phases of the switchgear. There is an alarm on loss of power on the bus.
- 7-4.6 Auxiliary contacts on the breaker are used to provide pump indication.
- 7-5.1 The switchgear breaker is closed by (1) drop in water pressure, (2) deluge or sprinkler valve opening, or (3) manually starting at either the pushbutton station in the mail room or in the pump house.
- 7-5.2.1 See 7-6.4.
- 7-5.2.2 The fire pumps started automatically from the following two control signals: drop in pressure on water main or opening of any deluge or sprinkler valve. When the deluge or sprinkler valve opens, a relay is energized whose contact closes to close the breaker and start the pump. The power source for the circuit is from the station battery.

## HNP-FHA-9

- 7-5.2.3 HNP does not have electrical pumps operating in parallel.
- 7-5.2.4 The breaker can be operated mechanically with loss of control power.
- 7-5.2.5 The electric fire pump can be shut down manually at a pushbutton station at the fire pump house.
- 7-5.3.3 See 7-5.2.4.
- 7-5.4 The electric fire pump can only be stopped manually from a pushbutton station located at the fire pump station.
- 7-6.2 HNP has an ammeter mounted on the switchgear and bus potential.
- 7-6.3 The circuit breaker used as an isolating device is rated for load interrupting and does not require this restriction.
- 7-6.4 The pressure switch and the switchgear breaker are located in separate buildings.
- 7-6.5 The control voltage is from the Class IE station battery system.
- 7-6.6 There are bus potential indicating lights in the MCR to indicate potential on all three phases of the switchgear bus to which the electric fire pump is connected. The control power for these indicating lamps comes from the secondary winding of the bus potential transformers.
- 7-6.7 Necessary provisions are made in the switchgear construction to protect personnel from accidental contact with high voltage.
- 7-6.8 The circuit breaker provided is capable of interrupting a short circuit on the load side of the breaker.
- 7-7 Not applicable.

### **2.7 DEPARTURES FROM NFPA 13 WITH RESPECT TO NAMEPLATE REQUIREMENTS**

Exception is taken to the requirement of NFPA 13:7-1.2 to supply each hydraulically calculated automatic sprinkler system riser with a nameplate denoting the location and design basis of the sprinkler system. This exception is based upon the following measures which generate familiarity with established fire-fighting systems and more than compensate for the absence of nameplates.

1. Plant Hatch is a private facility staffed with trained fire-fighting personnel who are knowledgeable of the plant's automatic water suppression apparatus.



2. All information required for nameplates is readily available in the Plant Hatch document control system.
3. Fire drills and surveillances are conducted regularly.

## **2.8 DEPARTURE FROM NFPA 20 WITH RESPECT TO FUEL SUPPLY TO FIRE PUMPS**

Exception is taken to the requirement of NFPA 20:8-4.4 to provide separation of fuel supply to multiple fire pumps. The fire pump fuel supply at Plant Hatch uses separate tanks and lines that are joined by a common crossover line with an isolation valve. The isolation valve is normally locked closed, thus providing effective separation between the two fuel supply systems. Each tank and fuel supply line system is dedicated to the pump it directly supplies. The crossover line provides an added measure of security to the fuel supply system in the event of an interruption of fuel supply to either of the fire pumps. Since separation of fuel supply is the normal operating mode and the crossover acts only as a contingency in case of emergency, the system at Plant Hatch is compatible with NFPA 20:8-4.4.

## **2.9 DEPARTURE FROM NFPA 24 WITH RESPECT TO HYDRANT OUTLET HEIGHT (ABOVE GRADE OR SLAB SURFACE)**

Exemption is taken for the minimum distance requirements for hydrant outlets from grade or slab surface as indicated in NFPA 24:4-3.3. The requirement is intended to guarantee unobstructed hose access to the outlet connection. Some of the hydrants at Plant Hatch do not fully comply with the minimum distance specified in the NFPA code. However, according to Plant Hatch fire protection engineering response to AIT #RC9600072, field trials demonstrate that all applicable hydrants are functionally compliant with the intent of NFPA 24.

## **2.10 DEPARTURE FROM NFPA 80 WITH RESPECT TO FUSIBLE LINKS**

Exemption is taken for the installation of fusible links on both sides of sliding doors as indicated in NFPA 80:4-6.3 (1983 edition). The requirement is intended to ensure a fire on either side of the sliding door would close the fire door and contain the fire spread. Some of the sliding doors at Plant Hatch do not fully comply with the requirement to have a fusible link on both sides of the door as specified in the NFPA code. However, according to DOEJ-HRLDCR2011067, which is attached to LDCR 2011-067 and TE 297827 and TE 297831 as a non-QA record (in Documentum as Doc ID RE203108429 and Doc ID RE203108430), the single-sided fusible links are deemed acceptable.

## **EVALUATION OF NON-RATED PENETRATION SEALS IN RATED FIRE BARRIERS**

### **1.0 INTRODUCTION AND SCOPE**

Section III.G.2 of Appendix R to 10 CFR 50 provides prescriptive measures for the protection of cables or equipment of redundant systems necessary to achieve and maintain hot shutdown conditions when located in the same fire area. In generic letter 86-10, the Nuclear Regulatory Commission (NRC) defined a fire area as "an area sufficiently bounded to withstand the hazards associated with the area and, as necessary, to protect important equipment within the area from a fire outside the area." In general, this definition is met by designing the boundaries (walls, floors, and ceilings) of the fire area as rated fire barriers with all penetrations sealed with a fire resistance rating equal to or greater than that of the barrier. However, where the fire area boundaries are not completely sealed wall-to-wall and floor-to-ceiling, the NRC states that the licensee may perform an evaluation to determine if the boundaries will withstand the hazards associated with the area.

Plant Hatch maintains a program to document the integrity of its existing fire barriers and to evaluate the need to upgrade additional walls for compliance with Appendix R. This program includes a field verification of each fire barrier penetration to document type, location, and conformance to design criteria. Exception reports are generated for any penetrations not properly sealed or where the fire resistance rating cannot be verified. These reports evaluate each penetration to determine the effect on the fire-rated barrier.

### **2.0 METHODOLOGY**

The evaluation of the acceptability of an unrated penetration in a fire-rated barrier is based on the likelihood of significant propagation of heat (radiant, conductive, or convective) through the penetration. Such an evaluation is usually qualitative and is dependent upon such factors as size and location of the penetration, type, and location of combustible materials, the fire protection features provided to detect or suppress fires, and the relative location of safe shutdown components.

### **3.0 ANALYSIS**

The detailed deviation analyses for all excepted penetrations are located in calculation SMNH 98-023, a dynamic record of evaluation. Any penetration configurations that do not conform to documented testing criteria for the specific barrier rating are included in this calculation. Penetrations that are upgraded from an excepted condition to an acceptable configuration supported by testing documentation are removed from the calculation. The calculation may include, but is not limited to, the following criteria for establishing a reasonable deviation analysis for each excepted seal configuration:

- Identification of the penetration configuration by MPL number

## HNP-FHA-9

- Identification of the fire-rated barrier (including location, rating, and fire zone numbers)
- Reference drawing numbers
- Area fire protection features (including automatic suppression/detection systems, fire loading, and fire severity determination)

The deviation analysis criteria are used to establish a qualitative argument demonstrating that the excepted seal does not compromise the rating of the barrier. This argument is the basis for the exception.

HNP-FHA-9

**TABLE 9.9-1**

(Deleted)

HNP-FHA-9

**TABLE 9.9-2**

(Deleted)

**Section 9.10 has been relocated to FHA Volume 4, Historical Fire Hazards Analysis and Fire Protection Program Information under tab 13.4, *Fire Resistance of Concrete Block at HNP*.**

**Section 9.11 has been relocated to FHA Volume 4, Historical Fire Hazards Analysis and Fire Protection Program Information under tab 13.5, *Combustibility of Askarels*.**

**Section 9.12 has been relocated to FHA Volume 4, Historical Fire Hazards Analysis and Fire Protection Program Information under tab 13.6, *Miscellaneous Supporting Calculations*.**



**Section 9.13 has been relocated to FHA Volume 4, Historical Fire Hazards Analysis and Fire Protection Program Information under tab *13.7, Fire Detection Systems Phased Implementation Database*.**

**Section 9.3 has been relocated to FHA Volume 4, Historical Fire Hazards Analysis and Fire Protection Program Information under tab *13.1, Exemption Request Submittals and Safety Evaluation Reports*.**

**Section 9.6 has been relocated to FHA Volume 4, Historical Fire Hazards Analysis and Fire Protection Program Information under tab 13.2, *Detection Scope Document*.**

**Section 9.7 has been relocated to FHA Volume 4, Historical Fire Hazards Analysis and Fire Protection Program Information under tab 13.3, *Response to Generic Letter 81-12*.**

## **10.0 Common Areas Fire Hazard Analysis**

FIRE AREA 0001

This area is considered safety related.

DESCRIPTION

Working Floor  
Control Building - el 112 ft

DRAWING NUMBER(S)

H-11811, H-11812

AREA

7411 ft<sup>2</sup>

COMBUSTIBLES

|                     |                              |
|---------------------|------------------------------|
| Oil & Grease        | Grease, lube oil             |
| Cable               | Cable insulation             |
| Class A             | Clothing, trash              |
| Charcoal            | None                         |
| Plastics            | Plastic, PVC                 |
| Miscellaneous       | Rubber                       |
| Miscellaneous Gases | Acetylene, hydrogen, propane |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 152,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                                      |
|------------------------|------------------------------------------------------|
| Suppression (type)     | Wet pipe (PC) (see section 7.0)                      |
| Hose Stations          | H <sub>2</sub> O                                     |
| Portable Extinguishers | CO <sub>2</sub> ; Portable foam unit; Dry chem       |
| Detectors (type)       | Smoke det (PC); Lin therm det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                                                                                                         |
|-------------------------------------|---------------------------------------------------------------------------------------------------------|
| Actual                              |                                                                                                         |
| - Walls                             | N, S-C/3; E-B/3; W-C/3, B/2 @ 0002                                                                      |
| - Floors, Ceiling, or Roof          | Concrete                                                                                                |
| - Fixed Openings                    | None                                                                                                    |
| - Penetrations                      | See text                                                                                                |
| - Doors (Fire-rated Class/Zone no.) | A/0007, 1003, 1008, 1009, 1010, 2003, 2008, 2009,<br>2010, 2101; 2-B/0002; WX/1004, 2004, WX/1005, 2005 |

## CONSTRUCTION

The walls of the area are constructed of reinforced concrete except where this area is adjacent to areas 0002, 0007, 1003, 1004, 1005, 1008, 1009, 1010, 2003, 2004, 2005, 2008, 2009 and 2010. These walls are constructed of concrete block. All walls are 3-h-rated with the exception of the walls around area 0002 which are 2-h-rated (see exemptions). The floor is concrete base slab, the ceiling is reinforced concrete and 3-h rated. Doors to areas 1004, 1005, 2004, and 2005 are nonrated watertight doors (see exemptions). Doors to area 0002 are fire-rated Class B doors. The doors to zones 0007, 1010, 1009, 2009, 2008, 1008, 1003, 2003, 2101, and 2010 are fire-rated Class A.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

## FIRE PROTECTION

This area is equipped with smoke detection in the west half of the area, linear thermal detection surrounding areas 1008 and 2008 and a wet pipe sprinkler system at column lines T12-TE (under area 0040). All detection and suppression systems alarm both locally and in the main control room to ensure prompt response by the plant fire brigade. Manual firefighting equipment includes hose stations and portable CO<sub>2</sub> and dry chemical fire extinguishers located throughout the area and a portable foam unit.

## APPENDIX R EXEMPTIONS

Exemptions from section III.G.2 of Appendix R, requiring 3-h-rated barriers, have been granted per the April 1984 NRC Safety Evaluation Report for:

- The 2-h-rated walls containing 1.5-h-rated doors, surrounding area 0002.
- The watertight, nonrated doors to areas 1004, 1005, 2004, and 2005.

## CONSEQUENCES OF DESIGN BASIS FIRE

The detection systems in this area will detect an incipient fire and alert the main control room to ensure prompt response by the plant fire brigade. The available automatic and manual suppression is adequate to extinguish the fire. All perimeter walls of this area are either 3-h-rated or exempted barriers. The design basis fire for this area is therefore not expected to propagate outside of this area, or result in a significant release of radiation.

FIRE AREA 0002

This area is not considered safety related.

DESCRIPTION

Freight Elevator and Stairwell

Control Building - All el (112 ft, 130 ft, 147 ft, 164 ft, 180 ft)

DRAWING NUMBER(S)

H-11812, H-11815, H-11816, H-11817, H-11818

AREA

431 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | Lube oil         |
| Cable               | None             |
| Class A             | Trash, cardboard |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                 |
|------------------------|-----------------|
| Suppression (type)     | None            |
| Hose Stations          | None            |
| Portable Extinguishers | CO <sub>2</sub> |
| Detectors (type)       | None            |

FIRE RESISTANCE RATING

|                                     |                                                     |
|-------------------------------------|-----------------------------------------------------|
| Actual                              |                                                     |
| - Walls                             | N-B/2,3; E-B/2; S-B/2,3, C/2;W-C/2,3                |
| - Floors, Ceiling, or Roof          | Concrete                                            |
| - Fixed Openings                    | SD/0101                                             |
| - Penetrations                      | See text                                            |
| - Doors (Fire-rated Class/Zone no.) | 3-B/0014; 2-B/0001, 0025, 0031, 0101; B, NR/Outside |



## CONSTRUCTION

The west wall is concrete and 2-h-rated with the exception of the 112-ft el, which is 3-h rated. The east and south walls are block and are 2-h rated except for the south walls at el 147 ft and 164 ft, which are 3-h rated. The north wall is block and is 2-h rated with the exception of the 112-ft and 130-ft elevations, which are 3-h rated. The floor and ceiling are nonrated, reinforced concrete with smoke dampers in the ceiling. Elevations 112 ft, 147 ft, 164 ft, and 180 ft each have 2 fire-rated Class B doors which access areas 0001, 0025, 0101, and 0031, respectively. The 130-ft elevation has 3 fire-rated Class B doors which access area 0014 and a fire-rated Class B door in "series" with a nonrated vault-type door in the west control building exterior wall, accessing the outside.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

## FIRE PROTECTION

This area contains no detection or automatic suppression system. Manual firefighting equipment in this area consists of a portable CO<sub>2</sub> fire extinguisher. Manual firefighting equipment provided in the adjacent areas (0001, 0014, 0025, 0101, and 0031) is also available to suppress a fire in this area.

## APPENDIX R EXEMPTIONS

Exemptions from section III.G.2 of Appendix R, requiring 3-h-rated barriers, have been granted per the April 1984 NRC Safety Evaluation Report for the 2-h-rated walls surrounding this area on els 112 ft and 130 ft.

## CONSEQUENCES OF DESIGN BASIS FIRE

This area contains an insignificant loading of combustible materials. The negligible combustible loading and rating of the block walls preclude the propagation of the design basis fire beyond the boundaries of this area. The manual firefighting equipment provided in this area and the adjacent areas is adequate to extinguish a fire. A fire in this area will not affect the ability to achieve or maintain safe shutdown or result in any release of radioactivity.

FIRE ZONE 0002A

This zone is not considered safety related.

DESCRIPTION

Control Building Stairwell  
Control Building - All Elevations

DRAWING NUMBER(S)

H-11812, H-11815, H-11816, H-11817, H-11818

AREA

153 ft<sup>2</sup>

COMBUSTIBLES

|                     |         |
|---------------------|---------|
| Oil & Grease        | None    |
| Cable               | None    |
| Class A             | None    |
| Charcoal            | None    |
| Plastics            | Plastic |
| Miscellaneous       | None    |
| Miscellaneous Gases | None    |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                 |
|------------------------|-----------------|
| Suppression (type)     | None            |
| Hose Stations          | None            |
| Portable Extinguishers | CO <sub>2</sub> |
| Detectors (type)       | None            |

FIRE RESISTANCE RATING

|                                     |                                           |
|-------------------------------------|-------------------------------------------|
| Actual                              |                                           |
| - Walls                             | N, E-B/2; S-B/2, 3, C/3; W-C/2,3          |
| - Floors, Ceiling or Roof           | Concrete                                  |
| - Fixed Openings                    | SD/0101                                   |
| - Penetrations                      | See area 0002 text                        |
| - Doors (Fire-rated Class/Zone no.) | 2-B/0014; B/0001, 0002B, 0025, 0031, 0101 |

### CONSTRUCTION

The south and east walls of this zone are block with a 2-h rating, with the exception of the south wall at the 147-ft and 164-ft elevations, which are 3-h rated. The north wall is all block and is 2-h rated. The west wall is 2-h-rated concrete with the exception of the 112-ft elevation, which is 3-h rated. The floor is concrete. The ceiling is concrete and is equipped with smoke dampers. There are seven fire-rated Class B doors in this zone; one in the east wall at each of the elevations, 112 ft, 147 ft, and 164 ft ; one in the south wall at the 180-ft elevation; one in the north wall at the 185-ft elevation; and two in the east wall at the 130-ft elevation. See area 0002 for penetrations.

### FIRE PROTECTION

This zone is not provided with any detection or automatic suppression system, but this zone contains a portable CO<sub>2</sub> fire extinguisher. Additional manual firefighting equipment (portable fire extinguishers and hose stations) are available in adjacent areas.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible materials. The negligible combustible loading and rating of the concrete and block walls preclude the propagation of the design basis fire beyond the boundaries of this zone. The available firefighting equipment in the zone is adequate to extinguish the fire.

FIRE ZONE 0002B

This zone is not considered safety related.

DESCRIPTION

Control Building Freight Elevator  
Control Building - All Elevations

DRAWING NUMBER(S)

H-11812, H-11815, H-11816, H-11817, H-11818

AREA

278 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | Lube oil         |
| Cable               | None             |
| Class A             | Trash, cardboard |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                                                   |
|-------------------------------------|---------------------------------------------------|
| Actual                              |                                                   |
| - Walls                             | N-B/2,3; S, E-B/2; W-C/2,3                        |
| - Floors, Ceiling or Roof           | Concrete                                          |
| - Fixed Openings                    | SD/0101                                           |
| - Penetrations                      | See area 0002 text                                |
| - Doors (Fire-rated Class/Zone no.) | B/0001, 0002A, 0014, 0025, 0031, 0101; NR/Outside |

### CONSTRUCTION

The west wall is reinforced concrete with a 2-hr rating, with the exception of el 112 ft, which is a 3-h-rated fire barrier. The east wall is block with a 2-h rating. The north wall is block and is 2-h rated, with the exception of el 112 and 130 ft, where it is 3-h rated. The south wall is block and is 2-h rated. The ceiling is reinforced concrete and is equipped with a smoke damper. The floor is reinforced concrete slab.

The elevator doors are fire-rated Class B at all elevations. There are fire-rated Class B doors in the south and east walls at el 185 ft. The west wall at el 130 ft contains a fire-rated Class B elevator door and a nonrated vault-type door in the control building exterior wall. These two doors are located in series with approximately 1 ft separating them. See area 0002 for penetrations.

### FIRE PROTECTION

This zone contains no detection or automatic suppression system. However, a portable CO<sub>2</sub> fire extinguisher is available in adjacent zone 0002A to suppress a fire due to the lube oil or plastic located in this zone. Manual firefighting equipment, such as hose stations and portable CO<sub>2</sub> fire extinguishers, are also available in adjacent areas 0001, 0014, 0025, 0101, and 0031.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible products. The negligible combustible loading and rating or substantial construction of the concrete and block walls preclude the propagation of the design basis fire beyond the boundaries of this zone. The available firefighting equipment in areas 0001, 0014, 0025, 0101, 0031, and zone 0002A is adequate to extinguish any fire which may occur.

FIRE AREA 0007

This area is considered safety related.

DESCRIPTION

Control Building East Corridor and HP Cold Lab

Control Building Elevation - 112 ft 0 in.

DRAWING NUMBER(S)

H-11811

AREA

2678 ft<sup>2</sup>

COMBUSTIBLES

Oil & Grease

Cable

Class A

Charcoal

Plastics

Miscellaneous

Miscellaneous Gases

Lube oil, gasoline, diesel fuel

Cable insulation

Wood, trash, cardboard, paper, rags, clothing,  
plywood, tape (cloth)

Charcoal

Plastic, PVC, respirators

Rubber, resin, solvent

dimethylamine, acetylene, methanol

DESIGN BASIS FIRE

Combustible Loading

Max. Permissible Loading

Fire Duration

Low

100,000 Btu/ft<sup>2</sup>

Less than 1 h

FIRE PROTECTION (AVAILABLE)

Suppression (type)

Hose Stations

Portable Extinguishers

Detectors (type)

None

H<sub>2</sub>O

CO<sub>2</sub>

Smoke det (PC); Lin therm det (PC) (see section 7.0)

FIRE RESISTANCE RATING

Actual

- Walls

- Floors, Ceiling, or Roof

- Fixed Openings

- Penetrations

- Doors (Fire-rated Class/Zone no.)

N, W-B/3; S-Open, C/3; E-C/NR;

Concrete

OP/2101; OS/2104

See text

A/0001, 1101, 1006; NR/2006

## CONSTRUCTION

The north wall and west walls are block and are 3-h rated. The south area boundary is 3-h-rated, reinforced concrete adjacent to area 2006. The remainder of the south boundary is open to area 2101. This boundary is established for the purpose of separating control building areas from turbine building areas only. It is not required to separate redundant paths of safe shutdown equipment and circuits. The east wall is nonrated below-grade concrete, adjacent to the 3-h-rated reactor building wall. The floor is concrete base slab and the ceiling is 3-h-rated concrete except above zone 0007A which also contains an open stairwell up to area 2104 (see exemptions). There are three fire-rated Class A doors; one in the north wall to area 1101, one in the west wall to area 0001, and one in the west wall to area 1006. An unlabelled door of substantial construction is provided to area 2006.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

## FIRE PROTECTION

This area is equipped with partial coverage smoke detectors and partial coverage linear thermal detection. All detectors alarm in both the main control room and locally which will provide an early warning to ensure prompt response by the plant fire brigade. This area contains no automatic suppression; however, it is equipped with CO<sub>2</sub> fire extinguishers and a hose station.

## APPENDIX R EXEMPTIONS

An exemption from the requirements of Appendix R Section III.G.2 has been granted per the April 1984 NRC Safety Evaluation Report for the open stairway and nonrated ceiling between this area and areas 1104 and 2104.

## CONSEQUENCES OF DESIGN BASIS FIRE

With the high traffic in this area along with the available detection, a fire is expected to be discovered quickly to ensure prompt response by the plant fire brigade. Although no automatic suppression exists in the area, manual firefighting equipment in this area is adequate to extinguish the fire. The walls are either 3-h-rated or provide the equivalent protection of 3-h walls. The southern boundary is open to area 2101. This is a boundary only for the convenience of separating a common control building numbered area from a Unit 2 turbine building numbered area. It is not required to define an Appendix R area since both 0007 and 2101 are analyzed for shutdown using path 2. No rated barrier is required between adjacent path 2 areas.

CONSEQUENCES OF DESIGN BASIS FIRE (cont'd)

The ceiling has an open stairway to area 2104. The potential for fire propagation through the opening is unlikely due to the low combustible loading as discussed in the April 1984 NRC Safety Evaluation Report. Similarly, propagation through the unlabelled door to area 2006 is not expected to occur due to the low fire loading and substantial door construction.

A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radiation.



FIRE ZONE 0007A

This zone is considered safety related.

DESCRIPTION

Control Building East Corridor  
Control Building - el 112 ft

DRAWING NUMBER(S)

H-11811

AREA

1,863 ft<sup>2</sup>

COMBUSTIBLES

|                     |                        |
|---------------------|------------------------|
| Oil & Grease        | None                   |
| Cable               | Cable insulation       |
| Class A             | Wood, trash, cardboard |
| Charcoal            | Charcoal               |
| Plastics            | Plastic                |
| Miscellaneous       | None                   |
| Miscellaneous Gases | None                   |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                                      |
|------------------------|------------------------------------------------------|
| Suppression (type)     | None                                                 |
| Hose Stations          | H <sub>2</sub> O                                     |
| Portable Extinguishers | CO <sub>2</sub>                                      |
| Detectors (type)       | Smoke det (PC); Lin therm det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                                      |
|-------------------------------------|--------------------------------------|
| Actual                              |                                      |
| - Walls                             | N-B/3; S-Open; E-C/NR; W-B/NR,3      |
| - Floors, Ceiling or Roof           | Concrete                             |
| - Fixed Openings                    | OP/2101; OS/2104                     |
| - Penetrations                      | See area 0007 text                   |
| - Doors (Fire-rated Class/Zone no.) | A/0001, 1101, 1006; NR/D, E, F, 2006 |

## CONSTRUCTION

The east wall of the zone is the control building exterior (below grade reinforced concrete wall), which is nonrated but is adjacent to the 3-h-rated reactor building walls. The north boundary of the zone to adjacent area 1101 is the 3-h-rated block wall along column line T10. The south boundary is an "analysis only" boundary along T14 (for further explanation, see area 0007). The west walls are constructed of reinforced concrete, 3-h rated around area 2006; 3-h-rated block in the hallway to area 0001, 3-h rated around area 1006, and of nonrated concrete block for the balance. The floor is reinforced concrete base slab, the ceiling is nonrated, reinforced concrete except for that portion west of column line TB, which is 3-h rated. Fire-rated Class A doors are provided to areas 1101, 1006, and 0001 and nonrated doors are provided to zones 0007D, E, and F. An unlabelled door of substantial construction is provided to area 2006. A stairwell to area 2104 is located near the center of the zone. See area 0007 for penetrations.

## FIRE PROTECTION

The zone contains smoke detection from column lines T10 to T13 and linear thermal detection in the hall to area 0001. All detection systems alarm both locally and in the main control room. The zone contains no automatic suppression systems. The zone is also a high traffic area, which will aid in rapid detection to ensure prompt response by the plant fire brigade. The zone contains a hose station and portable CO<sub>2</sub> fire extinguishers.

## CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire for this zone involves primarily cable insulation which is predominantly IEEE-383 qualified. The design basis fire is therefore expected to develop slowly. The combination of installed detection systems and the high traffic in the area is expected to result in rapid detection and extinguishment of the fire using the available manual firefighting equipment. Propagation may occur to area 2101 due to the open hallway. This is acceptable since both areas 0007 and 2101 rely on path 2 for safe shutdown for both units. Propagation to areas 0001, 1101, 1006, and 2006 is prevented by rated barriers and the substantial door to 2006. Fire propagation through the ceiling or stairwell to area 2104 is not expected to occur due to the low combustible loading as discussed in the April 1984 NRC Safety Evaluation Report. Propagation to the other zones of area 0007, in the unlikely event that it did occur, is acceptable, since all of these zones rely on path 2 for safe shutdown. Accordingly, all redundant path 2 circuits and components have been protected as necessary. Thus, path 2 will be available to achieve and maintain safe shutdown.

FIRE ZONE 0007C

This zone is not considered safety related.

DESCRIPTION

HP Cold Lab Storage Area  
Control Building - el 112 ft

DRAWING NUMBER(S)

H-11811

AREA

115 ft<sup>2</sup>

COMBUSTIBLES

|                     |                        |
|---------------------|------------------------|
| Oil & Grease        | Lube oil, gasoline     |
| Cable               | None                   |
| Class A             | Paper, cardboard, rags |
| Charcoal            | None                   |
| Plastics            | Plastic, PVC           |
| Miscellaneous       | Rubber, resin          |
| Miscellaneous Gases | None                   |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                 |
|------------------------|---------------------------------|
| Suppression (type)     | None                            |
| Hose Stations          | None                            |
| Portable Extinguishers | None                            |
| Detectors (type)       | Heat det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                       |
|-------------------------------------|-----------------------|
| Actual                              |                       |
| - Walls                             | N, W-SR/NR; S, E-B/NR |
| - Floors, Ceiling, or Roof          | Concrete              |
| - Fixed Openings                    | None                  |
| - Penetrations                      | See area 0007 text    |
| - Doors (Fire-rated Class/Zone no.) | NR/0007E              |

### CONSTRUCTION

The east and south walls of the zone are constructed of nonrated concrete block. The north and west walls are constructed of sheetrock over frame and are not rated. The floor is reinforced concrete base slab and the ceiling is 3-h-rated reinforced concrete. A nonrated door from zone 0007E is provided in the west wall. See area 0007 for penetrations.

### FIRE PROTECTION

This zone is equipped with smoke detectors which provide an early warning alarm both locally and in the main control room to ensure prompt response by the plant fire brigade. Portable CO<sub>2</sub> fire extinguishers and a hose station are located in the hall (zone 0007A), outside this zone.

### CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire for this zone may propagate to zone 0007E due to the nonrated construction of the west wall and nonsealed penetrations in this wall. If propagation occurs, the fire would be rapidly detected by either the installed detection systems or the personnel in the area, to ensure prompt response by the plant fire brigade. The manual firefighting equipment in zone 0007A is adequate to extinguish the fire. Propagation to other zones or areas is not considered credible due to the substantial east and south zone wall construction. Propagation to zone 0007E is acceptable since the ability to achieve safe shutdown is not affected.

FIRE ZONE 0007D

This zone is not considered safety related.

DESCRIPTION

Respirator Room

Control Building - el 112 ft

DRAWING NUMBER(S)

H-11811

AREA

153 ft<sup>2</sup>

COMBUSTIBLES

Oil & Grease

None

Cable

None

Class A

Plywood, paper, clothing, tape (cloth), trash, cardboard, rags

Charcoal

None

Plastics

Plastic, respirators

Miscellaneous

Rubber

Miscellaneous Gases

None

DESIGN BASIS FIRE

Combustible Loading

Low

Max. Permissible Loading

100,000 Btu/ft<sup>2</sup>

Fire Duration

Less than 1 h

FIRE PROTECTION (AVAILABLE)

Suppression (type)

None

Hose Stations

None

Portable Extinguishers

None

Detectors (type)

Smoke det (FC) (see section 7.0)

FIRE RESISTANCE RATING

Actual

- Walls

N, S, E-B/NR; W-B/3

- Floors, Ceiling, or Roof

Concrete

- Fixed Openings

None

- Penetrations

See area 0007 text

- Doors (Fire-rated Class/Zone no.)

NR/0007A

### CONSTRUCTION

The walls of the zone are constructed of concrete block. The north, east, and south walls are nonrated. The west wall is 3-h rated. A block wall with an open doorway separates this zone into two sections. Access to the zone is provided by a nonrated door in the east wall from zone 0007A. The floor is concrete base slab, the ceiling is 3-h-rated, reinforced concrete. See area 0007 for penetrations.

### FIRE PROTECTION

The zone is equipped with smoke detectors which alarm both locally and in the Main Control Room. This zone contains no manual firefighting equipment, but portable CO<sub>2</sub> fire extinguishers and a hose station are located in zone 0007A.

### CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire for this zone is expected to be rapidly detected by the installed detection system to ensure prompt response by the plant fire brigade. The available manual firefighting equipment in adjacent zone 0007A is adequate to extinguish the fire. The north, east, and south walls are not rated but are of substantial construction with limited penetrations which is expected to prevent propagation to zone 0007A. The west wall is a 3-h-rated barrier. Therefore, the design basis fire is not expected to propagate outside of this zone.

FIRE ZONE 0007E

This zone is not considered safety related.

DESCRIPTION

HP Cold Lab Test Area  
Control Building - el 112 ft

DRAWING NUMBER(S)

H-11811

AREA

525 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                                      |
|---------------------|------------------------------------------------------|
| Oil & Grease        | Diesel fuel, lube oil                                |
| Cable               | Cable insulation                                     |
| Class A             | Plywood, paper, tape (cloth), trash, cardboard, rags |
| Charcoal            | None                                                 |
| Plastics            | Plastic, PVC                                         |
| Miscellaneous       | Rubber, solvent                                      |
| Miscellaneous Gases | Acetylene, methanol                                  |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                                  |
|-------------------------------------|----------------------------------|
| Actual                              |                                  |
| - Walls                             | N-B/NR; S-C/3; E-B, SR/NR; W-B/3 |
| - Floors, Ceiling, or Roof          | Concrete; Concrete/Suspended     |
| - Fixed Openings                    | None                             |
| - Penetrations                      | See area 0007 text               |
| - Doors (Fire-rated Class/Zone no.) | NR/0007A, C                      |

### CONSTRUCTION

The walls of the zone are constructed of concrete block with the exception of the walls around zone 0007C which are nonrated sheetrock over framing. The north wall and east walls are nonrated. The west wall is 3-h-rated block and the south wall is 3-h-rated, reinforced concrete. A nonrated door from zone 0007A and a nonrated door from zone 0007C are provided in the east walls. The floor is reinforced concrete base slab and the ceiling is 3-h-rated, reinforced concrete. See area 0007 for penetrations.

### FIRE PROTECTION

This zone is equipped with smoke detectors which alarm both locally and in the main control room. There is no manual firefighting equipment located in this zone; however, portable CO<sub>2</sub> fire extinguishers and a hose station are available outside this zone in zone 0007A.

### CONSEQUENCES OF DESIGN BASIS FIRE

The installed detection system, along with the high traffic in this zone, is expected to provide rapid detection of a fire to ensure prompt response by the plant fire brigade. The available manual firefighting equipment in zone 0007A is adequate to extinguish the fire. The design basis fire for this zone may propagate to zone 0007C due to the nonrated barrier between the zones. This propagation is acceptable since it will not affect the ability to achieve safe shutdown. The substantial construction and limited penetrations in the north and east walls are expected to prevent propagation of the fire to zone 0007A or 0007D. The remaining walls of the zone are 3-h-rated barriers and will prevent propagation to any other zones or areas.



FIRE ZONE 0007F

This zone is not considered safety related.

DESCRIPTION

SCBA Room

Control Building - el 112 ft

DRAWING NUMBER(S)

H-11811

AREA

22 ft<sup>2</sup>

COMBUSTIBLES

|                     |                      |
|---------------------|----------------------|
| Oil & Grease        | None                 |
| Cable               | None                 |
| Class A             | None                 |
| Charcoal            | None                 |
| Plastics            | Plastic, respirators |
| Miscellaneous       | None                 |
| Miscellaneous Gases | None                 |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 67,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N, S, E, W-B/NR    |
| - Floors, Ceiling, or Roof          | Concrete           |
| - Fixed Openings                    | None               |
| - Penetrations                      | See area 0007 text |
| - Doors (Fire-rated Class/Zone no.) | NR/0007A           |

### CONSTRUCTION

The walls of the zone are constructed of nonrated concrete block. A nonrated door is located in the east wall to zone 0007A. The floor is reinforced concrete base slab and the ceiling is 3-h-rated, reinforced concrete. See area 0007 for penetrations.

### FIRE PROTECTION

This zone contains no fire protection equipment. Portable CO<sub>2</sub> fire extinguishers and a hose station are located outside this zone in zone 0007A.

### CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire for this zone is not expected to propagate outside of the zone due to the low combustible loading and the substantial construction and limited penetrations of the walls. In the unlikely event that propagation did occur, the detection systems in the adjacent zones will provide both a local and main control room alarm to ensure prompt response by the plant fire brigade. Propagation to other zones of area 0007 is acceptable since the ability to achieve safe shutdown will not be affected.

FIRE AREA 0014

This area is considered safety related.

DESCRIPTION

Working Floor and HP Area  
Control Building - el 130 ft

DRAWING NUMBER(S)

H-11814, H-11815

AREA

7,279 ft<sup>2</sup>

COMBUSTIBLES

Oil & Grease

Cable

Class A

Charcoal

Plastics

Miscellaneous

Miscellaneous Gases

Lube oil, gasoline

Cable insulation

Wood, paper, tape (cloth), trash, cardboard, rags, files,  
clothing, plywood, desks

Charcoal

Plastic, respirators

Solvent, rubber, paint

Hydrogen

DESIGN BASIS FIRE

Combustible Loading

Max. Permissible Loading

Fire Duration

Low

100,000 Btu/ft<sup>2</sup>

Less than 1 h

FIRE PROTECTION (AVAILABLE)

Suppression (type)

Hose Stations

Portable Extinguishers

Detectors (type)

Wet pipe (PC); Water spray (PC) (see section 7.0)

H<sub>2</sub>O

CO<sub>2</sub>, Dry chem

Lin therm det (PC); Smoke det (PC) (see section 7.0)

FIRE RESISTANCE RATING

Actual

- Walls

- Floors, Ceiling, or Roof

- Fixed Openings

- Penetrations

- Doors (Fire-rated Class/Zone no.)

N-B/3, 2; E-B/3; S-C/3; W-C, B/3, 2, NR

Concrete

OD/2014

See text

A/1013, 1015, 1016, 1017, 1018, 1019, 1020, 1023, 1105,  
2013, 2015, 2023, 2104, Serv Bldg, 3-B/0002

## CONSTRUCTION

The east wall of this area is a 3-h-rated block wall with two fire-rated Class A doors providing access to the Unit 1 east cableway foyer and the Unit 2 east cableway (1105 and 2104). The west part of the north wall adjacent to area 1023 is a 3-h-rated block wall containing a fire-rated Class A sliding door. The remaining part of the north wall is a 2-h-rated block wall containing five fire-rated Class A sliding doors to areas 1016, 1017, 1018, 1019, and 1020 (see exemptions). The north part of the west wall bounding the stairwell and freight elevator (area 0002) is a 2-h-rated block wall containing three fire-rated Class B doors. The remaining part of the west wall is reinforced concrete containing a fire-rated Class A door to the service building and an air intake opening (see exemptions).

The west part of the south wall is 3-h-rated reinforced concrete containing a fire-rated Class A door to area 2023. The remaining half of the south wall is a 3-h-rated reinforced concrete wall with an open doorway to area 2014 (see exemptions). The floor and ceiling are reinforced 3-h-rated concrete. The ventilation shaft in zone 0014L extends from the ceiling of this area through area 0024 to area 0031, enclosed by 2-h-rated walls (see exemptions). Fire areas 1013, 1015, 2013, 2015, and 0040 are contained within this fire area and are bounded by 3-h-rated block walls. There are fire-rated Class A doors to areas 2015, 2013, 1013, and 1015.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

## FIRE PROTECTION

This area, with the exception of zones 0014K, 0014L, 0014M, and 0014N, is equipped with smoke detectors which provide an early warning alarm, both locally and in the main control room, to ensure prompt response by the plant fire brigade. Zone 0014K is equipped with linear heat detection and a wet pipe suppression system. Manual firefighting equipment in the area consists of portable dry chemical and CO<sub>2</sub> fire extinguishers, and H<sub>2</sub>O hose stations.

## APPENDIX R EXEMPTIONS

Exemptions from the section III.G.2 requirement for a complete 3-h-rated barrier have been granted for four sections of this area per the April 1984, NRC Safety Evaluation Report:

- The 2-h-rated walls on the north and west sides of the area.
- The air intake opening in the west wall.

APPENDIX R EXEMPTIONS (cont'd)

- the opening to the Unit 2 switchgear hallway (area 2014) and
- the redundant R25-S002 panel enclosure in this area.

In addition, exemptions from the Section III.G.2 requirement for area-wide suppression have been granted per the April 1984 NRC Safety Evaluation Report (SER) for:

- the HVAC room (zone 0014L),
- the HP area (zones 0014A through J),
- the restrooms (zones 0014M and 0014N), and
- the decontamination area (0014F).

An additional exemption has been requested for the HVAC shaft walls originating in this area, as is detailed in appendix C of this document. However, per the January 2, 1987, NRC SER, no exemption is required based on part 4 of NRC Generic Letter 86-10.

CONSEQUENCES OF DESIGN BASIS FIRE

The smoke and linear heat detectors located in this area are expected to detect the combustion products from an incipient fire and provide an alarm both locally and in the MCR to ensure prompt response by the plant fire brigade. High traffic flow in this area at all times provides further assurance of early fire detection. Suppression systems provided in zone 0014K are expected to provide immediate suppression of any fire in this zone. Manual firefighting equipment, such as dry chemical and portable CO<sub>2</sub> fire extinguishers and hose stations provided in this area, are adequate to extinguish the design basis fire. The combination of rated or exempted fire barriers, installed detection and suppression systems, and the low combustible loading in the area precludes propagation of the design basis fire beyond the boundaries of this area. A fire in this area will not affect the ability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE ZONE 0014A

This zone is considered safety related.

DESCRIPTION

RC Lab

Control Building - el 130 ft

DRAWING NUMBER(S)

H-11814

AREA

1,067 ft<sup>2</sup>

COMBUSTIBLES

Oil & Grease

Lube oil, gasoline

Cable

None

Class A

Wood, paper, tape (cloth), trash, cardboard, rags, files

Charcoal

None

Plastics

Plastic

Miscellaneous

Solvent, rubber

Miscellaneous Gases

None

DESIGN BASIS FIRE

Combustible Loading

Low

Max. Permissible Loading

100,000 Btu/ft<sup>2</sup>

Fire Duration

Less than 1 h

FIRE PROTECTION (AVAILABLE)

Suppression (type)

None

Hose Stations

None

Portable Extinguishers

None

Detectors (type)

Smoke det (FC) (see section 7.0)

FIRE RESISTANCE RATING

Actual

- Walls

N, S,E, W-B/NR

- Floors, Ceiling, or Roof

Concrete; Concrete/Suspended

- Fixed Openings

OD/0014H

- Penetrations

See area 0014 text

- Doors (Fire-rated Class/Zone no.)

NR/0014B

### CONSTRUCTION

All zone walls are non-rated block. The ceiling and floor are reinforced concrete and 3-h rated. A suspended ceiling is located at approximately el 138 ft. There is a nonrated door in the east wall to zone 0014B and an open doorway in the west wall to zone 0014H. See area 0014 for penetrations.

### FIRE PROTECTION

This zone is equipped with full coverage smoke detectors which provide an early warning alarm both locally and in the main control room to ensure prompt response by the plant fire brigade. This zone contains no manual firefighting equipment, however, a portable CO<sub>2</sub> fire extinguisher is available in adjacent zone 0014B. A hose station is available from nearby zone 0014K.

### CONSEQUENCES OF DESIGN BASIS FIRE

The smoke detectors located in this zone are expected to detect the combustion products from an incipient fire and provide an early warning alarm both locally and in the main control room to ensure prompt response by the plant fire brigade. The manual firefighting equipment available in adjacent zones 0014K and 0014B is adequate to extinguish the fire. In the unlikely event that a fire in this zone develops beyond the incipient stage and propagates beyond the zone boundaries, only other zones of area 0014 will be affected and will, therefore, have no adverse impact on the ability to achieve safe shutdown.

FIRE ZONE 0014B

This zone is not considered safety related.

DESCRIPTION

Health Physics Hallway  
Control Building East - el 130 ft

DRAWING NUMBER(S)

H-11814

AREA

140 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | Wood, clothing   |
| Charcoal            | None             |
| Plastics            | None             |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | CO <sub>2</sub>                  |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                                 |
|-------------------------------------|---------------------------------|
| Actual                              |                                 |
| - Walls                             | N, S, W-B/NR; E-B/3             |
| - Floors, Ceiling, or Roof          | Concrete; Concrete/Suspended    |
| - Fixed Openings                    | None                            |
| - Penetrations                      | See area 0014 text              |
| - Doors (Fire-rated Class/Zone no.) | A/2104; 2-NR/0014D; NR/0014A, G |



### CONSTRUCTION

All walls are block and nonrated with the exception of the east wall which is 3-h rated. The floor and the ceiling are constructed of reinforced, 3-h-rated concrete. There is a suspended ceiling at approximately 138 ft el. There is a fire-rated Class A door to area 2104, one nonrated door to zone 0014A, two nonrated doors to zone 0014D and one nonrated door to zone 0014G. See area 0014 for penetrations.

### FIRE PROTECTION

This zone is equipped with full coverage smoke detection which provides an early warning alarm, both locally and in the main control room to ensure prompt response by the plant fire brigade. Although no automatic suppression exists in this zone, there is a portable CO<sub>2</sub> fire extinguisher. Hose stations are located in nearby area 1104 and zone 0014K.

### CONSEQUENCES OF DESIGN BASIS FIRE

With the high traffic and available detection in this zone, a fire is expected to be detected immediately. Early detection along with low combustible loading and available manual firefighting equipment makes it very unlikely that the fire would propagate outside this zone. Construction, although not rated, should serve to contain a fire, allowing the plant fire brigade ample time to extinguish a fire. In the event that propagation occurs, only other zones of area 0014 will be affected and no adverse impact on the ability to achieve safe shutdown will occur.

FIRE ZONE 0014C

This zone is not considered safety related.

DESCRIPTION

Health Physics Area Storage  
Control Building - el 130 ft

DRAWING NUMBER(S)

H-11814

AREA

95 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                                |
|---------------------|------------------------------------------------|
| Oil & Grease        | None                                           |
| Cable               | None                                           |
| Class A             | Wood, paper, clothing, tape (cloth), cardboard |
| Charcoal            | None                                           |
| Plastics            | Plastic, respirators                           |
| Miscellaneous       | Paint, rubber                                  |
| Miscellaneous Gases | None                                           |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | High                        |
| Max. Permissible Loading | 359,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Greater than 3 h            |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                              |
|-------------------------------------|------------------------------|
| Actual                              |                              |
| - Walls                             | N, S, E, W-B/NR              |
| - Floors, Ceiling, or Roof          | Concrete; Concrete/Suspended |
| - Fixed Openings                    | None                         |
| - Penetrations                      | See area 0014 text           |
| - Doors (Fire-rated Class/Zone no.) | NR/0014D                     |

### CONSTRUCTION

The zone is bounded by partial height nonrated block walls. The floor and ceiling are reinforced, 3-h-rated concrete. There is a nonrated door in the east wall to zone 0014D. There is a suspended ceiling below the top of the partial height walls at approximately 138 ft elevation. See area 0014 for penetrations.

### FIRE PROTECTION

This zone is equipped with smoke detection that alarms both locally and in the main control room. Adjacent zone 0014D is constantly manned and early detection of a fire is expected. There is no suppression or manual firefighting equipment in this zone; however, there is a portable CO<sub>2</sub> fire extinguisher in nearby zone 0014B and hose stations in nearby zone 0014K and in area 1104.

### CONSEQUENCES OF DESIGN BASIS FIRE

Given the high combustible loading and the partial height walls in this zone, propagation of a design basis fire to adjacent zones 0014A, D, E, or I is likely. Because of the high traffic and available detection, early detection of a fire can be expected to ensure prompt response by the plant fire brigade. The available manual firefighting equipment in the nearby zones is adequate to extinguish the fire. Propagation of this fire will only affect other zones of area 0014 which is acceptable since propagation within area 0014 will not affect the ability to achieve safe shutdown.

FIRE ZONE 0014D

This zone is not considered safety related.

DESCRIPTION

HP Reference Area

Control Building - el 130 ft

DRAWING NUMBER(S)

H-11814

AREA

513 ft<sup>2</sup>

COMBUSTIBLES

|                     |                       |
|---------------------|-----------------------|
| Oil & Grease        | None                  |
| Cable               | None                  |
| Class A             | Wood, paper, clothing |
| Charcoal            | Charcoal              |
| Plastics            | Plastic               |
| Miscellaneous       | None                  |
| Miscellaneous Gases | None                  |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                              |
|-------------------------------------|------------------------------|
| Actual                              |                              |
| - Walls                             | N, S, W-B/NR; E-B/3          |
| - Floors, Ceiling, or Roof          | Concrete; Concrete/Suspended |
| - Fixed Openings                    | None                         |
| - Penetrations                      | See area 0014 text           |
| - Doors (Fire-rated Class/Zone no.) | 2-NR/0014B; NR/0014C, E, K   |

### CONSTRUCTION

All the walls are block with sheetrock and vinyl wall covering. The north, south and west walls are nonrated and the east wall is 3-h rated. The floor and ceiling are reinforced, 3-h-rated concrete. A suspended ceiling is located at approximately el 138 ft. There is a nonrated door in the north wall to zone 0014K, a nonrated door in the north wall to zone 0014E, two nonrated doors in the south wall to zone 0014B, and a nonrated door in the west wall to zone 0014C. See area 0014 for penetrations.

### FIRE PROTECTION

This zone is equipped with full coverage smoke detection which provides an early warning alarm, both locally and in the main control room to ensure prompt response by the plant fire brigade. No manual firefighting equipment is located in this zone; however, a portable CO<sub>2</sub> fire extinguisher and a hose station are provided in adjacent zone 0014B and area 1104, respectively.

### CONSEQUENCES OF DESIGN BASIS FIRE

The smoke detectors located in this zone are expected to detect the combustion products from an incipient fire and alarm both locally and in the main control room to ensure prompt response by the plant fire brigade. The available manual firefighting equipment such as portable CO<sub>2</sub> fire extinguishers and the hose station from the nearby area will be adequate to extinguish the fire. The low combustible loading and substantial wall construction preclude the propagation of a fire beyond the boundaries of this zone. In addition, since this zone is a heavy traffic area, the incipient fire is expected to be promptly detected and suppressed before propagation to adjacent zones occurs.

FIRE ZONE 0014E

This zone is not considered safety related.

DESCRIPTION

HP Receiving Area

Control Building - el 130 ft

DRAWING NUMBER(S)

H-11814

AREA

230 ft<sup>2</sup>

COMBUSTIBLES

|                     |                       |
|---------------------|-----------------------|
| Oil & Grease        | None                  |
| Cable               | None                  |
| Class A             | Wood, paper, clothing |
| Charcoal            | None                  |
| Plastics            | Plastic               |
| Miscellaneous       | Rubber                |
| Miscellaneous Gases | None                  |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                              |
|-------------------------------------|------------------------------|
| Actual                              |                              |
| - Walls                             | N, S, E, W-B/NR              |
| - Floors, Ceiling, or Roof          | Concrete; Concrete/Suspended |
| - Fixed Openings                    | None                         |
| - Penetrations                      | See area 0014 text           |
| - Doors (Fire-rated Class/Zone no.) | NR/0014D, J, K               |

### CONSTRUCTION

All of the walls are nonrated block with sheetrock and vinyl wall covering (except the extreme east wall which does not have sheetrock or vinyl wall covering). The ceiling and floor are reinforced, 3-h-rated concrete. A suspended ceiling is located at approximately el 138 ft. Doors to zones 0014K, 0014D, and 0014J are nonrated doors. See area 0014 for penetrations.

### FIRE PROTECTION

This zone is equipped with full coverage smoke detection which provides an early warning alarm both locally and in the main control room to ensure prompt response by the plant fire brigade. There is no automatic or manual suppression coverage; however, a portable CO<sub>2</sub> fire extinguisher and a CO<sub>2</sub> hose reel are available in adjacent zone 0014K and a hose station is available in nearby area 1104.

### CONSEQUENCES OF DESIGN BASIS FIRE

The smoke detectors in this zone are expected to detect the combustion products from an incipient fire and provide an early warning alarm, both locally and in the main control room to ensure prompt response by the plant fire brigade. In addition, this zone is normally occupied during all shifts and is a high traffic area, which will ensure rapid detection of a fire. The manual firefighting equipment available from the adjacent zones will be adequate to suppress the fire. The moderate fire loading and the substantial wall construction will reduce the probability of the fire propagating beyond the boundaries of this zone. If propagation occurs, only other zones of area 0014 will be affected and no adverse impact on the ability to achieve safe shutdown will result.

FIRE ZONE 0014F

This zone is not considered safety related.

DESCRIPTION

Decontamination Room and Shower  
Control Building - el 130 ft

DRAWING NUMBER(S)

H-11814

AREA

154 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                         |
|---------------------|-----------------------------------------|
| Oil & Grease        | None                                    |
| Cable               | None                                    |
| Class A             | Paper, clothing, trash, cardboard, rags |
| Charcoal            | None                                    |
| Plastics            | Plastic                                 |
| Miscellaneous       | Rubber                                  |
| Miscellaneous Gases | None                                    |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                     |
|-------------------------------------|---------------------|
| Actual                              |                     |
| - Walls                             | S, E, W-B/NR; N-B/2 |
| - Floors, Ceiling, or Roof          | Concrete            |
| - Fixed Openings                    | None                |
| - Penetrations                      | See area 0014 text  |
| - Doors (Fire-rated Class/Zone no.) | 3-NR/0014K          |



### CONSTRUCTION

The walls of this zone are block, 2-h rated on the north and nonrated on the south, east, and west sides. The floor and ceiling are 3-h-rated, reinforced concrete. There are three nonrated doors to zone 0014K. See area 0014 for penetrations.

### FIRE PROTECTION

This zone is equipped with full coverage smoke detection, with the exception of the small closet, which provides both a local and main control room alarm to ensure prompt response by the plant fire brigade. Manual firefighting equipment available in adjacent zone 0014K includes H<sub>2</sub>O and CO<sub>2</sub> hose stations and portable fire extinguishers.

### CONSEQUENCES OF DESIGN BASIS FIRE

The high traffic outside this zone in zone 0014K and the detection system are expected to result in prompt response and extinguishment of the fire by the plant fire brigade. The low combustible loading and substantial construction of the zone boundaries also limits the probability of propagation. In the event that propagation does occur, only other zones of area 0014 will be affected, thereby precluding any unacceptable consequences on the ability to achieve safe shutdown.

FIRE ZONE 0014G

This zone is not considered safety related.

DESCRIPTION

HP Counting Room  
Control Building - el 130 ft

DRAWING NUMBER(S)

H-11814

AREA

560 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | Wood, clothing   |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                    |
|------------------------|------------------------------------|
| Suppression (type)     | Water spray (PC) (see section 7.0) |
| Hose Stations          | None                               |
| Portable Extinguishers | None                               |
| Detectors (type)       | Smoke det (PC) (see section 7.0)   |

FIRE RESISTANCE RATING

|                                     |                              |
|-------------------------------------|------------------------------|
| Actual                              |                              |
| - Walls                             | W, N-B/NR; E-B/3; S-C/3      |
| - Floors, Ceiling, or Roof          | Concrete; Concrete/Suspended |
| - Fixed Openings                    | None                         |
| - Penetrations                      | See area 0014 text           |
| - Doors (Fire-rated Class/Zone no.) | NR/0014B, K                  |

### CONSTRUCTION

The north, east and west walls are block with sheetrock and vinyl wall covering. The east wall is 3-h rated and the north and west walls are nonrated. The south wall is reinforced concrete with sheetrock and vinyl wall covering and is 3-h rated. There is a nonrated door in the west wall to zone 0014K and a nonrated door in the north wall to zone 0014B. The ceiling and floor are reinforced, 3-h-rated concrete. A suspended ceiling is located at approximately el 138 ft. See area 0014 for penetrations.

### FIRE PROTECTION

This zone is equipped with smoke detectors (with the exception of the frisking area on the west side of this zone) which provide an early warning alarm both locally and in the main control room to ensure prompt response by the plant fire brigade. The zone is equipped with automatic suppression using directional spray nozzles and upright sprinkler heads in a localized area above the suspended ceiling where redundant cable trays are present. In addition, portable CO<sub>2</sub> fire extinguishers, CO<sub>2</sub> hose reels and a hose station are available in adjacent area 2014 and zone 0014K.

### CONSEQUENCES OF DESIGN BASIS FIRE

The smoke detectors located in this zone are expected to detect the combustion products from an incipient fire and provide an early warning alarm both locally and in the main control room. In addition, this zone is normally occupied and is a high traffic, office area. Therefore, early detection of a fire and prompt response by the plant fire brigade is ensured. The manual firefighting equipment available in adjacent area 2014 and zone 0014K is adequate to extinguish the fire. The automatic suppression provides additional protection for redundant safe shutdown circuits. Due to the moderate combustible loading and substantial wall construction, propagation of the fire beyond the boundaries of the zone is unlikely.

FIRE ZONE 0014H

This zone is not considered safety related.

DESCRIPTION

Hot Lab

Control Building - el 130 ft

DRAWING NUMBER(S)

H-11814

AREA

239 ft<sup>2</sup>

COMBUSTIBLES

Oil & Grease

None

Cable

Cable insulation

Class A

Wood, paper, clothing, trash

Charcoal

None

Plastics

Plastic

Miscellaneous

Rubber

Miscellaneous Gases

None

DESIGN BASIS FIRE

Combustible Loading

Low

Max. Permissible Loading

100,000 Btu/ft<sup>2</sup>

Fire Duration

Less than 3 h

FIRE PROTECTION (AVAILABLE)

Suppression (type)

Water spray (PC) (see section 7.0)

Hose Stations

None

Portable Extinguishers

None

Detectors (type)

Smoke det (FC) (see section 7.0)

FIRE RESISTANCE RATING

Actual

- Walls

W, N-B/3, NR; E, S-B/NR

- Floors, Ceiling, or Roof

Concrete; Concrete/Suspended

- Fixed Openings

OD/0014A, J

- Penetrations

See area 0014 text

- Doors (Fire-rated Class/Zone no.)

None

### CONSTRUCTION

All the walls are block. The south and east wall are nonrated and the west wall is 3-h rated. The west portion of the north wall is 3-h rated and the balance is nonrated. An open doorway accesses zone 0014A. The ceiling and floor are reinforced, 3-h-rated concrete. A suspended ceiling is located at approximately el 138 ft. See area 0014 for penetrations.

### FIRE PROTECTION

This zone is equipped with full coverage smoke detectors which alarm both locally and in the main control room. The zone is equipped with automatic suppression above the suspended ceiling using directional spray heads and upright sprinkler heads in a localized area where redundant cable trays are present. In addition, portable CO<sub>2</sub> fire extinguishers are available in adjacent zone 0014J and nearby zone 0014B. The hose station from nearby zone 0014K is capable of directing a hose stream into this zone if additional hose lengths are used.

### CONSEQUENCES OF DESIGN BASIS FIRE

The smoke detectors located in this zone are expected to detect the combustion products from an incipient fire and provide an early warning alarm, both locally and in the main control room, to ensure prompt response by the plant fire brigade. The manual firefighting equipment available in the adjacent zones is sufficient to extinguish the fire. Due to the open doorways in the north and east walls of this zone, the fire may propagate to the adjacent zones; however, the slow development of the fire will enhance the ability of the plant fire brigade to respond to and extinguish the fire before propagation occurs. The automatic suppression provides additional protection for redundant safe shutdown circuits. The only credible propagation of the fire is to adjacent zones 0014A or 0014J, which rely on path 2 for safe shutdown as does this zone. Since all required path 2 circuits and components throughout area 0014 are protected, propagation among zones of area 0014 will not result in any adverse impact on the ability to achieve or maintain safe shutdown.

FIRE ZONE 0014I

This zone is not considered safety related.

DESCRIPTION

HP Foreman's Office  
Control Building - el 130 ft

DRAWING NUMBER(S)

H-11814

AREA

114 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                           |
|---------------------|-------------------------------------------|
| Oil & Grease        | None                                      |
| Cable               | None                                      |
| Class A             | Plywood, paper, trash, rags, desks, files |
| Charcoal            | None                                      |
| Plastics            | Plastic                                   |
| Miscellaneous       | Rubber                                    |
| Miscellaneous Gases | None                                      |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | High                        |
| Max. Permissible Loading | 322,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Greater than 3 h            |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                              |
|-------------------------------------|------------------------------|
| Actual                              |                              |
| - Walls                             | N, S, E, W-B/NR              |
| - Floors, Ceiling, or Roof          | Concrete; Concrete/Suspended |
| - Fixed Openings                    | None                         |
| - Penetrations                      | See area 0014 text           |
| - Doors (Fire-rated Class/Zone no.) | NR/0014J                     |

### CONSTRUCTION

All the walls are block and nonrated. The floor and ceiling are reinforced, 3-h-rated concrete. A suspended ceiling is located at approximately el 138 ft. There is a nonrated door to zone 0014J. See area 0014 for penetrations.

### FIRE PROTECTION

This zone is equipped with full coverage smoke detectors which provide an early warning alarm, both locally and in the main control room, to ensure prompt response by the plant fire brigade. There is no automatic suppression system; however, a CO<sub>2</sub> portable fire extinguisher is available in adjacent zone 0014J. A CO<sub>2</sub> hose reel is also available in nearby zone 0014K.

### CONSEQUENCES OF DESIGN BASIS FIRE

The smoke detection located in this zone is expected to detect the combustion products from an incipient fire and provide an early warning alarm both locally and in the main control room to ensure prompt response by the plant fire brigade. The manual firefighting equipment available from the adjacent zones is adequate to extinguish the fire. Due to the slow burning rates of the combustibles (such as tables, bookcases, and file cabinets), the fire will not rapidly develop. The substantial concrete block walls will limit fire propagation. Should a fire develop which breaches the existing barriers, the fire may propagate to other zones of area 0014. However, propagation of a fire to other zones of area 0014 will not adversely affect the ability to achieve safe shutdown.

FIRE ZONE 0014J

This zone is not considered safety related.

DESCRIPTION

HP Office

DRAWING NUMBER(S)

H-11814

AREA

463 ft<sup>2</sup>

COMBUSTIBLES

|                     |                   |
|---------------------|-------------------|
| Oil & Grease        | None              |
| Cable               | Cable insulation  |
| Class A             | Wood, paper, rags |
| Charcoal            | None              |
| Plastics            | Plastic           |
| Miscellaneous       | None              |
| Miscellaneous Gases | None              |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | CO <sub>2</sub>                  |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                              |
|-------------------------------------|------------------------------|
| Actual                              |                              |
| - Walls                             | E, S, N-B/NR;W-B/3           |
| - Floors, Ceiling or Roof           | Concrete; Concrete/Suspended |
| - Fixed Openings                    | OD/0014H                     |
| - Penetrations                      | See area 0014 text           |
| - Doors (Fire-rated Class/Zone no.) | NR/0014E, I                  |



### CONSTRUCTION

All the walls are block. The west wall (including the wall enclosing area 0040) is 3-h rated. The east, north, and south walls are nonrated. The ceiling and floor are reinforced 3-h-rated concrete. A suspended ceiling is located at approximately el 138 ft. There is an open doorway to zone 1014H and nonrated doors to zones 1014E and 1014I. See area 0014 for penetrations.

### FIRE PROTECTION

This zone is equipped with smoke detectors which provide an early warning alarm, both locally and in the main control room, to ensure prompt response by the plant fire brigade. The zone does not have any automatic suppression system. Manual firefighting equipment in this zone consists of a portable CO<sub>2</sub> fire extinguisher. Additional manual firefighting equipment is available from adjacent zone 0014K (CO<sub>2</sub> hose reel and portable CO<sub>2</sub> fire extinguishers) and area 1104 (hose station).

### CONSEQUENCES OF DESIGN BASIS FIRE

The smoke detection located in this zone is expected to detect the combustion products from an incipient fire and provide an early warning alarm, both locally and in the main control room, to ensure prompt response by the plant fire brigade. Manual firefighting equipment located in this zone, in zone 0014K, and in area 1104 is adequate to extinguish the fire. This zone is normally occupied, and chances are remote that a fire could develop beyond the incipient stage before being detected and extinguished. In addition, the low fire loading and the block walls preclude the propagation of the fire to any adjacent zones except to 0014H through the open doorway. Propagation of the fire to zone 0014H is acceptable since the ability to achieve safe shutdown will not be adversely affected.

FIRE ZONE 0014K

This zone is considered safety related.

DESCRIPTION

Working Floor  
Control Building - el 130 ft

DRAWING NUMBER(S)

H-11814, H-11815

AREA

2,837 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | Wood, trash      |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | Hydrogen         |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Moderate                    |
| Max. Permissible Loading | 120,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1.5 h             |

FIRE PROTECTION (AVAILABLE)

|                        |                                                  |
|------------------------|--------------------------------------------------|
| Suppression (type)     | Wet pipe (FC) (see section 7.0)                  |
| Hose Stations          | H <sub>2</sub> O                                 |
| Portable Extinguishers | CO <sub>2</sub> ; Dry chem                       |
| Detectors (type)       | Lin therm (PC); Smoke det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                                                                                                                                |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Actual                              |                                                                                                                                |
| - Walls                             | See text                                                                                                                       |
| - Floors, Ceiling, or Roof          | Concrete                                                                                                                       |
| - Fixed Openings                    | OD/2014; OP/0014L                                                                                                              |
| - Penetrations                      | See area 0014 text                                                                                                             |
| - Doors (Fire-rated Class/Zone no.) | A/1013, 1015, 1016, 1017, 1018, 1019, 1020, 1023, 1105, 2013, 2015, 2023, Serv Bldg, B/0002A,B; 3 NR/0014F; NR/0014D,E,G,L,M,N |
| - Fire Wraps                        | See Text                                                                                                                       |

## CONSTRUCTION

The boundaries in the northern portion of this zone are concrete block. They are nonrated adjacent to zones 0014M, 0014N, 0014D, 0014E, 0014F, and 0014J, 2-h rated adjacent to areas 1016, 1017, 1018, 1019, 1020, and 0002 (see exemptions in area 0014), 3-h rated adjacent to areas 1013 and 1015, and 3-h-rated concrete block adjacent to area 1023. The extreme southern boundary of the zone is 3-h-rated reinforced concrete adjacent to areas 2014, 2018, and 2023. It is 3-h-rated concrete block adjacent to areas 2013 and 2015. The remaining boundaries in the southern portion of the zone are nonrated concrete block adjacent to zones 0014A, 0014G, 0014H, and 0014L. The remaining east zone boundary is 3-h-rated reinforced concrete adjacent to area 1105. The remaining west zone boundary is 3-h-rated reinforced concrete control building exterior wall. The floor and ceiling are reinforced 3-h-rated concrete. There are fire-rated Class A doors to areas 1013, 1015, 1016, 1017, 1018, 1019, 1020, 1023, 1105, 2013, 2015, and 2023 and to the service building (door C-52). Door C-52 is held open by an automatic closing device which is actuated by fire zone 0014K detection system. Three fire-rated Class B doors access area 0002. Nonrated doors are provided to zones 0014D, 0014E, 0014F, 0014G, 0014L, 0014M, and 0014N. A 3 HR rated fire wrap is installed on conduit 2E22154 while routed through this fire zone. This fire wrap is required to maintain a 3 HR barrier between redundant power trains of the 120VAC Critical Instrument Cabinets as required by Section III.G.2 of Appendix R.

There is an open grate at the floor level in the inner west wall to zone 0014L and an open doorway to area 2014 in the south boundary (see exemptions for area 0014). See area 0014 for penetrations.

## FIRE PROTECTION

This zone is equipped with full coverage linear thermal detectors, which alarm both locally and in the main control room, to ensure prompt response by the plant fire brigade. Suppression consists of full, automatic wet pipe sprinkler coverage, H<sub>2</sub>O hose stations, and portable CO<sub>2</sub> and dry chemical fire extinguishers.

## CONSEQUENCES OF DESIGN BASIS FIRE

In the event of a design basis fire in this zone, prompt response by the plant fire brigade is expected due to the high traffic and available automatic detection system. The automatic suppression system and available manual firefighting equipment are fully adequate to extinguish the fire. Propagation may occur into zone 0014L through the HVAC room intake louvers. The HVAC room takes suction through these louvers and may draw heat and smoke into zone 0014L; however, the automatic suppression system in zone 0014K is designed to wet the wall in the vicinity of intake louver, reducing the probability of significant heat propagation. In addition, propagation of a fire among zones of area 0014 will not affect the ability to achieve safe shutdown since all redundant safe shutdown circuits and components throughout the area are protected.

FIRE AREA 0014L

This zone is considered safety related.

DESCRIPTION

HVAC Room

Control Building - el 130 ft

DRAWING NUMBER(S)

H-11815

AREA

661 ft<sup>2</sup>

COMBUSTIBLES

|                     |          |
|---------------------|----------|
| Oil & Grease        | None     |
| Cable               | None     |
| Class A             | None     |
| Charcoal            | None     |
| Plastics            | None     |
| Miscellaneous       | Rubber   |
| Miscellaneous Gases | Hydrogen |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                           |
|------------------------|-------------------------------------------|
| Suppression (type)     | Water spray @ HP filter (see section 7.0) |
| Hose Stations          | None                                      |
| Portable Extinguishers | None                                      |
| Detectors (type)       | None                                      |

FIRE RESISTANCE RATING

|                                     |                                       |
|-------------------------------------|---------------------------------------|
| Actual                              |                                       |
| - Walls                             | N, E-B/NR; S, W-C/3; B/2 around shaft |
| - Floors, Ceiling, or Roof          | Concrete                              |
| - Fixed Openings                    | OP/0014K, Serv Bldg                   |
| - Penetrations                      | See area 0014 text                    |
| - Doors (Fire-rated Class/Zone no.) | NR/0014K                              |

### CONSTRUCTION

The south wall is concrete and 3-h rated. The west boundary is reinforced concrete and is an exempted wall. The north and east walls are block and nonrated. The ceiling and floor are reinforced, 3-h-rated concrete. The ceiling contains a ventilation shaft, extending from this zone through area 0024 to area 0031, enclosed by a 2-h-rated barrier (see exemptions in area 0014). There is a nonrated door in the north wall to zone 0014K. Both the east and west walls have louvers for a fan suction path. There is ventilation ducting in the ceiling which leads up to the control building HVAC units on the control building roof. See area 0014 for exemption and penetration details.

### FIRE PROTECTION

The filter units associated with and located just outside of this zone in the open yard, are equipped with an automatic water spray system actuated by a thermostat in the units. There is no other detection or suppression system in the zone. Hose stations and portable CO<sub>2</sub> and dry chemical fire extinguishers are available in adjacent zone 0014K.

### CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire for this zone is insignificant. Since this zone is adjacent to zone 0014K, which has very high traffic, detection of a fire in the incipient stage by plant personnel is likely. Adequate manual firefighting equipment for extinguishing the fire is available in zone 0014K. The rated, exempted or substantially constructed zone boundaries are expected to contain a fire within the zone until it can be extinguished by the plant fire brigade. In the unlikely event that fire propagates beyond the nonrated north or east zone boundaries, the full suppression system in zone 0014K is expected to limit any damage caused by combustion products. Since propagation is credible only to other zones of area 0014, no adverse impact on the ability to achieve safe shutdown will result.

FIRE ZONE 0014M

This zone is not considered safety related.

DESCRIPTION

Mens Room

Control Building - el 130 ft

DRAWING NUMBER(S)

H-11814

AREA

147 ft<sup>2</sup>

COMBUSTIBLES

|                     |             |
|---------------------|-------------|
| Oil & Grease        | None        |
| Cable               | None        |
| Class A             | Paper, rags |
| Charcoal            | None        |
| Plastics            | Plastic     |
| Miscellaneous       | Rubber      |
| Miscellaneous Gases | None        |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 45,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                              |
|-------------------------------------|------------------------------|
| Actual                              |                              |
| - Walls                             | N-B/2; W, S-B/NR; E-C/3      |
| - Floors, Ceiling or Roof           | Concrete; Concrete/Suspended |
| - Fixed Openings                    | None                         |
| - Penetrations                      | See area 0014 text           |
| - Doors (Fire-rated Class/Zone no.) | NR/0014K                     |

### CONSTRUCTION

The east wall is a block, 3-h-rated barrier. The north wall is block and 2-h rated. The west and south walls are block and nonrated. The floor and ceiling are reinforced, 3-h-rated concrete. A suspended ceiling is located at approximately el 138 ft. There is one nonrated door to zone 0014K. See area 0014 for penetrations.

### FIRE PROTECTION

This zone contains no detection, automatic suppression, or manual suppression system. Manual firefighting equipment, consisting of CO<sub>2</sub> hose reels and portable CO<sub>2</sub> fire extinguishers, is available in adjacent zone 0014K. Hose stations are available in adjacent area 1104.

### CONSEQUENCES OF DESIGN BASIS FIRE

A design basis fire in this zone would be a fast burning fire and is expected to be discovered in its incipient stages due to the high traffic in the zone. The zone boundaries are of sufficient construction so that propagation to adjacent zones or areas is not expected. In the unlikely event that propagation did occur, only other zones of area 0014 would be affected, which precludes any adverse impact on the ability to achieve safe shutdown. Available firefighting equipment in adjacent zones and areas is fully adequate to suppress any fire in this zone.

FIRE ZONE 0014N

This zone is not considered safety related.

DESCRIPTION

Ladies' Rest Room

Control Building - el 130 ft

DRAWING NUMBER(S)

H-11814

AREA

59 ft<sup>2</sup>

COMBUSTIBLES

|                     |                 |
|---------------------|-----------------|
| Oil & Grease        | None            |
| Cable               | None            |
| Class A             | Paper, clothing |
| Charcoal            | None            |
| Plastics            | None            |
| Miscellaneous       | None            |
| Miscellaneous Gases | None            |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 89,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                              |
|-------------------------------------|------------------------------|
| Actual                              |                              |
| - Walls                             | N, S, E, W-B/NR              |
| - Floors, Ceiling, or Roof          | Concrete; Concrete/Suspended |
| - Fixed Openings                    | None                         |
| - Penetrations                      | See area 0014 text           |
| - Doors (Fire-rated Class/Zone no.) | NR/0014k                     |



The north, south, east and west walls are all block and are nonrated. The ceiling and floor are reinforced, 3-h-rated concrete. A suspended ceiling is located at approximately el 138 ft. There is a nonrated door in the east wall to zone 0014K. See area 0014 for penetrations.

#### FIRE PROTECTION

This zone contains no fire detection, automatic suppression, or manual suppression system. Portable CO<sub>2</sub> fire extinguisher and CO<sub>2</sub> hose reels are available in adjacent zone 0014K. Hose stations and a portable CO<sub>2</sub> fire extinguisher are located nearby in area 1104.

#### CONSEQUENCES OF DESIGN BASIS FIRE

Because of the low fire loading and the likelihood of early detection by the high traffic flow in the corridor outside of this zone, a design basis fire is not expected to propagate beyond the boundaries of this zone. Wall and door construction is sufficiently substantial to contain a fire in the zone. In the unlikely event that propagation occurred, no adverse impact on the ability to achieve safe shutdown would result. Available manual firefighting equipment from adjacent zones is fully adequate to extinguish a fire.

FIRE AREA 0024

This area is considered safety related.

DESCRIPTION

Control Complex

Control Building - el 147 ft and 164 ft

DRAWING NUMBER(S)

H-11816, H-11817

AREA

16,360 ft<sup>2</sup>

COMBUSTIBLES

Oil & Grease

Cable

Class A

Charcoal

Plastics

Miscellaneous

Miscellaneous Gases

Grease

Cable insulation

Wood, plywood, paper, trash, files, desks

None

Plastic, PVC, ladders, battery cases

Carpet, rubber

None

DESIGN BASIS FIRE

Combustible Loading

Max. Permissible Loading

Fire Duration

Moderate

292,000 Btu/ft<sup>2</sup>

Less than 3 h

FIRE PROTECTION (AVAILABLE)

Suppression (type)

Hose Stations

Portable Extinguishers

Detectors (type)

Pre-action (PC); CO<sub>2</sub> flood (PC) \*  
(see section 7.0)

H<sub>2</sub>O

CO<sub>2</sub>

Lin therm det (PC); Smoke det (PC) \*  
(see section 7.0)

FIRE RESISTANCE RATING

Actual

- Walls

- Floors, Ceiling, or Roof

- Fixed Openings

- Penetrations

- Doors (Fire-rated Class/Zone no.)

N, S-C, B/3; E, W-C/NR, 3

Concrete

None

See text

5-A/0101; 2-A/0025; A/0028

\* - See zone sheets for coverage.

## CONSTRUCTION

All of the walls are reinforced concrete with the exception of the west wall of the cable spread room, the north wall of the computer room and the west wall of the main control room entryway, which are block. All walls are 3-h-rated with the exception of the west wall of the computer room and the east wall of the cable spread room which are nonrated. However, the cable spread room east wall is adjacent to the 3-h-rated reactor building walls. The west computer room wall is a control building exterior wall.

The floor and ceiling are reinforced concrete and 3-h rated. A 2-h-rated block enclosure is constructed around the ventilation shaft (zone 0014L) passing through this area adjacent to the south wall (see exemptions). On the 147-ft elevation there are three fire-rated Class A doors; one to area 0028 and two to area 0025. On the 164-ft elevation there are five fire-rated Class A doors to area 0101. The computer room and main control room zones have a suspended ceiling located approximately 8 ft above floor level.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

## FIRE PROTECTION

The cable spread room (zone 0024A) is equipped with full coverage linear thermal detection. The main control room and the computer room are equipped with full smoke detector coverage, and the main control room is equipped with partial heat detector coverage. All detectors alarm both locally and in the main control room. The cable spread room has full preaction sprinkler coverage and a manual CO<sub>2</sub> flooding system. The computer room has a manual CO<sub>2</sub> flooding system. Manual firefighting equipment in this area includes hose stations in zones 0025 and 0024C and portable CO<sub>2</sub> fire extinguishers located in zone 0024D and adjacent areas.

## APPENDIX R EXEMPTIONS

An exemption from the section III.G.3 requirement for main control room suppression has been granted by the NRC as documented in their 11/16/81 letter. An exemption from the requirement that no repairs be used to maintain hot shutdown for several circuits routed through this area and from the requirements for 8-h battery-powered emergency lighting inside the main control room have been granted by the NRC in the January 1987 NRC SER.

Additional exemptions have also been requested, as documented in appendix C, for the nonrated HVAC penetrations in the roof and the 2-h-rated enclosure around the HVAC shaft. However, per the January 1987 NRC SER, no exemption is required, based on part 4 of NRC Generic Letter 86-10.

### CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire for this area involves primarily cable insulation. The cable used at E. I. Hatch Nuclear Plant (HNP) is predominantly IEEE-383 qualified. The design basis fire is, therefore, expected to develop slowly, allowing ample time for response by the plant fire brigade. The full coverage of the area by either linear heat detection or smoke detection provides additional assurance that early detection of a fire and prompt response by the plant fire brigade will occur. The area is fully bounded by 3-h-rated fire barriers with the exception of the exterior building walls on the east and west sides of the area. The manual or automatic suppression systems provide assurance that any fire which may occur is rapidly extinguished. Due to the slow development of the design basis fire, the area wide suppression and detection system and the substantial or rated construction, propagation of a design basis fire beyond the boundaries of this area is not considered to be credible.

In the event that evacuation of the control complex is required as a result of a fire, alternate shutdown capability is provided outside of and independent of this area. This alternate shutdown capability meets the requirements of Sections III.G.3 and III.L of Appendix R and has been approved by the NRC per the February 1983 NRC SER.

A design basis fire for this area will not affect the ability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE ZONE 0024A

This zone is considered safety related.

DESCRIPTION

Cable Spread Room  
Control Building - el 147 ft

DRAWING NUMBER(S)

H-11816

AREA

7,427 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | Wood             |
| Charcoal            | None             |
| Plastics            | None             |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | High                        |
| Max. Permissible Loading | 446,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Greater than 3 h            |

FIRE PROTECTION (AVAILABLE)

|                        |                                                               |
|------------------------|---------------------------------------------------------------|
| Suppression (type)     | Pre-action (FC); CO <sub>2</sub> flood (FC) (see section 7.0) |
| Hose Stations          | None                                                          |
| Portable Extinguishers | None                                                          |
| Detectors (type)       | Lin therm det (FC) (see section 7.0)                          |

FIRE RESISTANCE RATING

|                                     |                                |
|-------------------------------------|--------------------------------|
| Actual                              |                                |
| - Walls                             | N, S-C, B/3; E-C/NR, W-B/NR, 3 |
| - Floors, Ceiling, or Roof          | Concrete                       |
| - Fixed Openings                    | None                           |
| - Penetrations                      | See area 0024 text             |
| - Doors (Fire-rated Class/Zone no.) | A/0025, 0028                   |

### CONSTRUCTION

The east wall is concrete. The west wall is block. The north and south walls are concrete from column line TA to TG and the rest is block. All walls are 3-h-rated with the exception of the nonrated east wall which is adjacent to the 3-h-rated reactor building wall. The ceiling and floor are reinforced concrete and 3-h rated. There are two fire-rated Class A doors, one to area 0028 and one to area 0025. See area 0024 for penetrations.

### FIRE PROTECTION

This zone is equipped with full coverage linear thermal detectors which alarm both locally and in the main control room to ensure prompt response by the plant fire brigade. This zone contains full preaction sprinkler coverage and a manual CO<sub>2</sub> flooding system. A hose station is located for manual firefighting in the Fire Area 0025 mezzanine.

### CONSEQUENCES OF DESIGN BASIS FIRE

A design basis fire in this zone would involve primarily cable insulation. The cable insulation at HNP is predominately IEEE-383 qualified which will ensure that the fire develops slowly. Available detection is expected to alert the plant fire brigade for prompt response. The automatic suppression system is expected to extinguish any fire in this zone; however, if the automatic suppression system should fail, manual firefighting equipment is fully adequate to extinguish the fire. Because of the substantial construction and rating of the boundaries of this zone and the available suppression and detection systems, propagation of a fire outside of this zone is not expected. All zones of area 0024 rely on alternate shutdown. Therefore, if propagation should occur, no adverse impact on safe shutdown will result.

FIRE ZONE 0024B

This zone is not considered safety related.

DESCRIPTION

Computer Room  
Control Building - el 147 ft

DRAWING NUMBER(S)

H-11816

AREA

1,050 ft<sup>2</sup>

COMBUSTIBLES

|                     |                              |
|---------------------|------------------------------|
| Oil & Grease        | None                         |
| Cable               | Cable insulation             |
| Class A             | Plywood, paper, trash, files |
| Charcoal            | None                         |
| Plastics            | Plastic, PVC, ladders        |
| Miscellaneous       | None                         |
| Miscellaneous Gases | None                         |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | High                        |
| Max. Permissible Loading | 223,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                              |
|------------------------|----------------------------------------------|
| Suppression (type)     | CO <sub>2</sub> flood (FC) (see section 7.0) |
| Hose Stations          | None                                         |
| Portable Extinguishers | None                                         |
| Detectors (type)       | Smoke det (FC) (see section 7.0)             |

FIRE RESISTANCE RATING

|                                     |                                                        |
|-------------------------------------|--------------------------------------------------------|
| Actual                              |                                                        |
| - Walls                             | N-B/3; E-B/NR; W-C/3; S-C/3<br>B/2 @ 0014L (vent duct) |
| - Floors, Ceiling or Roof           | Concrete; Concrete/Suspended                           |
| - Fixed Openings                    | None                                                   |
| - Penetrations                      | See area 0024 text                                     |
| - Doors (Fire-rated Class/Zone no.) | A/0025                                                 |

### CONSTRUCTION

The north wall is block and 3-h rated. The south wall is reinforced concrete and 3-h rated. The vent duct passing through the south portion of the zone (a part of zone 0014L) is enclosed in a block, 2-h-rated wall (see exemptions in area 0024). The east wall is block and is a 3-h-rated zone boundary fire barrier. The west wall is nonrated, reinforced concrete control building exterior wall. The floor and ceiling are concrete and are 3-h rated. There is a suspended ceiling located at approximately el 155 ft. There is a fire-rated Class A door in the north wall to area 0025. See area 0024 for penetrations.

### FIRE PROTECTION

This zone is equipped with full smoke detector coverage and a manually operated CO<sub>2</sub> flooding system. The detectors alarm both locally and in the main control room to ensure prompt response by the plant fire brigade. There are portable dry chemical fire extinguishers located in adjacent area 0025 for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

A design basis fire in this zone would involve mostly cable insulation, plastic computer cabinets and tightly stacked paper. This would result, initially, in a slow burning fire which is expected to give ample warning to the plant fire brigade via the smoke alarm system. The CO<sub>2</sub> flooding system, the available firefighting equipment in adjacent area 0025, and substantial or rated wall construction make propagation of the design basis fire to other zones unlikely. However, should propagation to other zones of this area occur, no impact on the ability to achieve safe shutdown will result.



FIRE\_ZONE 0024C

This zone is considered safety related.

DESCRIPTION

Main Control Room

Control Building - el 164 ft

DRAWING NUMBER(S)

H-11817

AREA

7,785 ft<sup>2</sup>

COMBUSTIBLES

Oil & Grease

Cable

Class A

Charcoal

Plastics

Miscellaneous

Miscellaneous Gases

Grease

Cable insulation

Plywood, paper, trash, desks, files

None

Plastic, battery cases, ladders

Carpet, rubber

None

DESIGN BASIS FIRE

Combustible Loading

Max. Permissible Loading

Fire Duration

Moderate

157,000 Btu/ft<sup>2</sup>

Less than 3 h

FIRE PROTECTION (AVAILABLE)

Suppression (type)

Hose Stations

Portable Extinguishers

Detectors (type)

None

H<sub>2</sub>O

Halon

Smoke det (FC); Heat det (PC) (see section 7.0)

FIRE RESISTANCE RATING

Actual

- Walls

- Floors, Ceiling or Roof

- Fixed Openings

- Penetrations

- Doors (Fire-rated Class/Zone no.)

N, S, E, W-C/3; B/2 @ 0014L (Vent Duct)

C/NR @ 0024D (entry)

Concrete; Concrete/Suspended

None

See area 0024 text

3-A/0101; L/0024D

### CONSTRUCTION

All the walls are concrete and are 3-h rated except for the nonrated concrete walls around zone 0024D and the 2-h-rated block walls around zone 0014L. The floor and ceiling are reinforced concrete and are 3-h rated. There are three fire-rated Class A doors; one in the north wall, one in the east wall, and one in the south wall. All of these doors open to area 0101 and are a series combination of a fire-rated Class A door and a bullet-proof door. There is also a nonrated, bullet-proof door in the north wall which opens to zone 0024D. The walls are vinyl covered, the floor is carpeted, and there is a suspended ceiling. See area 0024 for penetrations.

### FIRE PROTECTION

The zone is equipped with full smoke detector coverage, both above and below the suspended ceiling. Coverage below the suspended ceiling in the restrooms is provided by heat detectors. There is no automatic suppression system in this zone; however, it is equipped with a hose station and portable fire extinguishers for manual firefighting. Hose stations, a portable foam unit, and portable fire extinguishers are also located outside of this zone in adjacent area 0101.

### CONSEQUENCES OF DESIGN BASIS FIRE

The main control room is continuously occupied by the plant operators, which include fully trained members of the plant fire brigade. The major combustibles are plastic construction materials, carpet, and Class A (manuals, etc.) materials. A fire involving these materials would be rapidly detected by the operators or the fire detection system. The carpet and plastics have low flame spread and low smoke generation characteristics which ensure that effective manual firefighting can be conducted prior to significant propagation of the fire through the zone. The available manual firefighting equipment in this zone and in the adjacent area 0101 is sufficient to extinguish a fire in the main control room. Due to the rated construction, a fire will not propagate to adjacent areas. The loss of safe shutdown circuits in the main control room due to the design basis fire may be compensated for by utilization of alternate shutdown from the remote shutdown panels, as evaluated in the February 1983 NRC SER.

FIRE ZONE 0024D

This zone is considered safety related.

DESCRIPTION

Main Control Room Entryway  
Control Building - el 164 ft

DRAWING NUMBER(S)

H-11817

AREA

98 ft<sup>2</sup>

COMBUSTIBLES

|                     |         |
|---------------------|---------|
| Oil & Grease        | None    |
| Cable               | None    |
| Class A             | None    |
| Charcoal            | None    |
| Plastics            | Plastic |
| Miscellaneous       | None    |
| Miscellaneous Gases | None    |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                 |
|------------------------|-----------------|
| Suppression (type)     | None            |
| Hose Stations          | None            |
| Portable Extinguishers | CO <sub>2</sub> |
| Detectors (type)       | None            |

FIRE RESISTANCE RATING

|                                     |                         |
|-------------------------------------|-------------------------|
| Actual                              |                         |
| - Walls                             | N-C/3; S, E-C/NR; W-B/3 |
| - Floors, Ceiling or Roof           | Concrete                |
| - Fixed Openings                    | None                    |
| - Penetrations                      | See area 0024 text      |
| - Doors (Fire-rated Class/Zone no.) | 2-A/0101; L/0024C       |

### CONSTRUCTION

The north, south, and east walls are reinforced concrete. The south and east walls are nonrated and the north wall is 3-h rated. The west wall is block and 3-h rated. The ceiling and floor are reinforced, 3-h-rated concrete. There are two fire-rated Class A doors; one in the north wall and one in west wall communicating with the turbine building main floor (area 0101). There is also a nonrated, bullet-proof door in south wall which opens to zone 0024C. See area 0024 for penetrations.

### FIRE PROTECTION

This zone has no automatic detection or suppression system; however, it is equipped with a portable CO<sub>2</sub> fire extinguisher. Adjacent zones 0024C and 0101A contain hose stations and zone 0101A contains portable CO<sub>2</sub> and dry chemical fire extinguishers.

### CONSEQUENCES OF DESIGN BASIS FIRE

A significant fire in this zone is not considered credible. Zone construction would preclude fire propagation to adjacent zones in the unlikely event that a fire occurred. The manual firefighting equipment available in adjacent zones and areas is adequate to extinguish any fire which may occur.

FIRE AREA 0025

This area is not considered safety related.

DESCRIPTION

CO<sub>2</sub> Tank Room

Control Building - el 147 ft

DRAWING NUMBER(S)

H-11816

AREA

1,251 ft<sup>2</sup>

COMBUSTIBLES

Oil & Grease

None

Cable

Cable insulation

Class A

Wood, paper, trash

Charcoal

None

Plastics

Plastic, battery cases, ladders

Miscellaneous

Rubber

Miscellaneous Gases

None

DESIGN BASIS FIRE

Combustible Loading

Low

Max. Permissible Loading

100,000 Btu/ft<sup>2</sup>

Fire Duration

Less than 1 h

FIRE PROTECTION (AVAILABLE)

Suppression (type)

None

Hose Stations

H<sub>2</sub>O

Portable Extinguishers

CO<sub>2</sub>; Dry chem

Detectors (type)

Smoke det (PC) (see section 7.0)

FIRE RESISTANCE RATING

Actual

- Walls

N-C/3; S-B/3; E-C, B/3; W-C/NR

B/2 HR @ 0002

- Floors, Ceiling or Roof

Concrete

- Fixed Openings

MH/0101

- Penetrations

See text

- Doors (Fire-rated Class/Zone no.)

2-A/0024; 2-B/0002

### CONSTRUCTION

The north wall is reinforced concrete and 3-h rated. The south wall is block and 3-h rated adjacent to area 0024 and 2-h rated adjacent to area 0002. The east wall is reinforced concrete adjacent to area 1023 and block adjacent to area 0024 and is 3-h rated. The west wall is block and 2-h rated around area 0002. The balance of the west wall is nonrated, reinforced concrete turbine building exterior wall. The floor and ceiling are reinforced concrete and 3-h rated. There are two fire-rated Class A doors to area 0024 and two fire-rated Class B doors to area 0002.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area has partial smoke detector coverage in the section of the area containing the tank, which alarms both locally and in the main control room. There is no automatic suppression system; however, there is a portable CO<sub>2</sub> fire extinguisher, a portable dry chemical fire extinguisher, and a hose station in the area.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

The smoke detectors located in this area are expected to detect the combustion products from an incipient fire and alert the main control room and also provide a local alarm to ensure prompt response by the plant fire brigade. The manual firefighting equipment provided in this area is adequate to extinguish the fire. The low fire loading and rated or substantial construction of the area boundaries preclude the possibility of fire propagation to adjacent areas.

Hence, the design basis fire will not affect the capability to achieve safe shutdown or result in the significant release of radioactivity.

FIRE AREA 0028

This area is considered safety related.

DESCRIPTION

LPCI Inverter Room

Control Building - el 147 ft

DRAWING NUMBER(S)

H-11816, H-11817

AREA

1,089 ft<sup>2</sup>

COMBUSTIBLES

|                     |          |
|---------------------|----------|
| Oil & Grease        | None     |
| Cable               | None     |
| Class A             | None     |
| Charcoal            | None     |
| Plastics            | Plastics |
| Miscellaneous       | Rubber   |
| Miscellaneous Gases | None     |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                        |
|-------------------------------------|------------------------|
| Actual                              |                        |
| - Walls                             | N, S, E-C, B/3; W-C/NR |
| - Floors, Ceiling or Roof           | Concrete               |
| - Fixed Openings                    | OS/0101 (See text)     |
| - Penetrations                      | See text               |
| - Doors (Fire-rated Class/Zone no.) | A/0024                 |

### CONSTRUCTION

The north, east and south area walls are reinforced, 3-h-rated concrete except for the walls around area 2023 and the east half of the north wall, which are 3-h-rated block. The west wall is nonrated, reinforced concrete control building exterior wall. The floor is 3-h-rated, reinforced concrete. The ceiling is 3-h-rated, reinforced concrete containing a stairwell opening to area 0101. The stair opening in area 0101 is enclosed in a nonrated, sheetmetal "doghouse" containing a nonrated access door, (see exemptions). A fire-rated Class A door is provided in the north wall to area 0024.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full smoke detection coverage which alarms both locally and in the main control room. There is no manual firefighting equipment located in this area; however, hose stations able to provide an effective stream to this area are located in both adjacent areas 0025 and 0101. Also, portable CO<sub>2</sub> fire extinguishers are available in adjacent area 0101.

### APPENDIX R EXEMPTIONS

An exemption from the Section III.G.2 requirement for a complete 3-h-rated barrier has been requested for the nonrated stairwell enclosure as is documented in appendix C of this document. However, per the January 1987 NRC SER, no exemption is required, based on part 4 of NRC Generic Letter 86-10.

### CONSEQUENCES OF DESIGN BASIS FIRE

A fire in this area is expected to activate the available smoke detection to provide an alarm both locally and in the main control room to ensure prompt response by the plant fire brigade. The negligible combustible loading, the substantial or rated room construction, the lack of intervening combustibles, and the available firefighting equipment in adjacent areas 0024 and 0101 preclude the propagation of a fire outside this area.

A fire in this area will not affect the capability to achieve or maintain safe shutdown or result in the significant release of radioactivity.



FIRE AREA 0031

This area is considered safety related.

DESCRIPTION

Main Control Room Roof  
Control Building - el 180 ft

DRAWING NUMBER(S)

H-11818

AREA

9042 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | Trash            |
| Charcoal            | Charcoal         |
| Plastics            | Ladders          |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                              |
|------------------------|----------------------------------------------|
| Suppression (type)     | Water spray @ filters (PC) (see section 7.0) |
| Hose Stations          | H <sub>2</sub> O                             |
| Portable Extinguishers | CO <sub>2</sub>                              |
| Detectors (type)       | Heat det @ filters (PC) (see section 7.0)    |

FIRE RESISTANCE RATING

|                                     |                                                |
|-------------------------------------|------------------------------------------------|
| Actual                              |                                                |
| - Walls                             | N, S, E, W-C/NR (Partial Height)<br>B/2 @ 0002 |
| - Floors, Ceiling or Roof           | Floor-Concrete; Ceiling-Open                   |
| - Fixed Openings                    | OP/0014, 0101                                  |
| - Penetrations                      | See text                                       |
| - Doors (Fire-rated Class/Zone no.) | 2-B/0002                                       |

### CONSTRUCTION

This area is the roof of the control building. There is no ceiling in this area; it is open to the turbine building area 0101. The walls are approximately 12-ft-high parapets and are nonrated, reinforced concrete with the exception of the wall around the 180-ft and 185-ft elevations of area 0002 which is 2-h-rated block. The floor is reinforced concrete and 3-h rated. There are two fire-rated Class B doors accessing the stairwell (area 0002).

Penetrations in the floor of the area are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

The area is equipped with a deluge system and heat detectors on the charcoal filters. There is no other detection or automatic suppression system. Manual firefighting equipment in this area includes portable CO<sub>2</sub> fire extinguishers and a hose station.

### APPENDIX R EXEMPTIONS

An exemption from the Section III.G.2 requirement for complete 3-h-rated barriers has been requested for this area as is documented in appendix C of this document.

The portions of the area boundaries which are affected are:

- The HVAC penetrations in the floor of this area, separating it from area 0024.
- The HVAC duct penetration connecting this area to area 0014.
- The parapet walls and open ceiling separating this area from area 0101.

However, per the January 1987 NRC SER, no exemption is required, based on part 4 of NRC Generic Letter 86-10.

### CONSEQUENCES OF DESIGN BASIS FIRE

Due to the low combustible loading, the rated floor, and the high parapet walls, a fire in this area will not propagate to the adjacent areas 0101 (turbine building) and 0024 (main control room). The walls provide a radiant heat shield for components on the turbine building floor, while the high ceiling and large volume of the turbine building make the transfer of heat by convection insignificant.

CONSEQUENCES OF DESIGN BASIS FIRE (cont'd)

A fire involving cable insulation and miscellaneous Class A materials is insufficient to cause a breach of the metal charcoal filter housings. An internally generated charcoal fire would burn slowly and would be extinguished by the fire brigade initiated deluge system. Plant operators would be alerted to a fire in the filters by high supply temperatures and/or a loss of main control room air. Smoke generated by a fire in this area would be easily detected by plant personnel in the main control room or on the turbine deck.

A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 0040

This area is considered safety related.

DESCRIPTION

Vertical Cable Chase  
Control Building - el 130 ft

DRAWING NUMBER(S)

H-11814

AREA

153 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | None             |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | High                        |
| Max. Permissible Loading | 882,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Greater than 3 h            |

FIRE PROTECTION (AVAILABLE)

|                        |                                      |
|------------------------|--------------------------------------|
| Suppression (type)     | Water spray (FC) (see section 7.0)   |
| Hose Stations          | None                                 |
| Portable Extinguishers | None                                 |
| Detectors (type)       | Lin therm det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                |
|-------------------------------------|----------------|
| Actual                              |                |
| - Walls                             | N, S, E, W-B/3 |
| - Floors, Ceiling or Roof           | Concrete       |
| - Fixed Openings                    | None           |
| - Penetrations                      | See text       |
| - Doors (Fire-rated Class/Zone no.) | A/1013, 2013   |

### CONSTRUCTION

All area walls are 3-h-rated block. The floor and ceiling are 3-h-rated, reinforced concrete. There are two fire-rated Class A doors in the west wall; one to area 1013 and one to area 2013.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

The area is equipped with a full coverage linear thermal detection system which alarms both locally and in the main control room. This area also has full water spray coverage. A hose station and portable CO<sub>2</sub> fire extinguishers are available in nearby area 0014.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

The cable used at HNP is predominantly IEEE-383 qualified. Therefore, the design basis fire for this area, containing cable insulation as the only combustible, is expected to develop slowly. This ensures that adequate time will elapse prior to full fire development, for the installed suppression system to extinguish the fire, and for plant fire brigade response.

The thermal heat detectors located in this area are expected to detect an incipient fire and provide an alarm both locally and in the main control room to ensure prompt response by the plant fire brigade. The wet pipe sprinkler system is expected to rapidly extinguish the fire. In the event of sprinkler system failure, the manual firefighting equipment provided in nearby area 0014 will be adequate to extinguish the fire. The slow burning fire, adequate suppression and fully rated construction preclude propagation of the design basis fire to adjacent areas.

Hence, the design basis fire will not affect the capability to achieve safe shutdown or result in the significant release of radioactivity.

FIRE AREA 0101

This area is not considered safety related.

DESCRIPTION

Turbine Operating Deck  
Unit 1 and Unit 2 Turbine Building - el 164 ft

DRAWING NUMBER(S)

H-11807, H-11817, H-11823

AREA

85,126 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                                                                 |
|---------------------|---------------------------------------------------------------------------------|
| Oil and Grease      | Lube oil                                                                        |
| Cable               | Cable insulation                                                                |
| Class A             | Wood, paper, tape (cloth), trash, cardboard,<br>plywood, clothing, files, plank |
| Charcoal            | Charcoal                                                                        |
| Plastics            | Plastic, ladders, respirators                                                   |
| Miscellaneous       | Rubber, carpet                                                                  |
| Miscellaneous Gases | Hydrogen                                                                        |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                                |
|------------------------|------------------------------------------------|
| Suppression (type)     | Water spray (PC) (see section 7.0)             |
| Hose Stations          | H <sub>2</sub> O                               |
| Portable Extinguishers | CO <sub>2</sub> ; Dry chem; Portable foam unit |
| Detectors (type)       | Heat det (PC) (see section 7.0)                |

FIRE RESISTANCE RATING

|                                     |                                                                                              |
|-------------------------------------|----------------------------------------------------------------------------------------------|
| Actual                              |                                                                                              |
| - Walls                             | N,S,E,W,-C/NR                                                                                |
| - Floors, Ceiling, or Roof          | Concrete                                                                                     |
| - Fixed Openings                    | OS, OH, SG, CH, MH/2101,1101;MH/1023,2023,<br>MH/0025;OP/0031;SD/Outside,1102,1103,2102,2103 |
| - Penetrations                      | See text                                                                                     |
| - Doors (Fire-rated Class/Zone no.) | 5-A/0024;2-A/2301;A/1203;2-B/0002;B/1102,1103,<br>2102,2103;NR/0028                          |

## CONSTRUCTION

The north, south, east, and west walls of this area are reinforced concrete turbine building exterior walls and are nonrated. The walls around the main control room (MCR) (area 0024) are concrete and are 3-h rated, with the exception of the MCR west entryway, which is block and 3-h rated. The walls around the freight elevator and stairwell (area 0002) are block and 2-h rated. The east wall contains nonrated steam blowout panels communicating with areas 1205 and 2205 (see exemptions). There are four stairwells; two on the north end of the area (areas 1102 and 1103) and two on the south end (areas 2102 and 2103) which have block walls and are 2-h rated. There is a nonrated metal building outside the MCR on the south side enclosing the stairwell to area 0028. The floor is reinforced concrete with open hatches down to areas 1101 and 2101. There are also closed hatches to areas 2101, 1101, 0025, 1023, and 2023. The ceiling is reinforced concrete with smoke dampers. There are eight fire-rated Class A doors; five to area 0024, one to area 1203, and two to area 2301. There are six fire-rated Class B doors; two to area 0002, and one each to areas 2102, 2103, 1102, and 1103. There is a nonrated door in the metal building to 0028.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

The floor is considered an area boundary only for purposes of defining the open, common turbine operating deck, which is shared by both units, as a common area. Due to the hatches (down to areas 1101 and 2101), this floor is not rated. Defining this floor as a nonrated area boundary is acceptable, since:

- A. Only areas 1101, 2101, and 0031 (MCR roof) communicate with or through this area. All of these areas rely on path 2 for safe shutdown. A rated barrier is not required between areas relying on the same path to achieve safe shutdown.
- B. A fire is not expected to propagate from any adjacent area across the operating deck to any other areas due to the large amount of spatial separation of the propagation paths (hatches) and the arrangement of the fixed combustibles away from the propagation paths.

## FIRE PROTECTION

The turbine and generator bearings are provided with a fixed, manual water spray suppression system. Upon detection of high temperature, alarms annunciate both locally and in the MCR. The water spray is then manually activated after verification of a fire condition. The reactor feed pump rooms are provided with automatic water spray systems activated by the dry pilot portion of the system. The Unit 1 reactor feed pump turbine oil conditioner, located in this area, is also provided with an automatic water spray system activated by the dry pilot portion of the system. Activation of the suppression systems results in an alarm in the MCR.

### FIRE PROTECTION (continued)

There are hose stations, a portable oil emulsion foam generator, portable CO<sub>2</sub> and dry chemical fire extinguishers located throughout the area.

### APPENDIX R EXEMPTIONS

An exemption from the section III.G.2 requirements of Appendix R has been approved for the nonrated steam blowout panels between this area and areas 1205 and 2205. Exemptions from the section III.G.2 requirement for complete 3-h fire barriers have been requested, as is documented in appendix C of this document for:

- The nonrated metal hatches in the floor of this area to areas 1023 and 2023.
- The nonrated parapet walls and open ceiling between this area and area 0031.
- The nonrated metal stairwell enclosure around the stairs from this area to area 0028.
- The nonrated steam blowout panels between this area and area 1205.

However, per the January 1987 NRC SER, no exemption is required, based on part 4 of NRC Generic Letter 86-10.

### CONSEQUENCES OF DESIGN BASIS FIRE

A fire on the turbine operating floor would be associated with localized and widely separated concentrations of combustibles. Oil hazards associated with the turbine-generator bearings and the reactor feed pumps are equipped with automatic or manual water spray systems. There is no areawide detection, however, a fire would be identified in its early stages by the normal occupancy and high traffic flow. The high ceiling and large separation between concentrations of combustibles preclude flashover. The available firefighting equipment is adequate to extinguish a fire in this area. The open hatchways in the floor create a fire propagation possibility to the adjacent areas; however, the absence of any intervening combustibles between this area and the adjacent areas, the low combustible loading and substantial wall and floor construction preclude the propagation of the fire beyond this area. There are no fire hazards in the yard areas outside of the turbine building sufficient to breach the nonrated but substantially constructed exterior walls.

A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.



FIRE ZONE 0101A

This zone is not considered safety related.

DESCRIPTION

Unit 1 Turbine Building Main Floor Area  
Turbine Building - el 164 ft

DRAWING NUMBER(S)

H-11807, H-11817

AREA

24,290 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                             |
|---------------------|---------------------------------------------|
| Oil and Grease      | Lube oil                                    |
| Cable               | Cable insulation                            |
| Class A             | Wood, paper, tape (cloth), trash, cardboard |
| Charcoal            | None                                        |
| Plastics            | Plastic, ladders                            |
| Miscellaneous       | Rubber                                      |
| Miscellaneous Gases | Hydrogen                                    |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                                                                                                                                                                       |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Suppression (type)     | Water spray (PC) (see section 7.0)                                                                                                                                                    |
| Hose Stations          | H <sub>2</sub> O                                                                                                                                                                      |
| Portable Extinguishers | CO <sub>2</sub> ; Drychem; Portable foam unit                                                                                                                                         |
| Detectors (type)       | Heat det at Gen bearings (PC); Ionization detectors in the Packaged Electrical & Electronic Control Compartment (PEECC) Bldg. and the power conversion room (PCR). (See section 7.0). |

FIRE RESISTANCE RATING

|                                     |                                                                                                 |
|-------------------------------------|-------------------------------------------------------------------------------------------------|
| Actual                              |                                                                                                 |
| - Walls                             | N, S, E, W -C/NR; S-C/3, B/1, B/2, B/2 at TB and CB Stairwells                                  |
| - Floors, Ceiling, or Roof          | Concrete                                                                                        |
| - Fixed Openings                    | OH/1101; SG/1101; 2-CH/1101J; SD/Outside, SD/1102, 1103; MH/1023, 0025; OP/0101B, C, D, J, 0031 |
| - Penetrations                      | See Area 0101 text                                                                              |
| - Doors (Fire-rated Class/Zone no.) | 2-A/0024C, D, 1203I; B/0002A, B, 0101E, 1102, 1103; C/0101H; 3-NR/0101B; NR/0101C, D            |

## CONSTRUCTION

The north, east, and west walls are nonrated, reinforced concrete. The south boundary of this zone consists of the following: concrete block which provides a 1-h fire barrier to zones 0101E, F, G, H; concrete block which provides a 2-h fire barrier to area 0002; and concrete which provides a 3-h fire barrier to area 0024. There is an open hallway on the east side of this zone which accesses zone 0101J. The walls around zones 0101B, C, D are nonrated, partial height concrete. There are five nonrated doors, three of which access zone 0101B and two which access zones 0101C and 0101D. There are four fire-rated Class A doors; one accesses zone 0024C, two access zone 0024D, and one accesses area 1203. There are five fire-rated Class B doors which access areas 1102, 1103, and zones 0002B, 0002A, and 0101E. There is one fire-rated Class C door which accesses zone 0101H. The floor and ceiling are nonrated, reinforced concrete. The ceiling contains numerous smoke venting dampers. There are two stairwells (areas 1102 and 1103) in the north end of this zone. The stairs are enclosed by block walls which provide a 2-h fire barrier. There are smoke dampers in the ceiling of each stairwell. The main equipment hatch in the northeast corner is open to zone 1101J below. In addition, there are several concrete covered hatches accessing zones 1101J, 1101K, and 1101M below and metal hatches accessing areas 0025 and 1023 below. Nonrated steam blowout panels are located in the east wall, communicating with area 1205 (see exemptions in area 0101). See area 0101 for penetrations.

## FIRE PROTECTION

This zone is equipped with two water spray systems. Generator bearings are provided with a manually actuated water spray system that is activated by operations personnel upon verification of a fire following a thermostat detector alarm. The reactor feed pump oil conditioner is provided with curbing to contain any oil spills to the immediate vicinity of the conditioner and an automatic water spray suppression system, activated by the dry pilot portion of the system. Activation of the water spray results in an alarm both locally and in the MCR.

In addition, there is a portable oil emulsion foam generator in the zone and there are hose stations and portable CO<sub>2</sub> and dry chemical fire extinguishers located throughout the zone.

## CONSEQUENCES OF DESIGN BASIS FIRE

A fire on the turbine operating floor would be associated with localized and widely separated concentrations of combustibles. Oil hazards associated with the generator bearings and the reactor feed pump oil conditioner are equipped with automatic or manual water spray systems. There is no areawide detection; however, a fire may be identified in its early stages by plant personnel. The high ceiling and large separation between concentrations of combustibles preclude flashover. The ceiling smoke vents are expected to open to further dilute any

CONSEQUENCES OF DESIGN BASIS FIRE (cont'd)

products of combustion. The available firefighting equipment is adequate to extinguish a fire in this zone. The open hatchways in the floor create a fire propagation possibility to the adjacent zones and areas; however, the absence of any intervening combustibles between this zone and the adjacent zones and areas, the low combustible loading, and substantial construction preclude the propagation of the fire beyond this zone.

Propagation of a fire to other zones in this area or to area 1101 will not affect the ability to achieve safe shutdown.

FIRE ZONE 0101B

This zone is not considered safety related.

DESCRIPTION

Unit 1 Main Turbine Deck Area  
Turbine Building - el 164 ft

DRAWING NUMBER(S)

H-11807

AREA

14,586 ft<sup>2</sup>

COMBUSTIBLES

|                     |                      |
|---------------------|----------------------|
| Oil and Grease      | Lube oil             |
| Cable               | Cable insulation     |
| Class A             | Wood                 |
| Charcoal            | None                 |
| Plastics            | Plastic, respirators |
| Miscellaneous       | None                 |
| Miscellaneous Gases | None                 |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                    |
|------------------------|------------------------------------|
| Suppression (type)     | Water spray (PC) (see section 7.0) |
| Hose Stations          | H <sub>2</sub> O                   |
| Portable Extinguishers | None                               |
| Detectors (type)       | Heat det (PC) (see section 7.0)    |

FIRE RESISTANCE RATING

|                                     |                                     |
|-------------------------------------|-------------------------------------|
| Actual                              |                                     |
| - Walls                             | N, S, E, W-C/NR (see text)          |
| - Floors, Ceiling or Roof           | Floor-Concrete; Ceiling-Open        |
| - Fixed Openings                    | OP/0101A, C, D; MH, CH, OH, OS/1101 |
| - Penetrations                      | See area 0101 text                  |
| - Doors (Fire-rated Class/Zone no.) | 3-NR/0101A                          |

### CONSTRUCTION

All the walls are reinforced concrete and are nonrated. The north, south, and east walls are partial height walls. The west wall is the nonrated, reinforced concrete turbine building exterior wall. The ceiling of the zone is open up the turbine building roof. The floor is nonrated, reinforced concrete. There is one nonrated door in the south wall to zone 0101A. There are also two nonrated doors in the north wall accessing zone 0101A. There are several open and covered concrete hatches which access area 1101 below this zone. See area 0101 for penetrations.

### FIRE PROTECTION

The turbine bearings are provided with a manually actuated water spray system. Thermostats provide an alarm in the MCR and, after verification of a fire, the system can be activated by operations personnel. Manual firefighting equipment in the zone consists of hose stations. Portable CO<sub>2</sub> and dry chemical fire extinguishers are available in adjacent zone 0101A.

### CONSEQUENCES OF DESIGN BASIS FIRE

The main combustible in this zone is lube oil which is concentrated at the turbine bearings. The turbine bearings are equipped with thermostats, which alarm both locally and in the MCR. Upon verification of a fire, operations personnel will initiate manual actuation of the bearing water spray systems to suppress or control a fire. In the event of a seal or lube oil piping rupture and a subsequent fire, there is a potential threat of fire propagation to the adjacent zone (0101A) and area 1101 below (zones 1101J, 1101K); however, early warning (provided by thermostats, seal or lube oil low pressure alarms) and prompt response by the plant fire brigade are expected to prevent fire propagation. Other combustibles in the zone are limited and widely separated and could potentially result in only small localized fires.

Propagation of a fire to other zones in this area or to area 1101 will not affect the ability to achieve safe shutdown.

FIRE\_ZONE 0101C

This zone is not considered safety related.

DESCRIPTION

Unit 1 Reactor Feed Pump Room A  
Turbine Building - el 164 ft

DRAWING NUMBER(S)

H-11807

AREA

1,260 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil and Grease      | Lube oil         |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Moderate                    |
| Max. Permissible Loading | 128,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                    |
|------------------------|------------------------------------|
| Suppression (type)     | Water spray (FC) (see section 7.0) |
| Hose Stations          | None                               |
| Portable Extinguishers | None                               |
| Detectors (type)       | Dry pilot (FC) (see section 7.0)   |

FIRE RESISTANCE RATING

|                                     |                              |
|-------------------------------------|------------------------------|
| Actual                              |                              |
| - Walls                             | N,S,E,W-C/NR                 |
| - Floors, Ceiling or Roof           | Floor-Concrete; Ceiling-Open |
| - Fixed Openings                    | OP/0101A,B,D                 |
| - Penetrations                      | See Area 0101 text           |
| - Doors (Fire-rated Class/Zone no.) | NR/0101A                     |

### CONSTRUCTION

All the walls are reinforced concrete and nonrated. These are partial height walls and the ceiling is open up to the turbine building roof. The floor is nonrated, reinforced concrete. There is one nonrated door in the east wall to zone 0101A. See area 0101 for penetrations.

### FIRE PROTECTION

This zone is provided with a full coverage automatic water spray suppression system activated by a dry pilot system. Activation of the suppression system results in an alarm both locally and in the MCR. There is no manual firefighting equipment in this zone. A hose station, portable dry chemical extinguishers, and portable CO<sub>2</sub> extinguishers are available from the adjacent zone 0101A.

### CONSEQUENCES OF DESIGN BASIS FIRE

The only credible fire of significant size in this zone is an oil fire resulting from leakage or rupture of the lube oil system. The automatic water spray system provides for prompt extinguishment of such a fire. Actuation of the dry pilot portion of the system results in an alarm both locally and in the MCR which ensures prompt response by the plant fire brigade. The walls surrounding this zone are of sufficient construction to contain the design basis fire. The heated combustion products will leave the zone through the open ceiling. Due to the high ceiling and very large volume of the turbine building along with the smoke dampers in the roof, significant dilution of the hot gases will occur and prevent propagation of the fire outside the zone.

FIRE\_ZONE 0101D

This zone is not considered safety related.

DESCRIPTION

Unit 1 Reactor Feed Pump Room B  
Turbine Building - el 164 ft

DRAWING NUMBER(S)

H-11807

AREA

1,392 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil and Grease      | Lube oil         |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Moderate                    |
| Max. Permissible Loading | 129,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                    |
|------------------------|------------------------------------|
| Suppression (type)     | Water spray (FC) (see section 7.0) |
| Hose Stations          | None                               |
| Portable Extinguishers | None                               |
| Detectors (type)       | Dry pilot (FC) (see section 7.0)   |

FIRE RESISTANCE RATING

|                                     |                              |
|-------------------------------------|------------------------------|
| Actual                              |                              |
| - Walls                             | N,S,E,W-C/NR                 |
| - Floors, Ceiling or Roof           | Floor-Concrete; Ceiling-Open |
| - Fixed Openings                    | OP/0101A,B,C                 |
| - Penetrations                      | See area 0101 text           |
| - Doors (Fire-rated Class/Zone no.) | NR/0101A                     |



### CONSTRUCTION

All the walls are reinforced concrete and nonrated. These are partial height walls and the ceiling is open up to the turbine building roof. The floor is nonrated, reinforced concrete. There is one nonrated door in the east wall to zone 0101A. See area 0101 for penetrations.

### FIRE PROTECTION

The zone is provided with a full coverage automatic water spray suppression system activated by a dry pilot system. Actuation of either the dry pilot or suppression system results in an alarm both locally and in the MCR. There is no manual firefighting equipment in this zone. A hose station, portable dry chemical extinguishers, and portable CO<sub>2</sub> extinguishers are available in the adjacent zone 0101A.

### CONSEQUENCES OF DESIGN BASIS FIRE

The only credible fire of significant size in this zone is an oil fire resulting from leakage or rupture of the lube oil system. The automatic water spray system provides for prompt extinguishment of such a fire. Actuation of the dry pilot portion of the system results in an alarm both locally and in the MCR which ensures prompt response by the plant fire brigade. The walls surrounding this zone are of sufficient construction to contain the design basis fire. The heated combustion products will leave the zone through the open ceiling. Due to the high ceiling and very large volume of the turbine building, along with the smoke dampers in the roof, significant dilution of the hot gases will occur and prevent propagation of the fire outside the zone.

FIRE ZONE 0101E

This zone is not considered safety related.

DESCRIPTION

East Main Control Room Entry Way  
Turbine Building - el 164 ft

DRAWING NUMBER(S)

H-11817

AREA

61 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil and Grease      | None             |
| Cable               | None             |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | Plastic, ladders |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                 |
|------------------------|-----------------|
| Suppression (type)     | None            |
| Hose Stations          | None            |
| Portable Extinguishers | CO <sub>2</sub> |
| Detectors (type)       | None            |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N,S,E,W-B/NR       |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | None               |
| - Penetrations                      | See area 0101 text |
| - Doors (Fire-rated Class/Zone no.) | NR/0101A;NR/0101F  |

### CONSTRUCTION

All walls are block and are nonrated. The floor and ceiling are reinforced concrete. There is a nonrated door in the south wall to zone 0101A and a nonrated door in the west wall to zone 0101F. See area 0101 for penetrations.

### FIRE PROTECTION

No detection or suppression system is provided in this zone; however, it is provided with a portable CO<sub>2</sub> fire extinguisher. A hose station is also provided nearby in zone 0101A.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible products. The only fire which is credible for this zone would result from transient combustibles. The negligible combustible loading and substantial construction of the concrete walls preclude the propagation of a fire beyond the boundaries of this zone. The available firefighting equipment in this zone and in adjacent zone 0101A is adequate to extinguish a fire.

FIRE ZONE 0101F

This zone is not considered safety related.

DESCRIPTION

Main Control Room Break Area  
Turbine Building - el 164 ft

DRAWING NUMBER(S)

H-11817

AREA

399 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                       |
|---------------------|---------------------------------------|
| Oil and Grease      | None                                  |
| Cable               | None                                  |
| Class A             | Wood, plywood, paper, clothing, trash |
| Charcoal            | None                                  |
| Plastics            | Plastic                               |
| Miscellaneous       | None                                  |
| Miscellaneous Gases | None                                  |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 41,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                                 |
|------------------------|---------------------------------|
| Suppression (type)     | None                            |
| Hose Stations          | None                            |
| Portable Extinguishers | Drychem                         |
| Detectors (type)       | Heat det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                              |
|-------------------------------------|------------------------------|
| Actual                              |                              |
| - Walls                             | N-B/NR;S-C/3;E-B/NR,1;W-B/NR |
| - Floors, Ceiling or Roof           | Concrete; Concrete/Suspended |
| - Fixed Openings                    | None                         |
| - Penetrations                      | See area 0101 text           |
| - Doors (Fire-rated Class/Zone no.) | NR/0101E,G                   |

### CONSTRUCTION

The south wall is reinforced concrete and is 3-h rated. The north wall, east wall, and west wall are nonrated block walls. The floor and ceiling are nonrated, reinforced concrete. There are two nonrated doors; one in the east wall to zone 0101E and one in the west wall to zone 0101G. A suspended ceiling is located at approximately el 172 ft. See area 0101 for penetrations.

### FIRE PROTECTION

This zone is equipped with full coverage heat detection which provides an early warning alarm in the adjacent MCR. Manual firefighting equipment is also provided in the form of a portable dry chemical fire extinguisher.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone and the adjacent zones are normally occupied at all times by the MCR operators who include trained members of the plant fire brigade. Detection and suppression should be immediate. Limited combustibles combined with short estimated fire duration should preclude any potential for fire propagation to adjacent zones.

FIRE ZONE 0101G

This zone is not considered safety related.

DESCRIPTION

Chart Storage Room and Hallway  
Turbine Building - el 164 ft

DRAWING NUMBER(S)

H-11817

AREA

247 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                   |
|---------------------|-----------------------------------|
| Oil and Grease      | None                              |
| Cable               | None                              |
| Class A             | Paper, clothing, cardboard, files |
| Charcoal            | None                              |
| Plastics            | Plastic, respirators              |
| Miscellaneous       | Rubber, carpet                    |
| Miscellaneous Gases | None                              |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | High                        |
| Max. Permissible Loading | 548,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Greater than 3 h            |

FIRE PROTECTION (AVAILABLE)

|                        |                                 |
|------------------------|---------------------------------|
| Suppression (type)     | None                            |
| Hose Stations          | None                            |
| Portable Extinguishers | None                            |
| Detectors (type)       | Heat det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                              |
|-------------------------------------|------------------------------|
| Actual                              |                              |
| - Walls                             | N-B/NR;S-C/3;E,W-B/NR        |
| - Floors, Ceiling or Roof           | Concrete; Concrete/Suspended |
| - Fixed Openings                    | None                         |
| - Penetrations                      | See area 0101 text           |
| - Doors (Fire-rated Class/Zone no.) | A/0024C;2-NR/0101H;NR/0101F  |

### CONSTRUCTION

The south wall is reinforced concrete and 3-h rated. The north, east, and west walls are nonrated block walls. There is a nonrated block wall which separates this zone into two sections. The floor and ceiling are nonrated, reinforced concrete. There is a nonrated door in the east wall to zone 0101F and there are two nonrated doors in the west wall to zone 0101H. There is one nonrated bulletproof door in series with fire-rated Class A rollup door in the south wall to area 0024. A suspended ceiling is located at approximately el 172 ft. See area 0101 for penetrations.

### FIRE PROTECTION

This zone has full coverage heat detectors which provide an early warning alarm in the adjacent MCR. The zone contains no automatic suppression system; however, portable dry chemical and CO<sub>2</sub> fire extinguishers are available in nearby zones 0101F and 0101E, respectively. Hose stations able to reach this zone are located at the control building freight elevator and at the east turbine building wall immediately outside zone 0101E.

### CONSEQUENCES OF DESIGN BASIS FIRE

The heat detectors located in this zone are expected to detect the combustion products from an incipient fire and provide early warning in the adjacent MCR to ensure prompt response by the plant fire brigade, members of which are constantly on duty in adjacent zone 0024C. The high combustible loading and nonrated east and west walls present a threat that the design basis fire may propagate to adjacent zones 0101F and 0101H. However, presence of the shift personnel in adjacent zone 0101H and continuous traffic in adjacent zones 0101F and 0024C provides a high probability of detection and suppression of a fire in its early stages. A fire in the tightly stacked Class A materials will develop slowly and ensure ample time for response by the plant fire brigade. The available manual fire equipment is adequate to extinguish the fire.

In addition, propagation of a fire to other zones in this area will not affect the ability to achieve safe shutdown.

FIRE ZONE 0101H

This zone is not considered safety related.

DESCRIPTION

Shift Clerk/Operations Supervisor's Office  
Turbine Building - el 164 ft

DRAWING NUMBER(S)

H-11817

AREA

399 ft<sup>2</sup>

COMBUSTIBLES

|                     |                       |
|---------------------|-----------------------|
| Oil and Grease      | None                  |
| Cable               | None                  |
| Class A             | Plywood, paper, files |
| Charcoal            | None                  |
| Plastics            | Plastic               |
| Miscellaneous       | Rubber, carpet        |
| Miscellaneous Gases | None                  |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | High                        |
| Max. Permissible Loading | 277,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Greater than 3 h            |

FIRE PROTECTION (AVAILABLE)

|                        |                                 |
|------------------------|---------------------------------|
| Suppression (type)     | None                            |
| Hose Stations          | None                            |
| Portable Extinguishers | None                            |
| Detectors (type)       | Heat det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                              |
|-------------------------------------|------------------------------|
| Actual                              |                              |
| - Walls                             | N,W-B/NR;S-C/3;E-B/NR        |
| - Floors, Ceiling or Roof           | Concrete; Concrete/Suspended |
| - Fixed Openings                    | None                         |
| - Penetrations                      | See area 0101 text           |
| - Doors (Fire-rated Class/Zone no.) | NR/0101A;2-NR/0101G          |



### CONSTRUCTION

The south wall is reinforced concrete and 3-h rated. The north, west, and east walls are block and nonrated. The floor and ceiling are nonrated, reinforced concrete. There are two nonrated doors to zone 0101G and a nonrated door to zone 0101A. This zone has vinyl wall covering and carpet and a suspended ceiling at approximately el 172 ft. See area 0101 for penetrations.

### FIRE PROTECTION

This zone is equipped with full coverage heat detection which provides an early warning alarm in the adjacent MCR. This zone is not equipped with a manual or automatic suppression system. However, portable CO<sub>2</sub> fire extinguishers are provided in adjacent zone 0024C and a hose station is located immediately outside the door of this zone in zone 0101A.

### CONSEQUENCES OF DESIGN BASIS FIRE

The heat detection located in this zone is expected to detect the combustion products from an incipient fire and provide early warning in the adjacent MCR to ensure prompt response by the plant fire brigade. The high fire loading and nonrated east wall present a threat that the design basis fire may propagate to adjacent zones. However, the continuous presence of the shift personnel in this zone provides a high probability of detection and suppression of a fire in its early stages. The available manual firefighting equipment is adequate to extinguish a fire in this zone.

Propagation of a fire to other zones in this area will not affect the ability to achieve safe shutdown.

FIRE ZONE 0101I

This zone is not considered safety related.

DESCRIPTION

Unit 2 Main Turbine Deck Area  
Turbine Building - el 164 ft

DRAWING NUMBER(S)

H-11823

AREA

14,319 ft<sup>2</sup>

COMBUSTIBLES

|                     |          |
|---------------------|----------|
| Oil and Grease      | Lube oil |
| Cable               | None     |
| Class A             | None     |
| Charcoal            | None     |
| Plastics            | Plastic  |
| Miscellaneous       | None     |
| Miscellaneous Gases | None     |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                    |
|------------------------|------------------------------------|
| Suppression (type)     | Water spray (PC) (see section 7.0) |
| Hose Stations          | H <sub>2</sub> O                   |
| Portable Extinguishers | None                               |
| Detectors (type)       | Heat det (PC) (see section 7.0)    |

FIRE RESISTANCE RATING

|                                     |                                |
|-------------------------------------|--------------------------------|
| Actual                              |                                |
| - Walls                             | N,S,E,W-C/NR (see text)        |
| - Floors, Ceiling or Roof           | Floor-Concrete; Ceiling Open   |
| - Fixed Openings                    | OP/0101J,K,L; MH,CH,OH,OS/2101 |
| - Penetrations                      | See area 0101 text             |
| - Doors (Fire-rated Class/Zone no.) | 3-NR/0101J                     |

### CONSTRUCTION

All the walls are reinforced concrete and nonrated. The north, east and south walls are partial height. The west wall is the nonrated, reinforced concrete turbine building exterior wall. The ceiling in this zone is open up to the turbine building roof. The floor is nonrated, reinforced concrete. The zone contains three nonrated doors which access zone 0101J. There are several open and covered hatches which access area 2101 below. See area 0101 for penetrations.

### FIRE PROTECTION

The turbine bearings are provided with a manually actuated water spray system. Thermostats provide an alarm in the MCR and, after verification of a fire, the system can be activated by operations personnel. In addition, hose stations are provided in the zone.

### CONSEQUENCES OF DESIGN BASIS FIRE

The main combustible in this zone is lube oil which is concentrated at the turbine bearings. The turbine bearings are equipped with heat detectors which alarm in the MCR. Upon verification of a fire, operating personnel will initiate manual actuation of the bearing water spray system to suppress or control a fire. In the event of a lube or seal oil piping rupture and subsequent fire, there is a potential for fire propagation to the adjacent zone 0101J and area 2101 below (zones 2101J & 2101K); however, early warning (provided by heat detectors, seal or lube-oil low pressure alarms) and prompt response by the plant fire brigade could prevent fire propagation. The other combustibles in the zone are limited and widely separated and potentially result in only small localized fires.

Propagation of a fire to other zones in this area, or to area 2101 will not affect the ability to achieve safe shutdown.

FIRE\_ZONE 0101J

This zone is not considered safety related.

DESCRIPTION

Unit 2 Turbine Building Main Floor Area  
Turbine Building - el 164 ft

DRAWING NUMBER(S)

H-11817, H-11823

AREA

25,482 ft<sup>2</sup>

COMBUSTIBLES

|                     |                              |
|---------------------|------------------------------|
| Oil and Grease      | None                         |
| Cable               | None                         |
| Class A             | Wood, plank, clothing, trash |
| Charcoal            | Charcoal                     |
| Plastics            | Plastic, ladders             |
| Miscellaneous       | Rubber                       |
| Miscellaneous Gases | Hydrogen                     |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                                                                                                                                                                |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Suppression (type)     | Water spray (PC) (see section 7.0)                                                                                                                                             |
| Hose Stations          | H <sub>2</sub> O                                                                                                                                                               |
| Portable Extinguishers | CO <sub>2</sub> ; Dry chem                                                                                                                                                     |
| Detectors (type)       | Heat det (PC) ionization detectors in the<br>Packaged Electrical & Electronic Control Compartment<br>(PEECC) Building and the Power Conversion Room<br>(PCR) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                                                                    |
|-------------------------------------|--------------------------------------------------------------------|
| Actual                              |                                                                    |
| - Walls                             | N-C/3;S,W,E-C/NR,C,B/2 at 2102,2103                                |
| - Floors, Ceiling, or Roof          | Concrete                                                           |
| - Fixed Openings                    | OP/0031,0101A,I,K,L;SG,OH,CH/2101;<br>MH/2023;SD/Outside,2102,2103 |
| - Penetrations                      | See Area 0101 text                                                 |
| - Doors (Fire-rated Class/Zone no.) | 2-A/2301;A/0024;B/2102,2103;3-NR/0101I;<br>NR/0028,0101K,L         |

## CONSTRUCTION

The east, south, and west walls are reinforced, nonrated concrete turbine building exterior walls. There is a partial height nonrated, reinforced concrete wall around zones 0101I, 0101K, and 0101L. The north wall borders the MCR and is reinforced concrete and 3-h rated. There is an open passageway which accesses zone 0101A on the east side of this zone. There are five nonrated doors, three accessing zone 0101I and one each accessing zones 0101K and 0101L. There are two fire-rated Class A doors accessing area 2301. There are two stairwells (areas 2102 and 2103) enclosed by walls constructed partially of block and partially of concrete which provide a 2-h fire barrier. The stairwell ceilings are concrete and are provided with smoke dampers. Access to the stairwells is obtained through a fire-rated Class B door to each. The floor and ceiling are nonrated, reinforced concrete. The ceiling is open up to the turbine building roof and contains numerous smoke venting dampers. There is an open equipment hatch which accesses zone 2101J below. In addition, there are several concrete hatches which access zone 2101J below. A metal hatch accesses area 2023 below. There is a nonrated metal enclosure containing a nonrated door around the stairwell to area 0028. Nonrated steam blowout panels are located in the east wall, communicating with area 2205 (see exemptions in area 0101). See area 0101 for penetrations.

## FIRE PROTECTION

This zone is equipped with a fixed water spray system at the generator bearings. The system is manually actuated by operations personnel upon verification of a fire following a thermostat detector alarm. Activation of the detectors or water spray results in both a local and MCR alarm.

In addition, there are hose stations and portable CO<sub>2</sub> and dry chemical fire extinguishers in the zone. A portable oil emulsion foam generator is located in adjacent zone 0101A and is available for use in this zone.

## CONSEQUENCES OF DESIGN BASIS FIRE

A fire on the turbine operating floor would be associated with localized and widely separated concentrations of combustibles. Oil hazards associated with the generator bearings are equipped with a manual water spray system. There is no areawide detection; however, a fire may be identified in its early stages by plant personnel. The high ceiling and large separation between concentrations of combustibles preclude flashover. The ceiling smoke vents are expected to open to further dilute any products of combustion. The available firefighting equipment is adequate to extinguish a fire in this zone. The open hatchways in the floor create a fire propagation possibility to the adjacent zones and areas; however, the absence of any intervening combustibles between this zone and the adjacent zones and areas, the low

CONSEQUENCES OF DESIGN BASIS FIRE (cont'd)

combustible loading and substantial construction preclude the propagation of the fire beyond this zone.

Propagation of a fire to other zones in this area or to area 2101 will not affect the ability to achieve safe shutdown.

FIRE\_ZONE 0101K

This zone is not considered safety related.

DESCRIPTION

Unit 2 Reactor Feed Pump A  
Turbine Building - el 164 ft

DRAWING NUMBER(S)

H-11823

AREA

1,383 ft<sup>2</sup>

COMBUSTIBLES

|                     |          |
|---------------------|----------|
| Oil and Grease      | Lube oil |
| Cable               | None     |
| Class A             | None     |
| Charcoal            | None     |
| Plastics            | Plastic  |
| Miscellaneous       | None     |
| Miscellaneous Gases | None     |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 118,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                    |
|------------------------|------------------------------------|
| Suppression (type)     | Water spray (PC) (see section 7.0) |
| Hose Stations          | None                               |
| Portable Extinguishers | None                               |
| Detectors (type)       | Dry pilot (PC) (see section 7.0)   |

FIRE RESISTANCE RATING

|                                     |                              |
|-------------------------------------|------------------------------|
| Actual                              |                              |
| - Walls                             | N,S,E,W-C/NR                 |
| - Floors, Ceiling or Roof           | Floor-Concrete; Ceiling-Open |
| - Fixed Openings                    | OP/0101I,J,L                 |
| - Penetrations                      | See area 0101 text           |
| - Doors (Fire-rated Class/Zone no.) | NR/0101J                     |

### CONSTRUCTION

All the walls are partial height nonrated, reinforced concrete walls. The floor is nonrated, reinforced concrete. The ceiling is open up to the turbine building roof. There is a nonrated door in the east wall to zone 0101J. See area 0101 for penetrations.

### FIRE PROTECTION

This zone is provided with a partial coverage automatic water spray suppression system activated by a dry pilot system. Activation of the suppression system results in an alarm both in the MCR and locally. There is no manual firefighting equipment in this zone. Hose stations and portable CO<sub>2</sub> and dry chemical fire extinguishers are available in adjacent zone 0101J.

### CONSEQUENCES OF DESIGN BASIS FIRE

The only credible fire of significant size in this zone is an oil fire resulting from leakage or rupture of the lube oil system. The automatic water spray system provides for prompt extinguishment of such a fire. Activation of the dry pilot portion of the system results in an alarm both locally and in the MCR which ensures prompt response by the plant fire brigade. The walls surrounding this zone are of sufficient construction to contain the design basis fire. The heated combustion products will leave the zone through the open ceiling. Due to the high ceiling and very large volume of the turbine building, along with the smoke dampers in the roof, significant dilution of the hot gases will occur and prevent propagation of the fire outside the zone.



FIRE ZONE 0101L

This zone is not considered safety related.

DESCRIPTION

Unit 2 Reactor Feed Pump Room B  
Turbine Building - el 164 ft

DRAWING NUMBER(S)

H-11823

AREA

1,308 ft<sup>2</sup>

COMBUSTIBLES

|                     |          |
|---------------------|----------|
| Oil and Grease      | Lube oil |
| Cable               | None     |
| Class A             | None     |
| Charcoal            | None     |
| Plastics            | Plastic  |
| Miscellaneous       | None     |
| Miscellaneous Gases | None     |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Moderate                    |
| Max. Permissible Loading | 136,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                    |
|------------------------|------------------------------------|
| Suppression (type)     | Water spray (PC) (see section 7.0) |
| Hose Stations          | None                               |
| Portable Extinguishers | None                               |
| Detectors (type)       | Dry pilot (PC) (see section 7.0)   |

FIRE RESISTANCE RATING

|                                     |                              |
|-------------------------------------|------------------------------|
| Actual                              |                              |
| - Walls                             | N,S,E,W-C/NR                 |
| - Floors, Ceiling or Roof           | Floor-Concrete; Ceiling-Open |
| - Fixed Openings                    | OP/0101I,J,K                 |
| - Penetrations                      | See area 0101 text           |
| - Doors (Fire-rated Class/Zone no.) | NR/0101J                     |

### CONSTRUCTION

All the walls are partial height nonrated, reinforced concrete. The floor is nonrated concrete and the ceiling is open up to the turbine building roof. The floor is nonrated, reinforced concrete. There is a nonrated door in the east wall to zone 0101J. See area 0101 for penetrations.

### FIRE PROTECTION

This zone is provided with a partial coverage automatic water spray suppression system activated by a dry pilot system. Activation of the suppression system results in an alarm both in the MCR and locally. There is no manual firefighting equipment in this zone. A hose station and portable CO<sub>2</sub> and dry chemical fire extinguishers are available in adjacent zone 0101J.

### CONSEQUENCES OF DESIGN BASIS FIRE

The only credible fire of significant size in this zone is an oil fire resulting from leakage or rupture of the lube oil system. The automatic water spray system provides for prompt extinguishment of such a fire. Activation of the dry pilot portion of the system results in an alarm both locally and in the MCR which ensures prompt response by the plant fire brigade. The walls surrounding this zone are of sufficient construction to contain the design basis fire. The heated combustion products will leave the zone through the open ceiling. Due to the high ceiling and very large volume of the turbine building, along with the smoke dampers in the roof, significant dilution of the hot gases will occur and prevent propagation of the fire outside the zone.

FIRE AREA 0201

This area is considered safety related.

DESCRIPTION

Reactor Building Refueling Floor  
Unit 1 and Unit 2 Reactor Buildings-el 228 ft

DRAWING NUMBER(S)

H-11829, H-11830, H-11831, H-11835, H-11836, H-11837

AREA

30,710 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                                    |
|---------------------|----------------------------------------------------|
| Oil and Grease      | None                                               |
| Cable               | Cable insulation                                   |
| Class A             | Wood, plywood, paper, clothing, trash, rags, desks |
| Charcoal            | Charcoal                                           |
| Plastics            | Plastic, respirators                               |
| Miscellaneous       | Rubber                                             |
| Miscellaneous Gases | None                                               |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 27,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                  |
|------------------------|------------------|
| Suppression (type)     | None             |
| Hose Stations          | H <sub>2</sub> O |
| Portable Extinguishers | CO <sub>2</sub>  |
| Detectors (type)       | None             |

FIRE RESISTANCE RATING

|                                     |                                                 |
|-------------------------------------|-------------------------------------------------|
| Actual                              |                                                 |
| - Walls                             | N,S,E-C/NR;W-C/3,NR                             |
| - Floors, Ceiling or Roof           | Concrete                                        |
| - Fixed Openings                    | SD/Outside;CH,SD/1205,2205;MH/1201,2201;OP/2203 |
| - Penetrations                      | See text                                        |
| - Doors (Fire-rated Class/Zone no.) | A/2203;B/1203;NR/1205,2205,Outside              |

## CONSTRUCTION

The boundaries of the area are the reactor building exterior walls which are constructed of prefabricated concrete panels with a minimum thickness of 8 in. The portions of the west wall adjacent to the reactor building stairwells are 3-h rated. A fire-rated Class B door is provided to area 1203 (stairwell). The airlock to the Unit 2 reactor building stairwell on the west side of this area contains a fire-rated Class A door to the stairwell (area 2203) and a nonrated door to the outside. The floor is the airtight refueling deck. The floor is considered an area boundary only for purposes of defining the open, common refueling floor, which is shared by both units, as a common area (see exemptions). The floor area includes the spent-fuel pool, dryer/separator storage pools, etc. The floor contains numerous sealed hatches and a stairwell in each unit, enclosed by nonrated concrete block "doghouses." Each "doghouse" contains a nonrated access door and two tornado vent assemblies in its roof. The roof of this area is concrete and contains numerous tornado vent assemblies. A nonrated vault-type door accesses the outside.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been exempted or evaluated as acceptable as is documented in appendix I of this document.

## FIRE PROTECTION

This area contains hose stations and portable CO<sub>2</sub> fire extinguishers. It contains no detection or automatic suppression systems.

## APPENDIX R EXEMPTIONS

Requests for exemption from the section III.G.2 requirement for complete 3-h barriers have been submitted as documented in appendix C of this document for:

- The openings from 0201 to the Unit 2 stairwell, zone 2203I.
- The fire-rated Class B door to the Unit 1 stairwell, zone 1203I.
- The nonrated refueling floor itself.
- The nonrated access stairwell "doghouses."

However, per the January 1987 NRC SER, no exemption is required, based on part 4 of NRC Generic Letter 86-10.

CONSEQUENCES OF DESIGN BASIS FIRE

This area contains an insignificant loading of combustible materials, but the design basis fire for the area is conservatively assumed to result in the loss of the safe shutdown circuits contained in the area. The low fire loading results in a maximum fire duration of less than 5 min. The floor itself is designated as a nonrated area boundary for the purpose of separating the common refuel floor from the balance of the Unit 1 and Unit 2 reactor buildings. The limiting propagation path for a design basis fire from another fire area adjacent to the floor is the nonrated "doghouses" enclosing the access stairwells. The limiting design basis fire for the doghouses would occur in area 1205 and is approximately 30 min in duration. The doghouses are constructed to easily withstand this exposure without loss of structural integrity. Any limited propagation of combustion products through the doghouses would be sufficiently diluted in the large volume of the refuel floor that no significant hazard exists. Therefore, the substantial construction of the reactor building exterior walls and roof and the refuel floor preclude the propagation of the design basis fire beyond the boundaries of this area. The available manual firefighting equipment in the area is adequate to extinguish any fires which might occur.

The area contains radioactive materials which, if involved in the design basis fire, are expected to remain confined to the area due to the substantial construction. No significant radioactive releases are considered credible for a fire in this area. A fire in this area will not affect the ability to achieve safe shutdown.

FIRE ZONE 0201A

This zone is considered safety related.

DESCRIPTION

Unit 1 Refueling Floor

Unit 1 Reactor Building - el 228 ft

DRAWING NUMBER(S)

H-11831

AREA

15,355 ft<sup>2</sup>

COMBUSTIBLES

Oil and Grease

None

Cable

None

Class A

Wood, plywood, paper, clothing, trash, rags,  
desks

Charcoal

None

Plastics

Plastic, respirators

Miscellaneous

Rubber

Miscellaneous Gases

None

DESIGN BASIS FIRE

Combustible Loading

Low

Max. Permissible Loading

20,000 Btu/ft<sup>2</sup>

Fire Duration

Less than 1 h

FIRE PROTECTION (AVAILABLE)

Suppression (type)

None

Hose Stations

H<sub>2</sub>O

Portable Extinguishers

CO<sub>2</sub>

Detectors (type)

None

FIRE RESISTANCE RATING

Actual

- Walls

E,N-C/NR;S-Open;W-C/3,NR,B/NR Wall Enclosing  
1205Y

- Floors, Ceiling or Roof

Concrete

- Fixed Openings

MH/1201;CH,SD/1205;OP/0201B;SD/Outside

- Penetrations

See area 0201 text

- Doors (Fire-rated Class/Zone no.)

B/1203;NR/1205

### CONSTRUCTION

The north, east, and west walls are prefabricated concrete panel reactor building exterior walls and nonrated, except the west wall from 5 ft south of column line R11 to column line R13 (adjacent to stairwell zone 1203I), which is 3-h rated. The south zone boundary is open to zone 0201B, the Unit 2 refueling floor. The floor is an airtight boundary constructed of reinforced concrete with closed concrete hatches to zones 1205Y, 1205U, and 1205X. There is a stairwell down to zone 1205Y, which is enclosed by a concrete block doghouse, containing a nonrated access door and tornado vent assemblies in the ceiling. The ceiling of this zone is reinforced concrete and contains tornado vent assemblies. There is a fire-rated Class B door in the west wall to zone 1203I. See area 0201 for penetrations.

### FIRE PROTECTION

This zone is not equipped with any detection or automatic suppression systems. This zone is provided with hose stations and portable CO<sub>2</sub> fire extinguishers for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains a negligible loading of combustible materials located in widely separated concentrations. The low fire loading, large dilution volume, and substantial construction preclude propagation of the design basis fire to any other zones or areas except adjacent zone 0201B which contains no safe shutdown equipment or circuits. The manual firefighting equipment in this zone is sufficient to extinguish the design basis fire.

FIRE ZONE 0201B

This zone is considered safety related.

DESCRIPTION

Refueling Floor

Unit 2 Reactor Building - el 228 ft

DRAWING NUMBER(S)

H-11837

AREA

15,355 ft<sup>2</sup>

COMBUSTIBLES

Oil and Grease

None

Cable

Cable insulation

Class A

Wood, plywood, clothing, trash, rags,  
desks

Charcoal

Charcoal

Plastics

Plastic, respirators

Miscellaneous

Rubber

Miscellaneous Gases

None

DESIGN BASIS FIRE

Combustible Loading

Low

Max. Permissible Loading

29,000 Btu/ft<sup>2</sup>

Fire Duration

Less than 1 h

FIRE PROTECTION (AVAILABLE)

Suppression (type)

None

Hose Stations

H<sub>2</sub>O

Portable Extinguishers

CO<sub>2</sub>

Detectors (type)

None

FIRE RESISTANCE RATING

Actual

- Walls

N-Open;E,S-C/NR;W-C/3,NR, B/NR Wall Enclosing  
2205Y

- Floors, Ceiling, or Roof

Concrete

- Fixed Openings

SD/Outside;OP/0201A,2203;CH,SD/2205;MH/2201

- Penetrations

See area 0201 text

- Doors (Fire-rated Class/Zone no.)

NR/2205, Outside



### CONSTRUCTION

The east, south, and part of the west wall are prefabricated concrete panel reactor building exterior walls and are nonrated. The remaining part of the west wall adjacent to the stairs (zone 2203I) is 3-h rated. There are large openings in the wall between this zone and zone 2203I (see exemptions in area 0201). The north zone boundary is open to zone 0201A, the Unit 1 refueling floor. The airlock to the Unit 2 reactor building stairwell on the west side of this zone contains a fire-rated Class A door to the stairwell (area 2203) and a nonrated door to the outside. The floor is an airtight boundary constructed of reinforced concrete with closed concrete hatches to zones 2205Y, 2205U, and 2205X. There is a stairwell down to zone 2205Y, which is enclosed by a concrete block doghouse containing a nonrated access door and tornado vent assemblies in the ceiling. The ceiling of this zone is reinforced concrete and also contains tornado vent assemblies. See area 0201 for penetrations.

### FIRE PROTECTION

The reactor building refueling floor is not equipped with any detection or automatic suppression systems. However, hose stations and CO<sub>2</sub> fire extinguishers are provided in this zone for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains a negligible loading of combustible materials located in widely separated concentrations. The low fire loading, large dilution volume, and substantial construction preclude propagation of the design basis fire to any areas or zones other than 0201A, which contains only Unit 1 path 1 safe shutdown circuits. The manual firefighting equipment in this zone is adequate to extinguish the design basis fire.

FIRE AREA 0401

This area is not considered safety related.

DESCRIPTION

Diesel Building Hallway

Diesel Generator Building - el 130 ft

DRAWING NUMBER(S)

H-11846

AREA

1,660 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil and Grease      | Lube oil         |
| Cable               | None             |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | Plastic, ladders |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |          |
|------------------------|----------|
| Suppression (type)     | None     |
| Hose Stations          | None     |
| Portable Extinguishers | Dry chem |
| Detectors (type)       | None     |

FIRE RESISTANCE RATING

|                                   |                                                                          |
|-----------------------------------|--------------------------------------------------------------------------|
| Actual                            |                                                                          |
| - Walls                           | N,E,S-C/NR;W-C/3                                                         |
| - Floors, Ceiling or Roof         | Concrete                                                                 |
| - Fixed Openings                  | None                                                                     |
| - Penetrations                    | See text                                                                 |
| - Doors (Fire-rated Class/Zone #) | 2-A/1403,1407,1411,2403,2407;A/1401,1405,1409,<br>2401,2405;2-NR/Outside |

### CONSTRUCTION

All the walls of the diesel generator building hallway are nonrated, reinforced concrete except the west wall which is reinforced concrete and a 3-h fire barrier. There are two nonrated fenced doors in the north and west walls of this area. There are ten fire-rated class A double doors in the west wall to provide access to the day tank rooms and the diesel generator rooms. Large fire-rated class A rollup doors are also provided into each engine room. Ventilation ducts with 3-h rated dampers designed to close automatically on CO<sub>2</sub> system actuation are provided into each day tank and engine room.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

No automatic or manual suppression system is provided in this area. However, portable dry chemical fire extinguishers are located in this area and portable CO<sub>2</sub> and dry chemical fire extinguishers are available from the adjacent diesel generator room areas. Hydrants are located immediately to the east and west of the diesel generator building.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

This area contains an insignificant loading of combustible materials. The negligible loading and substantial construction preclude propagation of the design basis fire beyond the boundaries of this area. The available firefighting equipment in this area and in the adjacent diesel rooms is adequate to extinguish any fires which might occur.

A fire in this area will not affect the ability to achieve safe shutdown or result in any release of radioactivity.

FIRE AREA 0501

This area is considered safety related.

DESCRIPTION

Intake Structure

North Boundary of Plant Site

DRAWING NUMBER(S)

H-11847

AREA

3,879 ft<sup>2</sup>

COMBUSTIBLES

Oil and Grease

Grease, lube oil

Cable

None

Class A

None

Charcoal

None

Plastics

Plastic, ladders

Miscellaneous

None

Miscellaneous Gases

None

DESIGN BASIS FIRE

Combustible Loading

Low

Max. Permissible Loading

8,541 Btu/ft<sup>2</sup>

Fire Duration

Less than 1 h

FIRE PROTECTION (AVAILABLE)

Suppression (type)

Water spray (PC) (see section 7.0)

Hose Stations

H<sub>2</sub>O

Portable Extinguishers

CO<sub>2</sub>

Detectors (type)

Thermal det (PC) (see section 7.0)

FIRE RESISTANCE RATING

Actual

- Walls

N,S,E,W-C/NR

- Floors, Ceiling or Roof

Floor-Concrete/Grating; Ceiling-Concrete

- Fixed Openings

None

- Penetrations

See text

- Doors (Fire-rated Class/Zone #)

2-NR/Outside

## CONSTRUCTION

The intake structure is constructed of nonrated, reinforced concrete with a grated "ceiling" over the strainer pit portion on the south side of the area. There are also grating sections between the main floor and the pump suction area. There are open penetrations throughout the walls and floors, particularly the north and south walls. There is a nonrated door located in the east wall and in the west wall. Steel spray barriers are installed between the plant service water and residual heat removal service water (RHRSW) sections of the building, between the Unit 1 and Unit 2 RHRSW sections and between each redundant set of pumps. This ensures that, in the event of a pump fire, the fixed automatic suppression system will cause no water damage to any adjacent, redundant pumps. Concrete curbs have been installed around each redundant set of RHRSW pumps for each unit to contain any oil spills to the localized area around each pump set. This area is separated by greater than 50 ft from all other areas of the plant and thus does not present an exposure fire hazard to any other areas. There are therefore no penetrations to adjacent areas.

## FIRE PROTECTION

Each of the 16 large pumps in this area is equipped with a fixed automatic water spray system, directly over the pump motors. As described above, spray barriers are installed between redundant paths of each unit's pumps to prevent water damage to the adjacent pumps in the event of a pump fire or inadvertent spray actuation. Thermal detectors are installed throughout the interior portion of the area, as are portable CO<sub>2</sub> fire extinguishers and hose stations for manual firefighting.

## APPENDIX R EXEMPTIONS

An exemption from the requirements of Section III.G.2 of Appendix R has been granted for this area per the April 1984 NRC Safety Evaluation Report based on existing fire protection and on a low combustible loading.

## CONSEQUENCES OF DESIGN BASIS FIRE

The technical requirements of Section III.G.2 are not met in this area because of the absence of an areawide automatic fire suppression system. In addition, the fire barriers between the pumps and MCCs are not 1-h fire rated.

The fire protection requirements of Section III.G of Appendix R represent an aggregate, comprised of active and passive components. They act synergistically to achieve an acceptable level of fire safety. In this area, active protection has been provided in the form of a complete thermal detection system. This system will provide reasonable assurance of early fire awareness and response by operating personnel and the plant fire brigade.

CONSEQUENCES OF DESIGN BASIS FIRE (continued)

Additional protection is provided in the river intake structure by the water spray system over the pump motors. Passive protection is achieved by physical separation of redundant divisions by open spaces without intervening combustibles, by partial height barriers to protect the safety components, or by complete 1-h fire rated barriers.

The fire loading in this location is low. Storage of any transient combustible materials in this area is procedurally prohibited. The primary combustibles are cable insulation in trays and oil in pump sumps. The majority of the cables have been provided with fire resistive wrap, specifically for the purpose of reducing the combustible loading in this area. Ignition of the oil in closed sumps is extremely unlikely. If the combustibles were totally consumed, they would produce a fire which corresponds to a fire severity of less than 15 min; but this fire would be unlikely to occur because of the existing level of fire protection.

Therefore, a fire, if one should occur, would not be significant and would not breach the protection provided by the physical fire barriers until the fire self-extinguished or was suppressed by the plant fire brigade. Hence, a fire in this area will not affect the ability to achieve safe shutdown or result in any release of radioactivity.

FIRE AREA 0601

This area is not considered safety related.

DESCRIPTION

Waste Gas Treatment Building  
East of the Power Block - el 106 ft

DRAWING NUMBER(S)

H-11855

AREA

8,640 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                        |
|---------------------|----------------------------------------|
| Oil and Grease      | Lube oil                               |
| Cable               | Cable insulation                       |
| Class A             | Wood, clothing, trash, cardboard, rags |
| Charcoal            | Charcoal                               |
| Plastics            | Plastic, ladders                       |
| Miscellaneous       | Rubber                                 |
| Miscellaneous Gases | None                                   |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Moderate                    |
| Max. Permissible Loading | 151,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                            |
|------------------------|----------------------------|
| Suppression (type)     | None                       |
| Hose Stations          | H <sub>2</sub> O           |
| Portable Extinguishers | CO <sub>2</sub> ; Dry chem |
| Detectors (type)       | None                       |

FIRE RESISTANCE RATING

|                                     |              |
|-------------------------------------|--------------|
| Actual                              |              |
| - Walls                             | N,S,E,W-C/NR |
| - Floors, Ceiling, or Roof          | Concrete     |
| - Fixed Openings                    | CH/Outside   |
| - Penetrations                      | See text     |
| - Doors (Fire-rated Class/Zone no.) | 3-NR/Outside |

### CONSTRUCTION

The waste gas treatment building is constructed of solid, reinforced concrete. The exterior walls are typically a minimum of 4 ft thick, except the portion of the west wall in the operating and access room, which is approximately 3 ft thick. All walls are nonrated but contain essentially no penetrations. The floor is concrete base slab, and the roof is reinforced, nonrated concrete. Three building access doors are provided, all nonrated in each of the north, west, and south walls. Since this area is not important to safe shutdown and is located away from any other areas, penetrations are not sealed.

### FIRE PROTECTION

This area contains no automatic suppression or detection systems. Manual firefighting equipment in this area includes hose stations, portable CO<sub>2</sub> fire extinguishers, and portable dry chemical fire extinguishers throughout the area.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire for this area is assumed to result in the loss of all equipment in the building. However, there is no safe shutdown equipment in the area. The exceptionally substantial construction of the building is expected to contain the design basis fire to this area. If propagation outside of the area did occur, the only other plant area within 50 ft of the building is the plant stack. The stack is approximately 40 ft away with few intervening combustibles and also contains no safe shutdown equipment. Thus, the design basis fire for this area will not have an adverse effect on the ability to safely shut down either unit or result in a significant release of radioactivity. In addition, it is expected that, if a fire did occur in the building, the plant operators would receive high temperature alarms in the main control room (MCR) for the various waste gas streams. Once the fire was detected in this way, prompt response by the plant fire brigade, using the available manual firefighting equipment, would quickly extinguish the fire.



FIRE\_ZONE 0601A

This zone is not considered safety related.

DESCRIPTION

Waste Gas Treatment Working Floors  
East of the Power Block - el 106 ft and 127 ft

DRAWING NUMBER(S)

H-11855

AREA

6,250 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                        |
|---------------------|----------------------------------------|
| Oil and Grease      | Lube oil                               |
| Cable               | Cable insulation                       |
| Class A             | Wood, clothing, trash, cardboard, rags |
| Charcoal            | None                                   |
| Plastics            | Plastic, ladders                       |
| Miscellaneous       | Rubber                                 |
| Miscellaneous Gases | None                                   |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 47,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                            |
|------------------------|----------------------------|
| Suppression (type)     | None                       |
| Hose Stations          | H <sub>2</sub> O           |
| Portable Extinguishers | CO <sub>2</sub> ; Dry chem |
| Detectors (type)       | None                       |

FIRE RESISTANCE RATING

|                                     |                         |
|-------------------------------------|-------------------------|
| Actual                              |                         |
| - Walls                             | N,S,E,W-C/NR            |
| - Floors, Ceiling, or Roof          | Concrete                |
| - Fixed Openings                    | None                    |
| - Penetrations                      | See area 0601 text      |
| - Doors (Fire-rated Class/Zone no.) | 3-NR/Outside;NR/0601B,C |

### CONSTRUCTION

The walls, floor, and ceiling of the zone are constructed of reinforced concrete of substantial thickness (typically 3 ft). Interior walls are similar but contain open floor and wall penetrations. The walls surrounding the charcoal adsorber rooms (zones 0601B and 0601C) are approximately 4 ft thick and contain very limited penetrations. The roof contains numerous equipment hatches closed with concrete hatch covers. The interior doors to zones 0601B, 0601C, and the building access doors located in the north, west, and south walls are nonrated. See area 0601 for penetrations.

### FIRE PROTECTION

This zone contains hose stations, portable CO<sub>2</sub> fire extinguishers, and portable dry chemical fire extinguishers. No automatic suppression or detection systems are contained in the zone.

### CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire for this zone primarily involves cable insulation which is predominately IEEE-383 qualified. The other combustible materials are concentrated in widely separated sections of the zone. The design basis fire is, therefore, expected to develop slowly and propagation from room to room is unlikely. Since no combustibles are concentrated near the adsorber room walls (the walls are of substantial construction with limited penetrations and the primary combustible in the adsorber rooms is charcoal contained in steel vessels), the design basis fire is not expected to propagate to the other zones of area 0601. Although the zone contains no detection system, it is expected that the MCR operators will become aware of any fire in this zone via high temperature alarms for the various waste gas streams routed through the zone. Detection of the fire in this way will result in prompt response to and extinguishment of the fire by the plant fire brigade using the available manual firefighting equipment.

FIRE ZONE 0601B

This zone is not considered safety related.

DESCRIPTION

Unit 1 Waste Gas Charcoal Adsorber  
Waste Gas Treatment Building - el 106 ft

DRAWING NUMBER(S)

H-11855

AREA

1,195 ft<sup>2</sup>

COMBUSTIBLES

|                     |          |
|---------------------|----------|
| Oil and Grease      | None     |
| Cable               | None     |
| Class A             | Wood     |
| Charcoal            | Charcoal |
| Plastics            | None     |
| Miscellaneous       | Rubber   |
| Miscellaneous Gases | None     |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | High                        |
| Max. Permissible Loading | 422,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Greater than 3 h            |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N,S,E,W-C/NR       |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | None               |
| - Penetrations                      | See area 0601 text |
| - Doors (Fire-rated Class/Zone no.) | NR/0601A           |

### CONSTRUCTION

This zone is constructed of reinforced, nonrated concrete, approximately 4 ft thick, with very limited penetrations. The floor is concrete base slab and the ceiling is reinforced concrete with concrete covered hatches for equipment removal. A nonrated door, enclosed in a concrete entranceway, provides access to the zone. See area 0601 for penetrations.

### FIRE PROTECTION

There is no fire protection equipment in this zone; however, manual firefighting equipment is located in adjacent zone 0601A.

### CONSEQUENCES OF DESIGN BASIS FIRE

The probability of ignition of the charcoal in the gas adsorber vessels is low since ignition sources exterior to the vessel must be of high enough energy to breach the steel vessel walls and high energy sources are not normally in this zone. A mechanistic self ignition of the charcoal caused by radioactive decay is not likely; however, assuming ignition, the rate of heat release would be low due to the burning characteristics of charcoal. There are six vessels in the zone. Full involvement of the charcoal can occur only by passing from one vessel to another in series. Each vessel houses sufficient charcoal to sustain a fire of approximately 1-h severity per the standard time-temperature curve. This exposure is not likely to breach the steel vessels. If a rupture of a vessel were to occur, the substantial construction enclosing the zone would preclude propagation to other zones. The ignition of the charcoal would result in a high temperature alarm condition for various waste gas streams. Action by the plant fire brigade could include isolation of the affected vessels by closing valves resulting in smothering the fire (preferred) or the introduction of water into the vessel to extinguish the fire.

FIRE ZONE 0601C

This zone is not considered safety related.

DESCRIPTION

Unit 2 Waste Gas Charcoal Adsorber  
Waste Gas Treatment Building - el 106 ft

DRAWING NUMBER(S)

H-11855

AREA

1,195 ft<sup>2</sup>

COMBUSTIBLES

|                     |          |
|---------------------|----------|
| Oil and Grease      | None     |
| Cable               | None     |
| Class A             | Wood     |
| Charcoal            | Charcoal |
| Plastics            | None     |
| Miscellaneous       | Rubber   |
| Miscellaneous Gases | None     |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | High                        |
| Max. Permissible Loading | 422,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Greater than 3 h            |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N,S,E,W-C/NR       |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | None               |
| - Penetrations                      | See area 0601 text |
| - Doors (Fire-rated Class/Zone no.) | NR/0601A           |

### CONSTRUCTION

This zone is constructed of reinforced, nonrated concrete, approximately 4 ft thick, with very limited penetrations. The floor is concrete base slab and the ceiling is reinforced concrete with concrete covered hatches for equipment removal. A nonrated door enclosed in a concrete entranceway provides access to the zone. See area 0601 for penetrations.

### FIRE PROTECTION

There is no fire protection equipment in this zone, however, manual firefighting equipment is located in adjacent zone 0601A.

### CONSEQUENCES OF DESIGN BASIS FIRE

The probability of ignition of the charcoal in the gas adsorber vessels is low since ignition sources exterior to the vessel must be of high enough energy to breach the steel vessel walls and high energy sources are not normally in this zone. A mechanistic self ignition of the charcoal caused by radioactive decay is not likely; however, assuming ignition, the rate of heat release would be low due to the burning characteristics of charcoal. There are 6 vessels in the zone. Full involvement of the charcoal can occur only by passing from one vessel to another in series. Each vessel houses sufficient charcoal to sustain a fire of approximately 1-h severity per the standard time-temperature curve. This exposure is not likely to breach the steel vessels. If a rupture of a vessel were to occur, the substantial construction enclosing the zone would preclude propagation to other zones. The ignition of the charcoal would result in a high temperature alarm condition for various waste gas streams. Action by the plant fire brigade could include isolation of the affected vessels by closing valves resulting in smothering the fire (preferred) or the introduction of water into the vessel to extinguish the fire.

FIRE AREA 0602

This area is not considered safety related.

DESCRIPTION

Main Stack

East of the Power Block - el 120 ft

DRAWING NUMBER(S)

H-11802

AREA

1,220 ft<sup>2</sup>

COMBUSTIBLES

|                     |                       |
|---------------------|-----------------------|
| Oil and Grease      | None                  |
| Cable               | None                  |
| Class A             | Clothing, trash, rags |
| Charcoal            | None                  |
| Plastics            | Plastic               |
| Miscellaneous       | Rubber                |
| Miscellaneous Gases | None                  |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                 |
|------------------------|-----------------|
| Suppression (type)     | None            |
| Hose Stations          | None            |
| Portable Extinguishers | CO <sub>2</sub> |
| Detectors (type)       | None            |

FIRE RESISTANCE RATING

|                                   |              |
|-----------------------------------|--------------|
| Actual                            |              |
| - Walls                           | N,S,E,W-C/NR |
| - Floors, Ceiling or Roof         | Concrete     |
| - Fixed Openings                  | OP/Outside   |
| - Penetrations                    | See text     |
| - Doors (Fire-rated Class/Zone #) | 3-NR/Outside |

### CONSTRUCTION

The walls are all nonrated, reinforced concrete. The floors at el 120 ft, 135 ft, and 150 ft are nonrated, reinforced concrete. A large nonrated rolling door is located in the west wall at el 120 ft. Open hatches on this elevation access the after filter area below the 120-ft floor. A nonrated entry door is provided in the south wall at the 120-ft el and in the east wall at the 135-ft el. Airtight hatches access the 150-ft shield roof from the 135-ft el. Since this area is not important to safe shutdown and is located away from any other plant areas, penetrations are not sealed.

### FIRE PROTECTION

Portable CO<sub>2</sub> fire extinguishers are located in this area. There are no automatic detection or suppression systems in this area. Yard hydrants are available near the area for manual firefighting.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

Due to the negligible combustible loading and the substantial, nonrated construction of the main stack structure, the design basis fire for this area is expected to remain confined to the area. The design basis fire is assumed to result in the loss of the equipment in the stack, but will not affect any other plant areas due to the large (Greater than 40 ft) separation of this area from other areas. The design basis fire for this area will not affect the ability to achieve safe shutdown or result in a significant release of radioactivity.



FIRE AREA 0603

This area is not considered safety related.

DESCRIPTION

Low Level Radwaste Facility  
Southeast Corner of Site

DRAWING NUMBER(S)

H-11802

AREA

16,400 ft<sup>2</sup>

COMBUSTIBLES

|                     |                              |
|---------------------|------------------------------|
| Oil and Grease      | Grease                       |
| Cable               | None                         |
| Class A             | Wood, paper, cardboard, rags |
| Charcoal            | None                         |
| Plastics            | Plastic, ladders             |
| Miscellaneous       | Rubber, solvent              |
| Miscellaneous Gases | Acetylene                    |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                 |
|------------------------|---------------------------------|
| Suppression (type)     | Dry Pipe (FC) (see section 7.0) |
| Hose Stations          | None - Hydrant to east of bldg  |
| Portable Extinguishers | CO <sub>2</sub> ; Dry chem      |
| Detectors (type)       | None                            |

FIRE RESISTANCE RATING

|                                     |              |
|-------------------------------------|--------------|
| Actual                              |              |
| - Walls                             | N,S,E,W-C/NR |
| - Floors, Ceiling or Roof           | Concrete     |
| - Fixed Openings                    | OD/Outside   |
| - Penetrations                      | See text     |
| - Doors (Fire-rated Class/Zone no.) | 2-NR/Outside |

### CONSTRUCTION

The low level radwaste facility is constructed with nonrated, reinforced concrete walls approximately 8 in thick. The floor is nonrated, reinforced concrete slab and the roof is constructed of precast concrete "T" panels equipped with ventilation dampers constructed of plastic over a wood frame. Large rollup, nonrated doors in the northeast and southeast corners of the building provide access to the outdoors. Since this area is not important to safe shutdown and is located away from any other plant areas, penetrations are not sealed.

### FIRE PROTECTION

This area is equipped with a full coverage automatic dry pipe sprinkler system. In addition, dry chemical and portable CO<sub>2</sub> fire extinguishers and a fire hydrant, located outside the building, are provided for manual firefighting.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

This area contains no Unit 1 or Unit 2 safe shutdown equipment and does not present a fire exposure hazard to any other plant areas. A fire in this area may involve the release of small amounts of radioactive material if the building perimeter was breached, due to surface contamination of the combustible contents. However, the automatic suppression system is expected to quickly extinguish any fire which may occur. A fire for this area is, therefore, unlikely to breach the building perimeter and will not affect the ability to achieve safe shutdown.

FIRE AREA 0702

This area is not considered safety related.

DESCRIPTION

Fire Pump House West Area  
Fire Pump House - el 128 ft

DRAWING NUMBER(S)

H-11848

AREA

950 ft<sup>2</sup>

COMBUSTIBLES

|                     |         |
|---------------------|---------|
| Oil and Grease      | None    |
| Cable               | None    |
| Class A             | None    |
| Charcoal            | None    |
| Plastics            | Plastic |
| Miscellaneous       | None    |
| Miscellaneous Gases | None    |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                 |
|------------------------|---------------------------------|
| Suppression (type)     | Wet pipe (FC) (see section 7.0) |
| Hose Stations          | None - Hydrants nearby          |
| Portable Extinguishers | CO <sub>2</sub> ; Dry chem      |
| Detectors (type)       | None                            |

FIRE RESISTANCE RATING

|                                   |                               |
|-----------------------------------|-------------------------------|
| Actual                            |                               |
| - Walls                           | N,S,W-S/NR;E-B/2              |
| - Floors, Ceiling or Roof         | Floor-Concrete; Ceiling-Steel |
| - Fixed Openings                  | N/A                           |
| - Penetrations                    | See text                      |
| - Doors (Fire-rated Class/Zone #) | A/0703;2-NR/Outside           |

### CONSTRUCTION

All area walls are nonrated sheet metal, except the east wall which is block and 2-h rated. The ceiling is nonrated sheet metal. The floor is nonrated concrete slab. There are two nonrated doors, one in each the north and west walls accessing the outside. There is a rollup, fire-rated Class A door in the east wall to area 0703.

Penetrations in the boundary between this area and area 0703 are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this fire hazard analysis.

### FIRE PROTECTION

This area is equipped with a full coverage automatic wet pipe suppression system. Portable CO<sub>2</sub> fire extinguishers are located in this area. In addition, portable dry chemical extinguishers are located in adjacent area 0703 and a fire hydrant is located to the south of the area, by the fire protection water tanks.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

This area contains a negligible combustible loading. Propagation of the design basis fire beyond the area boundaries is, therefore, not credible. Actuation of the automatic suppression system in this area will result in both local and MCR alarms to ensure prompt response by the plant fire brigade. The available automatic suppression system or manual firefighting equipment is adequate to extinguish the fire.

A design basis fire in this area will not affect the ability to achieve safe shutdown or result in any release of radioactivity.

FIRE ZONE 0702A

This zone is not considered safety related.

DESCRIPTION

Fire Pump House - Water Pump Room  
Fire Pump House - el 130 ft

DRAWING NUMBER(S)

H-11848

AREA

392 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil and Grease      | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                 |
|------------------------|---------------------------------|
| Suppression (type)     | Wet pipe (FC) (see section 7.0) |
| Hose Stations          | None                            |
| Portable Extinguishers | CO <sub>2</sub>                 |
| Detectors (type)       | None                            |

FIRE RESISTANCE RATING

|                                   |                               |
|-----------------------------------|-------------------------------|
| Actual                            |                               |
| - Walls                           | N,S,W-S/NR;E-B/NR             |
| - Floors, Ceiling or Roof         | Floor-Concrete; Ceiling-Steel |
| - Fixed Openings                  | OP/0702B                      |
| - Penetrations                    | See area 0702 text            |
| - Doors (Fire-rated Class/Zone #) | NR/0702B,Outside              |

### CONSTRUCTION

The north, south, and west walls are nonrated sheet metal walls. The east wall of this zone is concrete block, open at the top to adjacent zone 0702B, and is nonrated. There are nonrated doors in the east and west walls communicating with zone 0702B and the outside, respectively. Two windows are provided in the north and west wall. The floor is nonrated, reinforced concrete slab and the ceiling is nonrated sheet metal. See area 0702 for penetrations.

### FIRE PROTECTION

This zone is equipped with an automatic wet pipe sprinkler system. A portable CO<sub>2</sub> fire extinguisher is located this zone. There is no detection system in this zone.

### CONSEQUENCES OF DESIGN BASIS FIRE

The only fire postulated for this zone would involve a procedurally controlled amount of transient combustibles. The available manual firefighting equipment or automatic suppression system is adequate to extinguish any fire which may occur as a result of the introduction of transient combustibles to this zone.

FIRE ZONE 0702B

This zone is not considered safety related.

DESCRIPTION

Fire Pump House - West Fire Pump Room

Fire Pump House - el 130 ft

DRAWING NUMBER(S)

H-11848

AREA

588 ft<sup>2</sup>

COMBUSTIBLES

|                     |         |
|---------------------|---------|
| Oil and Grease      | None    |
| Cable               | None    |
| Class A             | None    |
| Charcoal            | None    |
| Plastics            | Plastic |
| Miscellaneous       | None    |
| Miscellaneous Gases | None    |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                 |
|------------------------|---------------------------------|
| Suppression (type)     | Wet pipe (FC) (see section 7.0) |
| Hose Stations          | None                            |
| Portable Extinguishers | CO <sub>2</sub>                 |
| Detectors (type)       | None                            |

FIRE RESISTANCE RATING

|                                   |                               |
|-----------------------------------|-------------------------------|
| Actual                            |                               |
| - Walls                           | N,S-S/NR;W-B/NR;E-B/2         |
| - Floors, Ceiling or Roof         | Floor-Concrete; Ceiling-Steel |
| - Fixed Openings                  | OP/Outside,0702A              |
| - Penetrations                    | See area 0702 text            |
| - Doors (Fire-rated Class/Zone #) | A/0703;NR/Outside,0702A       |

### CONSTRUCTION

The north and south walls of this zone are constructed of nonrated sheet metal. The east and west walls are concrete block walls. The west wall is nonrated and open at the top to adjacent zone 0702A. The east wall is 2-h rated and contains a fire-rated Class A rolling fire door to adjacent area 0703. A double nonrated door in the north wall and nonrated door in the west wall provide access to the outside and to zone 0702A, respectively. The floor is nonrated, reinforced concrete slab. The ceiling is nonrated sheet metal. See area 0702 for penetrations.

### FIRE PROTECTION

This zone is equipped with an automatic wet pipe sprinkler system and portable CO<sub>2</sub> fire extinguisher. There is no detection system in this zone.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible materials. The only significant fire postulated would be as a result of the introduction of procedurally controlled transient combustibles. The available suppression is adequate to extinguish any fire which may occur. The extremely low fire loading and automatic sprinkler system preclude propagation of a fire beyond the boundaries of this zone.



FIRE AREA 0703

This area is not considered safety related.

DESCRIPTION

Fire Pump House - Central Fire Pump Room

Fire Pump House - el 130 ft

DRAWING NUMBER(S)

H-11848

AREA

324 ft<sup>2</sup>

COMBUSTIBLES

|                     |                       |
|---------------------|-----------------------|
| Oil and Grease      | Diesel fuel, lube oil |
| Cable               | None                  |
| Class A             | None                  |
| Charcoal            | None                  |
| Plastics            | Battery cases         |
| Miscellaneous       | None                  |
| Miscellaneous Gases | None                  |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | High                        |
| Max. Permissible Loading | 278,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Greater than 3 h            |

FIRE PROTECTION (AVAILABLE)

|                        |                                 |
|------------------------|---------------------------------|
| Suppression (type)     | Wet pipe (FC) (see section 7.0) |
| Hose Stations          | None                            |
| Portable Extinguishers | Dry chem                        |
| Detectors (type)       | None                            |

FIRE RESISTANCE RATING

|                                   |                               |
|-----------------------------------|-------------------------------|
| Actual                            |                               |
| - Walls                           | N,S-S/NR;E,W-B/2              |
| - Floors, Ceiling or Roof         | Floor-Concrete; Ceiling-Steel |
| - Fixed Openings                  | None                          |
| - Penetrations                    | See text                      |
| - Doors (Fire-rated Class/Zone #) | A/0702,0704                   |

### CONSTRUCTION

The north and south walls of this area are constructed of nonrated sheet metal. The east and west walls are 2-h rated block fire barriers. A window is provided in the north wall. A fire-rated Class A rolling door is provided in each of the east and west walls to areas 0704 and 0702, respectively. The floor is nonrated, reinforced concrete slab and the ceiling is nonrated sheet metal.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this fire hazard analysis.

### FIRE PROTECTION

This area is equipped with a full coverage wet pipe suppression system and a portable dry chemical fire extinguisher. No automatic detection system is provided in this area. Manual firefighting equipment is also available in the adjacent areas and a yard fire hydrant is available to the south of the area.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire for this area is postulated to be a result of catastrophic failure of the diesel-driven fire pump. It conservatively assumes the involvement of the entire inventory of the diesel fuel oil tank (which is located outside this building). Since a fire of this type would not have an incipient stage, no early warning detection system is provided. Actuation of the full coverage wet pipe sprinkler system will provide MCR alarms to ensure prompt response by the plant fire brigade. The suppression system, along with the available manual firefighting equipment, is adequate to extinguish the fire. The fire barriers between fire pump trains preclude fire propagation damage to more than one train of fire pumps. A fire in this area will not affect the ability to achieve safe shutdown or result in any radioactive release.

FIRE AREA 0704

This area is not considered safety related.

DESCRIPTION

East Fire Pump Room  
Fire Pump House - el 130 ft

DRAWING NUMBER(S)

H-11848

AREA

510 ft<sup>2</sup>

COMBUSTIBLES

|                     |                       |
|---------------------|-----------------------|
| Oil and Grease      | Diesel fuel, lube oil |
| Cable               | None                  |
| Class A             | None                  |
| Charcoal            | None                  |
| Plastics            | Battery cases         |
| Miscellaneous       | None                  |
| Miscellaneous Gases | None                  |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Moderate                   |
| Max. Permissible Loading | 84,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                                 |
|------------------------|---------------------------------|
| Suppression (type)     | Wet pipe (FC) (see section 7.0) |
| Hose Stations          | None                            |
| Portable Extinguishers | Dry chem                        |
| Detectors (type)       | None                            |

FIRE RESISTANCE RATING

|                                   |                               |
|-----------------------------------|-------------------------------|
| Actual                            |                               |
| - Walls                           | N,S,E-S/NR;W-B/2              |
| - Floors, Ceiling or Roof         | Floor-Concrete; Ceiling-Steel |
| - Fixed Openings                  | None                          |
| - Penetrations                    | See text                      |
| - Doors (Fire-rated Class/Zone #) | A/0703;NR/Outside             |

### CONSTRUCTION

The north, south, and east walls of this area are nonrated sheet metal. The west wall is a 2-h-rated block wall separating this area from area 0703. A fire-rated Class A rolling door is provided in the west wall. A nonrated door in the east wall allows access to the outside. The floor is nonrated concrete slab and the ceiling is nonrated sheet metal.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this fire hazard analysis.

### FIRE PROTECTION

This area is equipped with a full coverage, wet pipe sprinkler system. No detection system is provided in the zone. A portable dry chemical fire extinguisher is located in this area for manual firefighting. Additional portable fire extinguishers are located in the adjacent areas and a yard fire hydrant is available to the south of the area.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire for this area is postulated to be a result of catastrophic failure of the diesel-driven fire pump. It conservatively assumes the involvement of the entire inventory of the diesel fuel oil tank (which is located outside this building). Since a fire of this type would not have an incipient stage, no early warning detection system is provided. Actuation of the full coverage wet pipe sprinkler system will provide MCR alarms to ensure prompt response by the plant fire brigade. The suppression system, along with the available manual firefighting equipment is adequate to extinguish the fire. The fire barriers between fire pump trains preclude fire propagation damage to more than one of the fire pumps. A fire in this area will not affect the ability to achieve safe shutdown or result in any radioactive release.

FIRE AREA 0801

This area is not considered safety related.

DESCRIPTION

Unit 1 and Unit 2 Main 500-kV Switchyard  
West Side of Site - el 130 ft

DRAWING NUMBER(S)

H-11802, H-11850

AREA

112,400 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil and Grease      | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |               |
|--------------------------|---------------|
| Combustible Loading      | Low           |
| Max. Permissible Loading | (See text)    |
| Fire Duration            | Less than 1 h |

FIRE PROTECTION (AVAILABLE)

|                        |                                                  |
|------------------------|--------------------------------------------------|
| Suppression (type)     | Water spray (PC) (see section 7.0)               |
| Hose Stations          | Hydrants                                         |
| Portable Extinguishers | CO <sub>2</sub> ; Dry chem                       |
| Detectors (type)       | Dry pilot (PC); smoke det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |          |
|-------------------------------------|----------|
| Actual                              |          |
| - Walls                             | See text |
| - Floors, Ceiling or Roof           | See text |
| - Fixed Openings                    | See text |
| - Penetrations                      | See text |
| - Doors (Fire-rated Class/Zone no.) | See text |

### CONSTRUCTION

This is an open yard area. The transformer oil is contained in the steel transformer cases. The balance of the area contains several small buildings, typically of sheet metal construction on slab. Since this is an open yard area, there are no penetrations.

### FIRE PROTECTION

The switchgear control building is equipped with smoke detection and the transformers are each equipped with fixed automatic water spray suppression systems. Both local and MCR alarms are provided to indicate suppression or detection system actuation or manual alarm. There are fire hydrants in the yard, a hose house in the southwest quadrant of the yard, portable CO<sub>2</sub> fire extinguishers in both the switchgear control building and the telephone building and a portable dry chemical fire extinguisher located in the valve house. In addition, gravel pits at each transformer are designed to contain any oil spills to a localized area.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

This area contains no safe shutdown or safety-related equipment and presents no exposure fire hazard to any safe shutdown or safety-related equipment. A fire in this area is not expected to propagate due to the combination of fixed suppression systems, gravel paving designed to contain any oil spills in a localized area, and large spatial separation from all other areas of the plant. The available manual firefighting equipment and high visibility of this area enhance the likelihood that any fires would be rapidly detected and extinguished by the plant fire brigade.

FIRE AREA 0802

This area is not considered safety related.

DESCRIPTION

Unit 1 and Unit 2 500-kV Switchyard  
South of the Power Block

DRAWING NUMBER(S)

H-11802, H-11850

AREA

Approximately 28,000 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil and Grease      | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |               |
|--------------------------|---------------|
| Combustible Loading      | Low           |
| Max. Permissible Loading | (See text)    |
| Fire Duration            | Less than 1 h |

FIRE PROTECTION (AVAILABLE)

|                        |                                    |
|------------------------|------------------------------------|
| Suppression (type)     | Water spray (PC) (see section 7.0) |
| Hose Stations          | Hydrants                           |
| Portable Extinguishers | CO <sub>2</sub> ; Dry chem         |
| Detectors (type)       | Dry pilot (PC) (see section 7.0)   |

FIRE RESISTANCE RATING

|                                   |          |
|-----------------------------------|----------|
| Actual                            |          |
| - Walls                           | See text |
| - Floors, Ceiling or Roof         | See text |
| - Fixed Openings                  | See text |
| - Penetrations                    | See text |
| - Doors (Fire-rated Class/Zone #) | See text |

### CONSTRUCTION

This is an open yard area. The transformer oil is contained in the steel transformer cases. The balance of the area contains two small buildings, sheet metal on slab construction. Since this is an open yard area, there are no penetrations.

### FIRE PROTECTION

The fire protection for this area consists of fixed automatic water spray suppression systems for each transformer, a portable CO<sub>2</sub> fire extinguisher for the switchgear control building, and a portable dry chemical fire extinguisher located in the valve house. Both local and MCR alarms are provided to indicate suppression system actuation or manual alarm. Fire hydrants are located immediately outside the area. In addition, gravel pits at each transformer are designed to contain any oil spills to a localized area.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

This area contains no safe shutdown or safety-related equipment and presents no exposure fire hazard to any safe shutdown or safety-related equipment. A fire in this area is not expected to propagate due to the combination of fixed suppression systems, gravel paving designed to contain any oil spills in a localized area, and large spatial separation from all other areas of the plant. The available manual firefighting equipment and high visibility of this area enhance the likelihood that any fires would be rapidly detected and extinguished by the plant fire brigade.



FIRE AREA 0803

This area is not considered safety related.

DESCRIPTION

Main Meteorological Tower

Located near the south boundary of the plant site

DRAWING NUMBER(S)

H-11802

AREA

64 ft<sup>2</sup>

COMBUSTIBLES

|                     |                        |
|---------------------|------------------------|
| Oil and Grease      | None                   |
| Cable               | None                   |
| Class A             | Wood, trash            |
| Charcoal            | None                   |
| Plastics            | Plastic, battery cases |
| Miscellaneous       | Paint, rubber          |
| Miscellaneous Gases | None                   |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 89,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |         |
|------------------------|---------|
| Suppression (type)     | None    |
| Hose Stations          | Hydrant |
| Portable Extinguishers | None    |
| Detectors (type)       | None    |

FIRE RESISTANCE RATING

|                                      |                           |
|--------------------------------------|---------------------------|
| Actual                               |                           |
| - Walls                              | N,S,E,W-S/NR              |
| - Floors, Ceiling or Roof            | Floor-Wood; Ceiling-Steel |
| - Fixed Openings                     | None                      |
| - Penetrations                       | See text                  |
| - Doors (Fire-rated Class/Zone no.#) | NR/Outside                |

### CONSTRUCTION

This area consists of the meteorological tower and an instrument shed. The tower is noncombustible and the shed is constructed of sheet metal siding over a wood frame with a plywood floor. The door is nonrated. Since this is an open yard area, there are no penetrations.

### FIRE PROTECTION

A hydrant for manual firefighting is located at the fire protection training area, northeast of this area.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

For a plant emergency involving a potential radioactive release, the meteorological towers would be used to monitor any release. A design basis fire for the meteorological tower would result in the loss of the tower's capabilities but would not involve a radioactive release. A design basis fire for any area involving a radioactive release would not affect the meteorological towers due to its greater than 50-ft spatial separation from all other areas of the plant. In addition, a backup meteorological tower is provided in the southeast portion of the plant site, sufficiently separated from this area to preclude damage to both towers from a single fire.

There are therefore no unacceptable consequences of a fire for this area.

FIRE AREA 0804

This area is not considered safety related.

DESCRIPTION

Backup Meteorological Tower

Located near the southeast corner of the plant site.

DRAWING NUMBER(S)

H-11802

AREA

100 ft<sup>2</sup>

COMBUSTIBLES

|                     |         |
|---------------------|---------|
| Oil and Grease      | None    |
| Cable               | None    |
| Class A             | Wood    |
| Charcoal            | None    |
| Plastics            | Plastic |
| Miscellaneous       | Rubber  |
| Miscellaneous Gases | None    |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 78,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |         |
|------------------------|---------|
| Suppression (type)     | None    |
| Hose Stations          | Hydrant |
| Portable Extinguishers | None    |
| Detectors (type)       | None    |

FIRE RESISTANCE RATING

|                                     |                           |
|-------------------------------------|---------------------------|
| Actual                              |                           |
| - Walls                             | N,S,E,W-S/NR              |
| - Floors, Ceiling or Roof           | Floor-Wood; Ceiling-Steel |
| - Fixed Openings                    | None                      |
| - Penetrations                      | See text                  |
| - Doors (Fire-rated Class/Zone no.) | NR/Outside                |

### CONSTRUCTION

The backup meteorological tower area contains both the tower and an instrument shed. The tower is noncombustible and the shed is constructed of sheet metal siding over a wood frame with a plywood floor. The door accessing the outside is nonrated. Since this is an open yard area, there are no penetrations.

### FIRE PROTECTION

A hydrant for manual firefighting is located to the east of the low level radwaste facility, south of this area.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

For a plant emergency involving a potential radioactive release, the meteorological towers would be used to monitor any release. A design basis fire for the meteorological tower would result in the loss of the tower's capabilities but would not involve a radioactive release. A design basis fire for any area involving a radioactive release would not affect the meteorological towers due to its greater than 50-ft spatial separation from all other areas of the plant. In addition, the main meteorological tower is provided in the south portion of the plant site, sufficiently separated from this area to preclude damage to both towers from a single fire.

There are therefore no unacceptable consequences of a fire for this area.

FIRE AREA 0805

This area is not considered safety related.

DESCRIPTION

Chlorine Building

Northeast of the Power Block - el 130 ft

DRAWING NUMBER(S)

H-11802

AREA

3,500 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                    |
|---------------------|------------------------------------|
| Oil and Grease      | Lube oil                           |
| Cable               | None                               |
| Class A             | Wood                               |
| Charcoal            | None                               |
| Plastics            | Plastic, respirators, PVC, ladders |
| Miscellaneous       | None                               |
| Miscellaneous Gases | None                               |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                 |
|------------------------|-----------------|
| Suppression (type)     | None            |
| Hose Stations          | Hydrants        |
| Portable Extinguishers | CO <sub>2</sub> |
| Detectors (type)       | None            |

FIRE RESISTANCE RATING

|                                     |                       |
|-------------------------------------|-----------------------|
| Actual                              |                       |
| - Walls                             | N,S,E,W-S/NR          |
| - Floors, Ceiling or Roof           | Concrete; Sheet Metal |
| - Fixed Openings                    | OP,OD/Outside         |
| - Penetrations                      | See text              |
| - Doors (Fire-rated Class/Zone no.) | 4-NR/Outside          |

### CONSTRUCTION

All the walls are sheet metal and nonrated. The floor is concrete slab and the roof is sheet metal. A concrete block wall divides the building lengthwise into two rooms. There are two nonrated doors in the south wall to the outside and two nonrated rollup doors in the north wall to the outside. Since this area is not important to safe shutdown and is located away from any other areas, penetrations are not sealed.

### FIRE PROTECTION

This area contains no automatic suppression or detection system. Manual firefighting equipment includes portable CO<sub>2</sub> fire extinguishers. Fire hydrants are located to the west of the area.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

Due to the negligible combustible loading, the lack of safety-related or safe shutdown equipment in this area and the greater than 50-ft spatial separation of this area from all other plant areas, the design basis fire for this area is expected to have no adverse impact on the ability to achieve and maintain safe shutdown or result in any radioactive release.

FIRE AREA 0806

This area is not considered safety related.

DESCRIPTION

Technical Support Center  
Within the Service Building Annex

DRAWING NUMBER(S)

H-11802

AREA

3,000 ft<sup>2</sup>

COMBUSTIBLES

|                     |                    |
|---------------------|--------------------|
| Oil and Grease      | None               |
| Cable               | Cable Insulation   |
| Class A             | Wood, paper, trash |
| Charcoal            | None               |
| Plastics            | Plastic            |
| Miscellaneous       | Rubber, carpet     |
| Miscellaneous Gases | None               |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                    |
|------------------------|------------------------------------|
| Suppression (type)     | Water spray (PC) (see section 7.0) |
| Hose Stations          | H <sub>2</sub> O-Outside           |
| Portable Extinguishers | CO <sub>2</sub>                    |
| Detectors (type)       | Heat det (PC) (see section 7.0)    |

FIRE RESISTANCE RATING

|                                     |                          |
|-------------------------------------|--------------------------|
| Actual                              |                          |
| - Walls                             | N,S,E,W-B/NR             |
| - Floors, Ceiling or Roof           | Concrete                 |
| - Fixed Openings                    | None                     |
| - Penetrations                      | See text                 |
| - Doors (Fire-rated Class/Zone no.) | NR/Outside, Service Bldg |

### CONSTRUCTION

The technical support center contains a large conference room, small offices, and storage rooms. The exterior and interior walls of the technical support center are constructed of concrete block. The floor is carpet covered concrete slab and the roof is concrete. There are two nonrated doors; one to the outside and one to the service building. Since this area is not important to safe shutdown and is located away from any other plant areas, penetrations are not sealed.

### FIRE PROTECTION

The technical support center contains portable CO<sub>2</sub> fire extinguishers. A hose station is located outside on the north wall of the building. The charcoal filters contained in this area are equipped with a wet pipe suppression system actuated by heat detectors in the filters.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire for this area is not expected to propagate outside the area due to the negligible combustible loading and substantial nonrated construction of the building. The technical support center is separated from other fire areas by approximately 30 ft of open space. The design basis fire will not adversely impact the ability to achieve or maintain safe shutdown or result in any release of radioactivity.



FIRE AREA 0807

This area is not considered safety related.

DESCRIPTION

Emergency Offsite Facility (EOF)  
Within the lower east Simulator Building

DRAWING NUMBER(S)

H-11802

AREA

8,450 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                     |
|---------------------|-------------------------------------|
| Oil and Grease      | None                                |
| Cable               | None                                |
| Class A             | Wood, paper, trash, cardboard, rags |
| Charcoal            | Charcoal                            |
| Plastics            | Plastic, ladders                    |
| Miscellaneous       | Rubber, solvent, carpet             |
| Miscellaneous Gases | None                                |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                 |
|------------------------|---------------------------------|
| Suppression (type)     | Wet pipe (FC) (see section 7.0) |
| Hose Stations          | None                            |
| Portable Extinguishers | CO <sub>2</sub> ; dry chem      |
| Detectors (type)       | None                            |

FIRE RESISTANCE RATING

|                                     |                      |
|-------------------------------------|----------------------|
| Actual                              |                      |
| - Walls                             | N,S,E,W-B/NR         |
| - Floors, Ceiling, or Roof          | Concrete             |
| - Fixed Openings                    | None                 |
| - Penetrations                      | See text             |
| - Doors (Fire-rated Class/Zone no.) | NR/Outside, Sim Bldg |

### CONSTRUCTION

The exterior walls of the area (simulator building exterior walls) are of masonry construction. All walls are nonrated. The floor is concrete base slab. The ceiling is nonrated. This area is contained in the ground floor of the simulator building. There are two nonrated doors; one to the outside and one to the simulator building. Since this area is not important to safe shutdown and is located away from any other plant areas, penetrations are not sealed.

### FIRE PROTECTION

This area (and the rest of the simulator building) is equipped with both a smoke detection system and an automatic wet pipe sprinkler system. Dry chemical and portable CO<sub>2</sub> fire extinguishers are also provided for manual firefighting.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

A fire in the EOF area would be rapidly detected by either the installed detection system or the high personnel traffic in the area and promptly extinguished by either the suppression system or the plant fire brigade using the available manual firefighting equipment. The EOF is located at a distance of greater than 50 ft from any other plant areas and contains no safe shutdown or safety-related circuits or components. A fire in the EOF area would, therefore, not adversely affect the ability of the plant to achieve and maintain safe shutdown or result in a significant release of radioactivity.

FIRE AREA 0808

The area is not considered safety related.

DESCRIPTION

Central Alarm Station (CAS) Building  
Adjacent to the Unit 2 Turbine Building West Wall

DRAWING NUMBER(S)

None

AREA

1,184 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil and Grease      | Diesel fuel      |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | Plastics         |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Medium                      |
| Max. Permissible Loading | 240,000 Btu/ft <sup>2</sup> |
| Fire Duration            | 3 h                         |

FIRE PROTECTION (AVAILABLE)

|                        |                                       |
|------------------------|---------------------------------------|
| Suppression (type)     | Wet pipe (see section 7.0)            |
| Hose Stations          | H <sub>2</sub> O-On Outside west wall |
| Portable Extinguishers | N/A                                   |
| Detectors (type)       | Smoke det (see section 7.0)           |

FIRE RESISTANCE RATING

|                                     |                                       |
|-------------------------------------|---------------------------------------|
| Actual                              |                                       |
| - Walls                             | N,S,E,W-C/NR                          |
| - Floors, Ceiling or Roof           | Concrete                              |
| - Fixed Openings                    | OP/Outside (assumed for diesel vent.) |
| - Penetrations                      | See text                              |
| - Doors (Fire-rated Class/Zone no.) | NR/Outside                            |

### CONSTRUCTION

The CAS building is constructed of reinforced, nonrated concrete. A single nonrated access door is provided in the west wall. A minimum of 7 ½ ft of clear open area surrounds the building. The nearest structure is the Unit 2 turbine building wall (at 7 ½ ft). The nearest penetration in this wall is located approximately 30 ft away. Since this area is not important to safe shutdown and is located away from any other plant areas, penetrations are not sealed.

### FIRE PROTECTION

This area contains both smoke detectors and an automatic wet pipe sprinkler system. Hose stations are located immediately outside the area.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

The assumed design basis fire is not considered able to breach the area boundaries due to the moderate combustible loading and the substantial construction of the building. The CAS building is continually staffed and smoke detection is provided which alarms both locally and in the MCR. A fire, therefore, is expected to be discovered in its incipient stages for prompt extinguishment by the plant fire brigade using the available manual firefighting equipment. The wet pipe sprinkler system provides primary automatic suppression of a fire in this area. A fire in this area does not affect the ability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 0809

This area is not considered safety related.

DESCRIPTION

Hydrogen and Oxygen Storage Facility  
Southeast Corner of Site

DRAWING NUMBER(S)

H-11802

AREA

5600 ft<sup>2</sup> hydrogen fenced enclosure  
1140 ft<sup>2</sup> oxygen fenced enclosure

COMBUSTIBLES

|                     |                                               |
|---------------------|-----------------------------------------------|
| Oil and Grease      | None                                          |
| Cable               | None                                          |
| Class A             | None                                          |
| Charcoal            | None                                          |
| Plastics            | None                                          |
| Miscellaneous       | 5,250 lb (9,000 gal) liquid hydrogen          |
| Miscellaneous Gases | 322 lb (62,000 ft <sup>3</sup> ) hydrogen gas |

DESIGN BASIS FIRE

|                          |               |
|--------------------------|---------------|
| Combustible Loading      | Low           |
| Max. Permissible Loading | (See text)    |
| Fire Duration            | Less than 1 h |

FIRE PROTECTION AVAILABLE

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |      |
|-----------------------------------|------|
| Actual                            |      |
| - Walls                           | None |
| - Floors, Ceiling or Roof         | None |
| - Fixed Openings                  | None |
| - Penetrations                    | None |
| - Doors (Fire-rated Class/Zone #) | None |

### CONSTRUCTION

This is an open yard area with separate fenced enclosures for hydrogen and oxygen. The hydrogen enclosure contains a 9000-gal liquid hydrogen storage tank and a 500-gal liquid nitrogen tank as well as pump, valve, and control equipment. The oxygen enclosure contains a 9000-gal liquid oxygen storage tank and other miscellaneous equipment. A 100-ft minimum separation distance is maintained between the hydrogen and oxygen tanks. Truck barriers have been installed for protection in case of vehicular accidents.

### FIRE PROTECTION

There are currently no means of fire detection or suppression at this facility. Separation criteria (1000 ft from the nearest safety-related structure) are designed to minimize any impact of fire on safety-related areas.

### APPENDIX "R" EXEMPTIONS

None

### CONSEQUENCES OF DESIGN BASIS FIRE

This area contains no safe shutdown or safety-related equipment and presents no exposure fire hazard to any safe shutdown or safety-related equipment. A fire in this area is not expected to propagate toward any plant structures within the protected area or nearby cooling towers. However, brush fires could spread through the wooded areas to the east, south, and west of the facility causing environmental damage and threatening nonessential plant support facilities. The low level radwaste building, located south of the hydrogen and oxygen facility, is protected by a fire hydrant.

FIRE AREA 0810

This area is not considered safety related.

DESCRIPTION

Spent Fuel Storage Facility

DRAWING NUMBER(S)

H-11863

AREA

68,154 ft<sup>2</sup>

COMBUSTIBLES

|                     |                       |
|---------------------|-----------------------|
| Oil and Grease      | Diesel fuel, lube oil |
| Cable               | None                  |
| Class A             | None                  |
| Charcoal            | None                  |
| Plastics            | None                  |
| Miscellaneous       | None                  |
| Miscellaneous Gases | None                  |

DESIGN BASIS FIRE

|                          |               |
|--------------------------|---------------|
| Combustible Loading      | Low           |
| Max. Permissible Loading | (See text)    |
| Fire Duration            | Less than 1 h |

FIRE PROTECTION AVAILABLE

|                        |          |
|------------------------|----------|
| Suppression (type)     | None     |
| Hose Stations          | Hydrants |
| Portable Extinguishers | Dry Chem |
| Detectors (type)       | None     |

FIRE RESISTANCE RATING

|                                   |      |
|-----------------------------------|------|
| Actual                            |      |
| - Walls                           | None |
| - Floors, Ceiling or Roof         | None |
| - Fixed Openings                  | None |
| - Penetrations                    | None |
| - Doors (Fire-rated Class/Zone #) | None |

### CONSTRUCTION

The spent fuel storage facility is an open-yard area enclosed within an isolation fence defining the fire area boundary. The isolation fence is enclosed within a security fence. Gates in the security and isolation fences at the northwest corner of the area provide access to and from the area. The surface area is prepared for the storage of dry cask fuel storage cylinders and consists of concrete pads surrounded by firmly packed earth. A small diesel generator is located at the northeast corner of the area.

### FIRE PROTECTION

A hydrant is located near the southeast corner of the Thallman switchyard approximately 1150 ft north of this fire area. Another hydrant is located approximately 650 ft west at the fire protection training grounds. A portable dry chemical extinguisher is located within the fire area near the access gate.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

This area contains no safe shutdown or safety-related equipment and presents no exposure fire hazard to any safe shutdown or safety-related equipment. A fire in this area is not expected to propagate toward any plant structures within the protected area.



## **11.0 Unit 1 Areas Fire Hazard Analysis**

FIRE AREA 1003

This area is considered safety related.

DESCRIPTION

Oil Storage Tank Room  
Control Building - el 112 ft<sup>2</sup>

DRAWING NUMBER(S)

H-11812

AREA

648 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | Lube oil         |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | None             |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                               |
|--------------------------|-------------------------------|
| Combustible Loading      | High                          |
| Max. Permissible Loading | 5,170,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Greater than 3 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | Deluge (FC) (see section 7.0)    |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Dry pilot (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N, E, W-C/3; S-B/3 |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | None               |
| - Penetrations                      | See text           |
| - Doors (Fire-rated Class/Zone No.) | A/0001             |

### CONSTRUCTION

The north, south and west walls are 3-h-rated, reinforced concrete. The east wall is 3-h-rated block and contains a doorway to area 0001 with fire-rated Class A sliding fire doors both on the inside and outside of the wall. The bottom of the door opening is approximately 5 ft above floor level to ensure that any oil spills are contained within the area. The floor is nonrated, reinforced concrete slab. The ceiling is 3-h-rated, reinforced concrete.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with a full coverage, automatic deluge suppression system activated by the dry pilot portion of the system. Activation of the deluge system will result in both local and main control room (MCR) alarms. This area contains no manual firefighting equipment. However, portable CO<sub>2</sub> and dry chemical extinguishers, a hose station, and a portable oil emulsion foam unit are available in adjacent area 0001.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

The only significant fire which can be postulated for this area would be as a result of the rupture of the oil storage tank or piping. Such a fire would not have an incipient stage, thus an early warning detection system is not provided. The full coverage deluge system provides for rapid extinguishment of any fire which may occur. The fire would be oxygen limited, which would retard the rate of combustion until extinguishment. Rapid response of the plant fire brigade would be expected to protect sensitive equipment outside the fire area. The rated walls will contain the fire until the fire can be extinguished.

A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radiation.

FIRE AREA 1004

This area is considered safety related.

DESCRIPTION

Station Battery Room 1A  
Control Building - el 112 ft

DRAWING NUMBER(S)

H-11811, H-11812

AREA

766 ft<sup>2</sup>

COMBUSTIBLES

|                     |                        |
|---------------------|------------------------|
| Oil & Grease        | None                   |
| Cable               | Cable insulation       |
| Class A             | None                   |
| Charcoal            | None                   |
| Plastics            | Plastic, battery cases |
| Miscellaneous       | None                   |
| Miscellaneous Gases | None                   |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N-C/3; S, E, W-B/3 |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | None               |
| - Penetrations                      | See text           |
| - Doors (Fire-rated Class/Zone No.) | WX/0001            |

## CONSTRUCTION

The north wall is reinforced concrete and is 3-h rated. The south, east, and west walls are block and are 3-h rated. The floor is reinforced concrete base slab and the ceiling is 3-h-rated, reinforced concrete. There is a nonrated watertight door in the south wall to area 0001 (see exemptions).

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

## FIRE PROTECTION

This area is equipped with full smoke detector coverage which alarms both locally and in the MCR. There is no automatic suppression system or manual firefighting equipment in this area. There are hose stations and portable CO<sub>2</sub> and dry chemical fire extinguishers in adjacent area 0001.

## APPENDIX R EXEMPTIONS

An exemption from the Section III.G.2 requirement for a complete 3-h-rated barrier, was granted for the nonrated, watertight door by the April 1984 NRC Safety Evaluation Report (SER).

## CONSEQUENCES OF DESIGN BASIS FIRE

A design basis fire in this area would consist of plastic battery cases. Hydrogen generated by the batteries is maintained at insignificant levels by the ventilation system. See calculation 1380-027-C009 in appendix L of this document for further details. The smoke detectors will alarm both in the MCR and locally to ensure prompt response by the plant fire brigade. The rated walls and substantial door construction, along with the available manual firefighting equipment from adjacent area 0001, preclude the propagation of this fire to other areas.

A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 1005

This area is considered safety related.

DESCRIPTION

Station Battery Room 1B  
Control Building - el 112 ft

DRAWING NUMBER(S)

H-11811

AREA

828 ft<sup>2</sup>

COMBUSTIBLES

|                     |                        |
|---------------------|------------------------|
| Oil & Grease        | None                   |
| Cable               | Cable insulation       |
| Class A             | None                   |
| Charcoal            | None                   |
| Plastics            | Plastic, battery cases |
| Miscellaneous       | None                   |
| Miscellaneous Gases | None                   |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                       |
|-------------------------------------|-----------------------|
| Actual                              |                       |
| - Walls                             | N-C, B/3; S, E, W-B/3 |
| - Floors, Ceiling or Roof           | Concrete              |
| - Fixed Openings                    | None                  |
| - Penetrations                      | See text              |
| - Doors (Fire-rated Class/Zone No.) | WX/0001               |

### CONSTRUCTION

The north wall is partially reinforced concrete and partially block and is 3-h rated. The south, east and west walls are block with a 3-h rating. The floor is nonrated, reinforced concrete base slab. The ceiling is 3-h-rated, reinforced concrete. There is a nonrated watertight door in the south wall to area 0001 (see exemptions).

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full smoke detector coverage which alarms both locally and in the MCR. There is no automatic suppression system or manual firefighting equipment in this area. However, there are portable CO<sub>2</sub> and dry chemical fire extinguishers and hose stations available to this area from adjacent areas 0001 and 0007.

### APPENDIX R EXEMPTIONS

An exemption from the Section III.G.2 requirement for complete 3-h-rated barriers was granted for the nonrated, watertight door per the April 1984 NRC SER.

### CONSEQUENCES OF DESIGN BASIS FIRE

A design basis fire in this area would involve primarily plastic battery cases and cable insulation. Hydrogen generated by the batteries is maintained at insignificant concentrations by the dedicated ventilation system. See calculation 1380-027-C009 in appendix L of this document for further details. The installed smoke detectors are expected to provide early fire warning both to the MCR and locally to ensure prompt response by the plant fire brigade. The rated walls and substantial door construction, along with the available firefighting equipment preclude propagation of a fire beyond the area boundaries.

A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 1006

This area is considered safety related.

DESCRIPTION

Unit 1 Water Analysis Room  
Control Building - el 112 ft

DRAWING NUMBER(S)

H-11811

AREA

659 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | Paper            |
| Charcoal            | None             |
| Plastics            | Plastic, PVC     |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | Dimethylamine    |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 59,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | S, E-B/3, N, W-B/3 |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | None               |
| - Penetrations                      | See text           |
| - Doors (Fire-rated Class/Zone No.) | A/0007A            |



### CONSTRUCTION

The walls of this area are constructed of concrete block. The north, west, south, and east walls are 3-h rated. A 3-h-rated door to zone 0007A is provided in the east wall. The floor is reinforced concrete base slab and the ceiling is 3-h-rated, reinforced concrete. Penetrations in the area boundaries are equal to or greater than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area contains no suppression or detection systems. Portable CO<sub>2</sub> fire extinguishers and a hose station are located in the hall outside this area (zone 0007A).

### CONSEQUENCES OF DESIGN BASIS FIRE

The primary combustible in this area is cable insulation which is predominantly IEEE-383 qualified. The design basis fire for this zone is, therefore, expected to develop slowly. Propagation of the design basis fire from this area to zone 0007A is unlikely due to the rated walls with sealed penetrations. If propagation occurs, the fire is expected to be rapidly detected by the detection system in zone 0007A (smoke and linear thermal detection) extinguished by the plant fire brigade using the manual firefighting equipment in zone 0007A.

FIRE AREA 1008

This area is considered safety related.

DESCRIPTION

Unit 1 AC Inverter Room  
Control Building - el 112 ft

DRAWING NUMBER(S)

H-11811

AREA

406 ft<sup>2</sup>

COMBUSTIBLES

|                     |                        |
|---------------------|------------------------|
| Oil & Grease        | None                   |
| Cable               | None                   |
| Class A             | None                   |
| Charcoal            | None                   |
| Plastics            | Plastic, battery cases |
| Miscellaneous       | None                   |
| Miscellaneous Gases | None                   |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                |
|-------------------------------------|----------------|
| Actual                              |                |
| - Walls                             | N, S, E, W-B/3 |
| - Floors, Ceiling or Roof           | Concrete       |
| - Fixed Openings                    | None           |
| - Penetrations                      | See text       |
| - Doors (Fire-rated Class/Zone No.) | A/0001         |

### CONSTRUCTION

All walls are block and are 3-h rated. The ceiling is reinforced concrete and 3-h rated. The floor is nonrated, reinforced concrete base slab. There is a fire-rated Class A door in the north wall to area 0001.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full smoke detector coverage which alarms both locally and in the MCR. There is no automatic suppression coverage or manual firefighting equipment in this area. However, hose stations and portable CO<sub>2</sub> and dry chemical fire extinguishers are available in adjacent area 0001.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

The available smoke detectors in this area are expected to provide an early warning alarm, both locally and in the MCR to ensure prompt response by the plant fire brigade. The low fire loading, rated construction, and available manual firefighting equipment located in area 0001 preclude propagation of a fire to adjacent areas.

A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 1009

This area is considered safety related.

DESCRIPTION

RPS Battery Room South  
Control Building - el 112 ft

DRAWING NUMBER(S)

H-11811

AREA

130 ft<sup>2</sup>

COMBUSTIBLES

|                     |               |
|---------------------|---------------|
| Oil & Grease        | None          |
| Cable               | None          |
| Class A             | None          |
| Charcoal            | None          |
| Plastics            | Battery cases |
| Miscellaneous       | None          |
| Miscellaneous Gases | None          |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                |
|-------------------------------------|----------------|
| Actual                              |                |
| - Walls                             | N, S, E, W-B/3 |
| - Floors, Ceiling or Roof           | Concrete       |
| - Fixed Openings                    | None           |
| - Penetrations                      | See text       |
| - Doors (Fire-rated Class/Zone No.) | A/0001         |

### CONSTRUCTION

All the walls are block and 3-h rated. The ceiling is concrete and 3-h rated. The floor is nonrated, reinforced concrete base slab. There is a fire-rated Class A door in the west wall to area 0001.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full smoke detector coverage which alarms both locally and in the MCR. This area has no automatic suppression system or manual firefighting equipment. There are, however, hose stations and portable CO<sub>2</sub> and dry chemical fire extinguishers available in adjacent area 0001.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

Due to the negligible quantity of fixed combustibles, a significant fire in this area is not considered credible. Hydrogen generated by the batteries is maintained at insignificant concentrations by the dedicated ventilation system. See calculation 1380-027-C009 in appendix L of this document for further details. Should a fire occur, smoke detectors will provide an early warning alarm both locally and to the MCR to ensure prompt response by the plant fire brigade. The low fire loading, rated construction, and the available firefighting equipment in area 0001 preclude the propagation of a fire outside area 1009.

A fire in this area will not affect the capability to achieve safe shutdown or result in the significant release of radioactivity.

FIRE AREA 1010

This area is considered safety related.

DESCRIPTION

RPS Battery North Room  
Control Building - el 112 ft

DRAWING NUMBER(S)

H-11811

AREA

130 ft<sup>2</sup>

COMBUSTIBLES

|                     |               |
|---------------------|---------------|
| Oil & Grease        | None          |
| Cable               | None          |
| Class A             | None          |
| Charcoal            | None          |
| Plastics            | Battery cases |
| Miscellaneous       | None          |
| Miscellaneous Gases | None          |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                |
|-------------------------------------|----------------|
| Actual                              |                |
| - Walls                             | N, S, E, W-B/3 |
| - Floors, Ceiling or Roof           | Concrete       |
| - Fixed Openings                    | None           |
| - Penetrations                      | See text       |
| - Doors (Fire-rated Class/Zone No.) | A/0001         |

### CONSTRUCTION

All the walls are block and 3-h rated. The ceiling is reinforced concrete and 3-h rated. The floor is nonrated, reinforced concrete base slab. There is a fire-rated Class A door in the west wall to area 0001.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full smoke detector coverage which provides alarms both locally and in the MCR. There is no automatic suppression system or manual firefighting equipment in this area. However, hose stations and portable CO<sub>2</sub> and dry chemical fire extinguishers are available in adjacent area 0001.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

Due to the negligible quantity of fixed combustibles, a significant fire in this area is not considered credible. Hydrogen generated by the batteries is maintained at insignificant concentrations by the dedicated ventilation system. See calculation 1380-027-C009 in appendix L of this document for further details. The available smoke detectors in this area are expected to provide an early warning alarm, both locally and to the MCR to ensure prompt response by the plant fire brigade. The low fire loading, rated construction, and available firefighting equipment located in area 0001 preclude propagation of a fire to adjacent areas.

A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 1013

This area is considered safety related.

DESCRIPTION

RPS MG Set Room

Control Building - el 130 ft

DRAWING NUMBER(S)

H-11815

AREA

276 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | Grease           |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                |
|-------------------------------------|----------------|
| Actual                              |                |
| - Walls                             | N, S, E, W-B/3 |
| - Floors, Ceiling or Roof           | Concrete       |
| - Fixed Openings                    | None           |
| - Penetrations                      | See text       |
| - Doors (Fire-rated Class/Zone No.) | A/0014, 0040   |



### CONSTRUCTION

All walls are concrete block and 3-h rated. The ceiling and floor are reinforced concrete and 3-h rated. There are two fire-rated Class A doors; one in the east wall to area 0040 and one in the west wall to area 0014.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in Appendix I of this document.

### FIRE PROTECTION

This area is equipped with full smoke detector coverage which alarms both locally and in the MCR to ensure prompt response by the plant fire brigade. There is no automatic suppression system or manual firefighting equipment in this area, however, hose stations and portable CO<sub>2</sub> and dry chemical fire extinguishers are located in adjacent area 0014.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

In the event of a design basis fire in this area, the installed smoke detectors will alert the MCR to ensure prompt response by the plant fire brigade. Available firefighting equipment in area 0014, along with 3-h-rated wall and door construction, preclude the propagation of a fire to other areas. A fire in this area will not affect safe shutdown capability or result in a significant release of radioactivity.

FIRE AREA 1015

This area is considered safety related.

DESCRIPTION

Unit 1 Annunciator Room  
Control Building - el 130 ft

DRAWING NUMBER(S)

H-11815

AREA

200 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                |
|-------------------------------------|----------------|
| Actual                              |                |
| - Walls                             | N, S, E, W-B/3 |
| - Floors, Ceiling or Roof           | Concrete       |
| - Fixed Openings                    | None           |
| - Penetrations                      | See text       |
| - Doors (Fire-rated Class/Zone No.) | A/0014         |

### CONSTRUCTION

All walls are concrete block and are 3-h rated. The floor and ceiling are 3-h-rated, reinforced concrete. A fire-rated Class A sliding door to area 0014 is located in the north wall.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full smoke detector coverage which alarms both locally and in the MCR to ensure prompt response by the plant fire brigade. There is no automatic suppression system or manual firefighting equipment in this area. There are hose stations and portable CO<sub>2</sub> and dry chemical fire extinguishers in adjacent area 0014.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

In the event of a fire in this area, the installed smoke detectors will alarm, both locally and in the MCR to ensure prompt response by the plant fire brigade. The rated construction, along with the available manual firefighting equipment from area 0014, precludes the propagation of a fire outside this area. A fire in this area will not affect the capability to achieve and maintain safe shutdown or result in a significant release of radioactivity.

FIRE AREA 1016

This area is considered safety related.

DESCRIPTION

West 600-V Switchgear Room  
Control Building - el 130 ft

DRAWING NUMBER(S)

H-11814

AREA

462 ft<sup>2</sup>

COMBUSTIBLES

|                     |                          |
|---------------------|--------------------------|
| Oil & Grease        | Transformer silicone oil |
| Cable               | Cable insulation         |
| Class A             | None                     |
| Charcoal            | None                     |
| Plastics            | Plastic                  |
| Miscellaneous       | None                     |
| Miscellaneous Gases | None                     |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                           |
|-------------------------------------|---------------------------|
| Actual                              |                           |
| - Walls                             | N-C/3; E, S-B/2; W-B, H/3 |
| - Floors, Ceiling or Roof           | Concrete                  |
| - Fixed Openings                    | None                      |
| - Penetrations                      | See text                  |
| - Doors (Fire-rated Class/Zone No.) | A/0014                    |

### CONSTRUCTION

The north wall is concrete and 3-h rated. The west wall is block and is 3-h rated. The south and east walls are block and 2-h rated (see exemptions). The floor and ceiling are reinforced concrete and are 3-h rated. The south wall contains a fire-rated Class A sliding door to area 0014.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full smoke detector coverage which alarms both locally and in the MCR to ensure prompt response by the plant fire brigade. There is no automatic suppression system or manual firefighting equipment in this area. There are H<sub>2</sub>O hose stations and portable CO<sub>2</sub> and dry chemical fire extinguishers in adjacent area 0014.

### APPENDIX R EXEMPTIONS

This area is exempt from the Section III.G.2 requirements for an areawide suppression system and the 2-h-rated boundaries of the area are exempted from the requirement for complete 3-h-rated barriers per the April 1984 NRC SER.

### CONSEQUENCES OF DESIGN BASIS FIRE

In the event of a design basis fire in this area, the available smoke detectors will provide an early warning alarm, both locally and in the MCR to ensure prompt response by the plant fire brigade. The rated construction, along with available firefighting equipment from area 0014, precludes the propagation of a fire outside this area. A fire in this area will not affect the capability to achieve and maintain safe shutdown or result in a significant release of radioactivity.

FIRE AREA 1017

This area is considered safety related.

DESCRIPTION

East 600-V Switchgear Room  
Control Building - el 130 ft

DRAWING NUMBER(S)

H-11814

AREA

462 ft<sup>2</sup>

COMBUSTIBLES

|                     |                          |
|---------------------|--------------------------|
| Oil & Grease        | Transformer silicone oil |
| Cable               | Cable insulation         |
| Class A             | None                     |
| Charcoal            | None                     |
| Plastics            | Plastic                  |
| Miscellaneous       | None                     |
| Miscellaneous Gases | None                     |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                        |
|-------------------------------------|------------------------|
| Actual                              |                        |
| - Walls                             | N-C/3; W, S-B/2; E-B/3 |
| - Floors, Ceiling or Roof           | Concrete               |
| - Fixed Openings                    | None                   |
| - Penetrations                      | See text               |
| - Doors (Fire-rated Class/Zone No.) | A/0014                 |

### CONSTRUCTION

The north wall is 3-h-rated, reinforced concrete. The east, west, and south walls are block. The east wall is 3-h rated and the west and south walls are 2-h rated (see exemptions). The ceiling and floor are reinforced concrete and are 3-h rated. There is a fire-rated Class A sliding door in the south wall to area 0014. Also, there is a 1.5-in.-high oil retaining curb in the doorway of fire door 1L48-C31.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full smoke detector coverage which provides alarms both locally and in the MCR to ensure prompt response by the plant fire brigade. There is no automatic suppression system or manual firefighting equipment in this area. There are H<sub>2</sub>O hose reels and portable CO<sub>2</sub> and dry chemical fire extinguishers in adjacent area 0014.

### APPENDIX R EXEMPTIONS

An exemption from the Section III.G.2 requirement for complete 3-h-rated fire barriers was granted for the 2-h-rated walls in this area per the April 1984 NRC SER.

### CONSEQUENCES OF DESIGN BASIS FIRE

In the event of a fire in this area, the available smoke detectors are expected to provide an alarm, both locally and in the MCR to ensure prompt response by the plant fire brigade. The low fire loading, rated construction, and available firefighting equipment from area 0014 preclude propagation of a fire beyond the boundaries of this area.

A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 1018

This area is considered safety related.

DESCRIPTION

West DC Switchgear Room  
Control Building - el 130 ft

DRAWING NUMBER(S)

H-11814

AREA

245 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | None             |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N, E, S-B/2; W-B/3 |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | None               |
| - Penetrations                      | See text           |
| - Doors (Fire-rated Class/Zone No.) | A/0014             |



### CONSTRUCTION

The west wall is block and is 3-h rated. The south, east, and north walls are block and are 2-h rated (see exemptions). The ceiling and floor are reinforced concrete and 3-h rated. There is a fire-rated Class A sliding door in the south wall to area 0014.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full smoke detector coverage which alarms both locally and in the MCR. There is no automatic suppression system or manual firefighting equipment in this area. There are hose stations and portable CO<sub>2</sub> and dry chemical fire extinguishers in adjacent area 0014.

### APPENDIX R EXEMPTIONS

An exemption from the Section III.G.2 requirement for complete 3-h-rated fire barriers was granted for the 2-h-rated barriers in this area per the April 1984 NRC SER.

### CONSEQUENCES OF DESIGN BASIS FIRE

In the event of a fire in this area, the available smoke detectors will alarm both locally and in the MCR to ensure prompt response by the plant fire brigade. The low fire loading, rated construction, and available firefighting equipment from area 0014 preclude the propagation of a fire outside this area.

A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 1019

This area is considered safety related.

DESCRIPTION

Transformer Room  
Control Building - el 130 ft

DRAWING NUMBER(S)

H-11814

AREA

218 ft<sup>2</sup>

COMBUSTIBLES

|                     |                          |
|---------------------|--------------------------|
| Oil & Grease        | Transformer silicone oil |
| Cable               | None                     |
| Class A             | None                     |
| Charcoal            | None                     |
| Plastics            | None                     |
| Miscellaneous       | None                     |
| Miscellaneous Gases | None                     |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Moderate                    |
| Max. Permissible Loading | 145,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                |
|-------------------------------------|----------------|
| Actual                              |                |
| - Walls                             | N, S, E, W-B/2 |
| - Floors, Ceiling or Roof           | Concrete       |
| - Fixed Openings                    | None           |
| - Penetrations                      | See text       |
| - Doors (Fire-rated Class/Zone No.) | A/0014         |

### CONSTRUCTION

All the walls are block with a 2-h rating (see exemptions). The floor and ceiling are reinforced concrete and are 3-h rated. There is a fire-rated Class A sliding door in the east wall to area 0014.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full smoke detector coverage which alarms both locally and in the MCR to ensure prompt response by the plant fire brigade. There is no automatic suppression system or manual firefighting equipment in this area. There are hose stations and portable CO<sub>2</sub> and dry chemical fire extinguishers in adjacent area 0014.

### APPENDIX R EXEMPTIONS

This area is exempted from the Section III.G.2 requirements for an areawide automatic suppression system and the 2-h-rated boundaries of the area are exempted from the requirements for complete 3-h-rated fire barriers per the April 1984 NRC SER.

### CONSEQUENCES OF DESIGN BASIS FIRE

In the event of a fire in this area, the available smoke detectors will alarm both locally and in the MCR to ensure prompt response by the plant fire brigade. The rated construction along with available manual firefighting equipment from area 0014 preclude the propagation of a fire outside this area.

A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 1020

This area is considered safety related.

DESCRIPTION

East DC Switchgear Room  
Control Building - el 130 ft

DRAWING NUMBER(S)

H-11814

AREA

292 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | S, W, N-B/2; E-B/3 |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | None               |
| - Penetrations                      | See text           |
| - Doors (Fire-rated Class/Zone No.) | A/0014             |

### CONSTRUCTION

All the walls are block. The east wall is 3-h rated and the rest of the walls are 2-h rated (see exemptions). The floor and ceiling are reinforced concrete and 3-h rated. There is a fire-rated Class A sliding door in the west wall to area 0014.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full smoke detector coverage which alarms both locally and in the MCR. There is no automatic suppression system or manual firefighting equipment in this area. There are H<sub>2</sub>O hose stations and portable CO<sub>2</sub> and dry chemical fire extinguishers in adjacent area 0014.

### APPENDIX R EXEMPTIONS

An exemption from the Section III.G.2 requirement for complete 3-h-rated barriers was granted for the 2-h walls in this area per the April 1984 NRC SER.

### CONSEQUENCES OF DESIGN BASIS FIRE

In the event of a fire in this area, the available smoke detectors will alarm both locally and in the MCR to ensure prompt response by the plant fire brigade. The low fire loading, rated wall and door construction, and available firefighting equipment from area 0014 preclude the propagation of a fire outside this area.

A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 1023

This area is not considered safety related.

DESCRIPTION

Oil Conditioner Room  
Control Building - el 130 ft

DRAWING NUMBER(S)

H-11815

AREA

1912 ft<sup>2</sup>

COMBUSTIBLES

|                     |          |
|---------------------|----------|
| Oil & Grease        | Lube oil |
| Cable               | None     |
| Class A             | None     |
| Charcoal            | None     |
| Plastics            | None     |
| Miscellaneous       | None     |
| Miscellaneous Gases | Hydrogen |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | High                        |
| Max. Permissible Loading | 670,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Greater than 3 h            |

FIRE PROTECTION (AVAILABLE)

|                        |                                 |
|------------------------|---------------------------------|
| Suppression (type)     | Wet pipe (FC) (see section 7.0) |
| Hose Stations          | None                            |
| Portable Extinguishers | None                            |
| Detectors (type)       | None                            |

FIRE RESISTANCE RATING

|                                     |                        |
|-------------------------------------|------------------------|
| Actual                              |                        |
| - Walls                             | W, N-C/3; S-B/3; E-B/3 |
| - Floors, Ceiling, or Roof          | Concrete               |
| - Fixed Openings                    | None                   |
| - Penetrations                      | See text               |
| - Doors (Fire-rated Class/Zone no.) | A/0014                 |

### CONSTRUCTION

The north and west walls are 3-h-rated reinforced concrete. The east wall and the south wall are 3-h-rated block. There is a fire-rated Class A sliding door in the south wall accessing area 0014. The entry is provided with a high curb designed to contain the maximum postulated oil spill to the area. The floor and ceiling are reinforced 3-h-rated concrete. The ceiling contains a shaft which extends up to el 164 ft. The walls of this shaft are 3-h-rated concrete. The top of the shaft is covered by a nonrated metal hatch cover (see exemptions).

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document analysis.

### FIRE PROTECTION

This area is equipped with full wet pipe sprinkler coverage. There is no manual firefighting equipment in the area. However, portable CO<sub>2</sub> and dry chemical fire extinguishers and a hose station, located immediately outside this area, are available in area 0014. Since the only credible fire for this area is an oil fire with no incipient stage, an early warning detection system is not provided. Activation of the suppression system results in an alarm, both locally and in the MCR.

### APPENDIX R EXEMPTIONS

An exemption was requested from the Section III.G.2 requirement for complete 3-h-rated barriers for the nonrated hatches in the ceiling of this area as is documented in appendix C of this document. However, per the January 1987 NRC SER, no exemption is required based on part 4 of NRC Generic Letter 86-10.

### CONSEQUENCES OF DESIGN BASIS FIRE

The only significant fire that can be postulated for this area would be as a result of the ignition of the turbine lube oil or EHC fluid. The full coverage wet pipe sprinklers provide for rapid extinguishment of this type of fire. The rated or substantial construction of the area boundaries will contain the fire until it can be extinguished. Activation of the suppression system results in an alarm, both locally and in the MCR, to ensure prompt response by the plant fire brigade. In the event of a failure of the suppression system, the fire brigade can extinguish the fire using the available manual suppression in adjacent area 0014.

A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 1101

This area is not considered safety related.

DESCRIPTION

Unit 1 Turbine Building

Unit 1 Turbine Building - el 112 ft, 130 ft, and 147 ft

DRAWING NUMBER(S)

H-11804, H-11805

H-11806, H-11812, H-11816

AREA

79,980 ft<sup>2</sup>

COMBUSTIBLES

Oil and Grease

Cable

Class A

Charcoal

Plastics

Miscellaneous

Miscellaneous Gases

Lube oil, grease, transformer oil

Cable insulation

Paper, clothing, trash, rags, wood, pallets

Charcoal

Plastic, ladders

Rubber, resin

Hydrogen

DESIGN BASIS FIRE

Combustible Loading

Max. Permissible Loading

Fire Duration

Low

112,000 Btu/ft<sup>2</sup>

Less than 3 h

FIRE PROTECTION (AVAILABLE)

Suppression (type)

Hose Stations

Portable Extinguishers

Detectors (type)

Preaction; Water spray; Wet pipe (PC) (see section 7.0)

H<sub>2</sub>O

CO<sub>2</sub>; Dry chem

Smoke det (FC in swgr areas) (see section 7.0)

FIRE RESISTANCE RATING

Actual

- Walls

- Floors, Ceiling, or Roof

- Fixed Openings

- Penetrations

- Doors (Fire-rated Class/Zone no.)

N,E,W-C/NR;S-C,B/3,Open, B/2 at 1102,1103

Concrete

OH,CH,SG,OS/0101; OP/1104,2101

See text

A/0007,1301;4-B/1102;2-B/1103,1104;

2-NR/Outside



## CONSTRUCTION

All the walls are reinforced concrete with the exception of the block walls around areas 1102 and 1103 (stairwells) and adjacent to areas 0007 and 1006. The turbine building exterior walls are nonrated. The south wall adjacent to the control building is 3-h rated. The stairwell walls are 2-h rated. The opening to and walls, floor, and ceiling adjacent to area 1104 on the east side of this area are nonrated (see exemptions). The portion of floor over the control building switchgear and transformer rooms is 3-h rated. The balance of the floor is nonrated reinforced concrete. The ceiling is nonrated concrete with open penetrations to area 0101 (see area 0101 text for the evaluation of this area boundary). There are open doorways to areas 2101 and 1104.

The area boundary between this area and area 2101 is established only for the purpose of separating a Unit 1 numbered area from a Unit 2 numbered area. Path 2 is used for safe shutdown for each unit in both areas. A rated fire barrier is not required between areas using the same path for shutdown. The boundary between this area and area 1104 is addressed in the exemptions section.

There are fire-rated Class A doors to areas 1301 and 0007. There are six fire-rated Class B doors, two of which are to area 1103 (one at each, el 112 ft and el 147 ft) and four to area 1102 (one at el 112 ft, two at el 130 ft, and one at el 147 ft). There are two nonrated doors to the outside in the east wall, the turbine building entryway and a rollup railroad door. There is also a nonrated door to area 1104. The east wall contains a steam blowout panel communicating with area 1203. (See exemptions.)

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

## FIRE PROTECTION

This area is equipped with preaction sprinklers actuated by a dry pilot system over the oil spill areas, a water spray system actuated by a dry pilot system over the H<sub>2</sub> seal oil unit, and wet pipe sprinklers throughout the west cable way. Actuation of a suppression system results in an alarm both locally and in the main control room (MCR). The area has smoke detectors over the switchgear and motor control center (MCC) areas at el 130 ft and 147 ft. The area is equipped with H<sub>2</sub>O hose stations and portable CO<sub>2</sub> and dry chemical fire extinguishers.

## APPENDIX R EXEMPTIONS

An exemption has been approved for the nonrated barriers and open passageway between this area and area 1104 (east cableway) and for the nonrated steam blowout panel between this area and area 1203 per the April 1984 NRC Safety Evaluation Report (SER).

## CONSEQUENCES OF DESIGN BASIS FIRE

This area has a low combustible loading; however, localized concentrations of combustibles occur in several places. These areas have been provided with localized detection and/or suppression systems. Additional detection has been provided at switchgear and MCCs. A fire, should it occur in any portion of this area without detectors, would likely be detected by the plant personnel in the area. The available manual firefighting equipment is sufficient to extinguish a fire. Because of the large dilution volume of the area, flashover is not expected to occur and fires will remain localized, even with a failure of the primary suppression system. In the unlikely event that propagation occurs through the openings to areas 0101 or 2101, only safe shutdown path 1 circuits and components will be affected since path 2 is relied upon and protected as necessary throughout all three of these areas. A fire in this area will not affect the ability to achieve safe shutdown, propagate or result in a significant release of radioactive materials.

FIRE ZONE 1101A

This zone is not considered safety related.

DESCRIPTION

Area Under Main Condenser  
Turbine Building - el 112 ft

DRAWING NUMBER(S)

H-11804

AREA

22,466 ft<sup>2</sup>

COMBUSTIBLES

|                     |                              |
|---------------------|------------------------------|
| Oil and Grease      | Lube oil                     |
| Cable               | Cable insulation             |
| Class A             | Paper, clothing, trash, rags |
| Charcoal            | None                         |
| Plastics            | Plastic, ladders             |
| Miscellaneous       | Rubber                       |
| Miscellaneous Gases | None                         |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                   |
|------------------------|-----------------------------------|
| Suppression (type)     | Pre-action (PC) (see section 7.0) |
| Hose Stations          | H <sub>2</sub> O                  |
| Portable Extinguishers | CO <sub>2</sub> ; Dry chem        |
| Detectors (type)       | Dry pilot (PC) (see section 7.0)  |

FIRE RESISTANCE RATING

|                                   |                                      |
|-----------------------------------|--------------------------------------|
| Actual                            |                                      |
| - Walls                           | N,W-C/NR;S-C/3;E-C,B/NR,2 (see text) |
| - Floors, Ceiling or Roof         | Concrete; concrete and grating       |
| - Fixed Openings                  | OS,OH,SH/1101K                       |
| - Penetrations                    | See area 1101 text                   |
| - Doors (Fire-rated Class/Zone #) | NR/1101C                             |

### CONSTRUCTION

All the walls are reinforced concrete and nonrated except the south wall adjacent to the control building which is 3-h rated and the section of the east wall adjacent to area 1103 which is 2-h rated. The floor is reinforced concrete base slab. The ceiling is reinforced concrete and open grate and is nonrated. There is one nonrated door to zone 1101C. See area 1101 for penetrations.

### FIRE PROTECTION

This zone contains partial coverage, preaction sprinklers actuated by a dry pilot system, over the oil spill areas (see figures for specific coverage). Actuation of the suppression system results in an alarm, both locally and in the MCR. Manual firefighting equipment consists of hose stations, a portable CO<sub>2</sub> fire extinguisher, and portable dry chemical fire extinguishers.

### CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire for this zone is considered to be a fast burning fire due to the potential for oil and grease spills/leakage from higher elevations along the west wall. This section of the zone has been provided with an automatic dry pilot detection and sprinkler system which provides both local and MCR alarms to ensure prompt response by the plant fire brigade. Manual firefighting equipment located throughout the zone is adequate to extinguish the fire. The substantial concrete wall construction is expected to preclude lateral propagation of the fire outside of this zone. Propagation to the zones above, through the grating, is of no consequence since all redundant safe shutdown circuits and components throughout area 1101 are protected as necessary.

FIRE ZONE 1101C

This zone is not considered safety related.

DESCRIPTION

Condensate Pump Area  
Turbine Building - el 112 ft

DRAWING NUMBER(S)

H-11804

AREA

5,111 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil and Grease      | Lube oil         |
| Cable               | Cable insulation |
| Class A             | Wood, trash      |
| Charcoal            | None             |
| Plastics            | None             |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | Hydrogen         |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 66,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                  |
|------------------------|------------------|
| Suppression (type)     | None             |
| Hose Stations          | H <sub>2</sub> O |
| Portable Extinguishers | CO <sub>2</sub>  |
| Detectors (type)       | None             |

FIRE RESISTANCE RATING

|                                     |                                |
|-------------------------------------|--------------------------------|
| Actual                              |                                |
| - Walls                             | N,E,C/NR;S,W-C,B/NR (see text) |
| - Floors, Ceiling, or Roof          | Concrete                       |
| - Fixed Openings                    | ON,OH/1101J;OD/1101H,1101D     |
| - Penetrations                      | See area 1101 text             |
| - Doors (Fire-rated Class/Zone no.) | B/1102;NR/1101A,E,I            |

### CONSTRUCTION

All the walls are concrete and nonrated with the exception of the walls around the northern stairwell (area 1102) which are block and 2-h rated. The floor is reinforced concrete base slab. The ceiling is reinforced nonrated concrete. There is an open hatch to zone 1101J, and there are open doorways to zones 1101H and 1101D. There is a fire-rated Class B door to area 1102 and three nonrated doors: one to zone 1101E, one to zone 1101A, and one to zone 1101I. See area 1101 for penetrations.

### FIRE PROTECTION

This zone is not equipped with any automatic suppression or detection system. Manual firefighting equipment consists of a hose station and portable CO<sub>2</sub> fire extinguishers.

### CONSEQUENCES OF DESIGN BASIS FIRE

The open passageways to zones 1101H and 1101D and the nonrated doors to zones 1101I, 1101E, and 1101A create a fire propagation possibility. However, the substantial construction of the concrete walls, low combustible loading, and absence of intervening combustibles between localized concentrations of combustible loading and combustible materials precludes the propagation of a fire through this zone or to adjacent zones. Propagation of a fire to other zones of this area, if it did occur, would not affect the ability to achieve safe shutdown. The available firefighting equipment in this and adjacent zones is adequate to extinguish the fire.

FIRE ZONE 1101D

This zone is not considered safety related.

DESCRIPTION

Steam Jet Air Ejector Rooms  
Turbine Building - el 112 ft

DRAWING NUMBER(S)

H-11804

AREA

1,293 ft<sup>2</sup>

COMBUSTIBLES

|                     |                       |
|---------------------|-----------------------|
| Oil and Grease      | None                  |
| Cable               | Cable insulation      |
| Class A             | Clothing, trash, rags |
| Charcoal            | None                  |
| Plastics            | Plastic               |
| Miscellaneous       | Rubber                |
| Miscellaneous Gases | None                  |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 91,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                                |
|-----------------------------------|--------------------------------|
| Actual                            |                                |
| - Walls                           | E,S,W-C/NR;N-C,B/NR (see text) |
| - Floors, Ceiling or Roof         | Concrete                       |
| - Fixed Openings                  | OD/1101C                       |
| - Penetrations                    | See area 1101 text             |
| - Doors (Fire-rated Class/Zone #) | None                           |

### CONSTRUCTION

All the walls are reinforced concrete and are nonrated except a portion of the north wall which is non-rated block. The floor and ceiling are reinforced, nonrated concrete. There are nonrated two open doorways in the north wall accessing zone 1101C. See area 1101 for penetrations.

### FIRE PROTECTION

There is no automatic suppression or detection system or manual firefighting equipment in this zone. However, portable CO<sub>2</sub> fire extinguishers and a hose station are available in adjacent zone 1101C.

### CONSEQUENCES OF DESIGN BASIS FIRE

The open passageways create a fire propagation possibility to adjacent zone 1101C. However, the low combustible loading and substantial wall construction preclude the propagation of the fire to the next zone. The available firefighting equipment in adjacent zones is adequate to extinguish a fire in this zone. Propagation of a fire to other zones in this area will not affect the ability to achieve safe shutdown.



FIRE ZONE 1101E

This zone is not considered safety related.

DESCRIPTION

Vacuum Pump Room  
Turbine Building - el 112 ft

DRAWING NUMBER(S)

H-11804

AREA

613 ft<sup>2</sup>

COMBUSTIBLES

|                     |        |
|---------------------|--------|
| Oil and Grease      | Grease |
| Cable               | None   |
| Class A             | None   |
| Charcoal            | None   |
| Plastics            | None   |
| Miscellaneous       | None   |
| Miscellaneous Gases | None   |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                     |
|-----------------------------------|---------------------|
| Actual                            |                     |
| - Walls                           | N,S,W-C/NR;E-C,B/NR |
| - Floors, Ceiling or Roof         | Concrete            |
| - Fixed Openings                  | None                |
| - Penetrations                    | See area 1101 text  |
| - Doors (Fire-rated Class/Zone #) | NR/1101C            |

### CONSTRUCTION

All the walls are nonrated, reinforced concrete. The ceiling and floor are also nonrated, reinforced concrete. There is a nonrated door in the east wall to zone 1101C. See area 1101 for penetrations.

### FIRE PROTECTION

No fire detection or suppression system or manual firefighting equipment is provided in this zone. However, portable CO<sub>2</sub> fire extinguishers and a hose station are available in adjacent zone 1101C.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible materials. The open doorway to zone 1101C does not pose a propagation threat due to the absence of intervening combustibles. The negligible fire loading and substantial construction preclude the propagation of a design basis fire beyond the boundaries of this zone. The available firefighting equipment in adjacent zones is adequate to extinguish the fire.

FIRE ZONE 1101F

This zone is not considered safety related.

DESCRIPTION

Condensate Polishing Room  
Turbine Building - el 112 ft

DRAWING NUMBER(S)

H-11804

AREA

1,444 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil and Grease      | Grease, lube oil |
| Cable               | Cable insulation |
| Class A             | Clothing, trash  |
| Charcoal            | None             |
| Plastics            | Plastic, ladders |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 40,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                    |
|-----------------------------------|--------------------|
| Actual                            |                    |
| - Walls                           | N,S,E,W-C/NR       |
| - Floors, Ceiling or Roof         | Concrete           |
| - Fixed Openings                  | OH/1101J,OD/1101H  |
| - Penetrations                    | See area 1101 text |
| - Doors (Fire-rated Class/Zone #) | None               |

### CONSTRUCTION

All the boundary walls and tank vaults are reinforced, nonrated concrete. The floor and ceiling are nonrated, reinforced concrete. There is an open doorway to zone 1101H. See area 1101 for penetrations.

### FIRE PROTECTION

This zone contains no detection or suppression system. Portable CO<sub>2</sub> fire extinguishers are available in adjacent zones 1101H and 1101C. A hose station is available in zone 1101C.

### CONSEQUENCES OF DESIGN BASIS FIRE

The open passageway with intervening combustibles consisting of trash, clothing, rubber, and plastic near the doorway create a fire propagation hazard to adjacent zone 1101H. The lack of detection or suppression in either zones 1101F or 1101H also add to the fire hazard. The substantial wall construction and low combustible loading, combined with the absence of any other localized concentrations of combustibles within a significant distance from the doorway, make propagation of the design basis fire unlikely. In addition, propagation of the fire to zone 1101H does not affect safe shutdown capability. The available firefighting equipment is sufficient to extinguish a fire.

FIRE ZONE 1101G

This zone is not considered safety related.

DESCRIPTION

RBCCW

Turbine Building - el 112 ft

DRAWING NUMBER(S)

H-11804

AREA

1,670 ft<sup>2</sup>

COMBUSTIBLES

|                     |          |
|---------------------|----------|
| Oil and Grease      | None     |
| Cable               | None     |
| Class A             | None     |
| Charcoal            | Charcoal |
| Plastics            | None     |
| Miscellaneous       | None     |
| Miscellaneous Gases | None     |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                 |
|------------------------|-----------------|
| Suppression (type)     | None            |
| Hose Stations          | None            |
| Portable Extinguishers | CO <sub>2</sub> |
| Detectors (type)       | None            |

FIRE RESISTANCE RATING

|                                   |                              |
|-----------------------------------|------------------------------|
| Actual                            |                              |
| - Walls                           | N-C,B/NR;E-B/NR;W-C/NR;S-B/3 |
| - Floors, Ceiling or Roof         | Concrete                     |
| - Fixed Openings                  | None                         |
| - Penetrations                    | See area 1101 text           |
| - Doors (Fire-rated Class/Zone #) | NR/1101H                     |

### CONSTRUCTION

The west and north walls are nonrated, reinforced concrete. The north wall has two concrete block plugs for removal of the heat exchangers. The south and east walls are block. The south wall is 3-h rated. The east wall is nonrated. The floor and ceiling are nonrated, reinforced concrete. There is a nonrated door in the east wall to zone 1101H. See area 1101 for penetrations.

### FIRE PROTECTION

This zone is not provided with any automatic suppression systems, detection systems or manual firefighting equipment. Portable CO<sub>2</sub> fire extinguishers and hose stations are available in adjacent zone 1101H.

### CONSEQUENCES OF DESIGN BASIS FIRE

The negligible fire loading and substantial construction preclude the propagation of a design basis fire beyond the boundaries of this zone. The available firefighting equipment from the adjacent zone is adequate to extinguish a fire.

FIRE ZONE 1101H

This zone is not considered safety related.

DESCRIPTION

East Corridor  
Turbine Building - el 112 ft

DRAWING NUMBER(S)

H-11804

AREA

3,912 ft<sup>2</sup>

COMBUSTIBLES

|                     |                       |
|---------------------|-----------------------|
| Oil and Grease      | None                  |
| Cable               | Cable insulation      |
| Class A             | Wood, clothing, trash |
| Charcoal            | None                  |
| Plastics            | Plastic               |
| Miscellaneous       | Rubber                |
| Miscellaneous Gases | None                  |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 72,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                  |
|------------------------|------------------|
| Suppression (type)     | None             |
| Hose Stations          | H <sub>2</sub> O |
| Portable Extinguishers | CO <sub>2</sub>  |
| Detectors (type)       | None             |

FIRE RESISTANCE RATING

|                                   |                               |
|-----------------------------------|-------------------------------|
| Actual                            |                               |
| - Walls                           | N,E,W-C/NR;W-B/NR, B/2 @ 1103 |
| - Floors, Ceiling or Roof         | Concrete                      |
| - Fixed Openings                  | OD/1101C,1101F                |
| - Penetrations                    | See area 1101 text            |
| - Doors (Fire-rated Class/Zone #) | A/0007,1301;B/1103;NR/1101G   |

### CONSTRUCTION

The north and east walls are reinforced concrete and nonrated. The east wall is adjacent to the 3-h rated, below-grade reactor and radwaste building exterior walls. The walls around the stairwell (area 1103) are block and 2-h rated. The west wall is nonrated, reinforced concrete from column line T2 to T7 and from column line T7 to T10 it is block and nonrated. The south wall is block and 3-h rated. The ceiling and floor are nonrated, reinforced concrete. There is one open doorway in the north wall to zone 1101F and another open doorway in the west wall to zone 1101C. There are two fire-rated Class A doors, one in the east wall to area 1301 and one in the south wall to area 0007. There is one fire-rated Class B door accessing the stairwell (area 1103). There is also one nonrated door in the west wall to zone 1101G. See area 1101 for penetrations.

### FIRE PROTECTION

There are no automatic detection and suppression systems in this zone. Manual firefighting equipment in this zone consists of hose stations and portable CO<sub>2</sub> fire extinguishers.

### CONSEQUENCES OF DESIGN BASIS FIRE

The lack of automatic detection and suppression systems, the open passageways in the north wall to zone 1101F and in the west wall to zone 1101C, and the nonrated door to zone 1101G create fire propagation possibilities to these adjacent zones. (The concentration of intervening combustibles inside zone 1101F near the open passageway adds to this propagation threat for fires originating in or spreading to the north end of zone 1101H). However, the low combustible loading and substantial wall construction substantially reduce the potential for fire propagation beyond this zone. Propagation of a fire to other zones in this area will not affect the ability to achieve safe shutdown. In addition, combustibles consist primarily of IEEE-383 qualified fire retardant cable which ensures slow fire development, allowing the plant fire brigade adequate time to respond. The available firefighting equipment in this zone is adequate to extinguish a fire.



FIRE ZONE 1101I

This zone is not considered safety related.

DESCRIPTION

West Cableway  
Turbine Building - el 112 ft

DRAWING NUMBER(S)

H-11804, H-11812

AREA

2,930 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil and Grease      | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | None             |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | High                        |
| Max. Permissible Loading | 580,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Greater than 3 h            |

FIRE PROTECTION (AVAILABLE)

|                        |                                 |
|------------------------|---------------------------------|
| Suppression (type)     | Wet pipe (FC) (see section 7.0) |
| Hose Stations          | None                            |
| Portable Extinguishers | None                            |
| Detectors (type)       | None                            |

FIRE RESISTANCE RATING

|                           |                    |
|---------------------------|--------------------|
| Actual                    |                    |
| - Walls                   | N,E,W-C/NR;S-open  |
| - Floors, Ceiling or Roof | Concrete           |
| - Fixed Openings          | OP/2101I           |
| - Penetrations            | See area 1101 text |
| - Doors (UL Class/Zone #) | NR/1101C           |

### CONSTRUCTION

All the walls are concrete and nonrated with the exception of the east wall adjacent to the control building, from column line T10 to T12 where it is 3-h rated. The south zone boundary is open to area 2101I. (This boundary is a boundary established only to separate a Unit 1 area from a Unit 2 area. A fire that propagates through this boundary will not affect safe shutdown. See area 1101 text for more detail). The floor and ceiling are nonrated, reinforced concrete. There is a nonrated door to zone 1101C. See area 1101 for penetrations.

### FIRE PROTECTION

This zone has full wet pipe sprinkler coverage. Actuation of the suppression system provides both a local and MCR alarm. No fire detection system or manual firefighting equipment is located in this zone. Hose stations located in zone 1101C and area 0001 are capable of directing an effective stream into this zone. Extra hose lengths are available to the plant fire brigade which allow full coverage of the zone by hose stream. Portable CO<sub>2</sub> fire extinguishers are available from zone 1101C and area 0001.

### CONSEQUENCES OF DESIGN BASIS FIRE

The high combustible loading in this zone consists entirely of cable which is predominantly IEEE-383 qualified. The design basis fire will therefore develop slowly, ensuring ample time for response by the plant fire brigade. Since there is no equipment in this zone which requires periodic maintenance, the introduction of transient combustibles is infrequent. Thus, the possibility of a significant fire is remote. In the unlikely event that a fire occurs, the wet pipe sprinkler would provide rapid extinguishment. The substantial concrete walls are sufficient to contain the fire until it is under control.

FIRE ZONE 1101J

This zone is not considered safety related.

DESCRIPTION

Turbine Building Working Floor  
Turbine Building - el 130 ft

DRAWING NUMBER(S)

H-11805

AREA

13,331 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                   |
|---------------------|-----------------------------------|
| Oil and Grease      | Grease, lube oil, transformer oil |
| Cable               | Cable insulation                  |
| Class A             | Pallets, clothing, trash          |
| Charcoal            | Charcoal                          |
| Plastics            | Plastic                           |
| Miscellaneous       | Rubber, resin                     |
| Miscellaneous Gases | Hydrogen                          |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | High                        |
| Max. Permissible Loading | 242,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                                                   |
|------------------------|-------------------------------------------------------------------|
| Suppression (type)     | Water spray @ H <sub>2</sub> seal oil unit (PC) (see section 7.0) |
| Hose Stations          | H <sub>2</sub> O                                                  |
| Portable Extinguishers | CO <sub>2</sub> ; Dry chem                                        |
| Detectors (type)       | Smoke det @ NW swgr area (PC) (see section 7.0)                   |

FIRE RESISTANCE RATING

|                                     |                                                       |
|-------------------------------------|-------------------------------------------------------|
| Actual                              |                                                       |
| - Walls                             | N,E,W-C/NR;S-C,B/NR,2,Open (see text)                 |
| - Floors, Ceiling, or Roof          | Concrete                                              |
| - Fixed Openings                    | CH/0101,1101C,1101F;OH/0101,1101C;OP/1101M,1101N,1104 |
| - Penetrations                      | See area 1101 text                                    |
| - Doors (Fire-rated Class/Zone no.) | 2-B/1102;2-NR/Outside;NR/1101K                        |

## CONSTRUCTION

All walls are concrete and nonrated, except for the walls around the stairwells (areas 1102 and 1103) which are block and are 2-h rated. The ceiling and floor are nonrated reinforced concrete. There are several hatches in the floor to zones 1101F and 1101C. All of the hatches have concrete covers installed, except for one large hatch which is open to zone 1101C. The south wall is open to area 1104 (see exemptions). Zones 1101M and 1101N, which are switchgear mezzanines at el 147 ft, are open to this zone. The ceiling of this zone is the floor at el 164 ft and is a part of the area 1101/0101 boundary. An evaluation of this boundary is presented in the texts for areas 1101 and 0101. There are two fire-rated Class B doors to area 1102. There are also three nonrated doors: one to zone 1101K, one rollup railroad door to the outside, and another nonrated door to the outside. See area 1101 for penetrations.

## FIRE PROTECTION

This zone is equipped with smoke detection under switchgear mezzanine zone 1101N, which alarms both locally and in the MCR. There is sprinkler coverage in a section of the zone approximately 20 ft by 20 ft near the intersection of column lines TF and T4 in the event of an oil leak/spill associated with the generator hydrogen seal oil unit.

Manual firefighting equipment consists of an H<sub>2</sub>O hose station and portable CO<sub>2</sub> and dry chemical fire extinguishers.

## CONSEQUENCES OF DESIGN BASIS FIRE

The open passageways create a fire propagation possibility to the adjacent zones. Propagation to adjacent area 0101 is not considered credible, as is discussed in the text for areas 1101 and 0101. However, the substantial wall construction minimizes the probability of propagation of the fire to these zones. The installed fire protection systems ensure rapid detection and suppression in high-risk sections. A fire in other portions of the zone can be extinguished by the plant fire brigade using manual firefighting equipment located in this zone. Propagation among zones of area 1101 in the unlikely event that it does occur is of no consequence, since all redundant safe shutdown circuits throughout area 1101 are protected as necessary.

FIRE ZONE 1101K

This zone is not considered safety related.

DESCRIPTION

Main Condenser Area  
Turbine Building - el 130 ft, 147 ft

DRAWING NUMBER(S)

H-11805, H-11806, H-11816

AREA

22,405 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil and Grease      | Lube oil         |
| Cable               | Cable insulation |
| Class A             | Clothing, trash  |
| Charcoal            | None             |
| Plastics            | Plastic, ladders |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | Hydrogen         |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | Preaction (PC) (see section 7.0) |
| Hose Stations          | H <sub>2</sub> O                 |
| Portable Extinguishers | Dry chem                         |
| Detectors (type)       | Dry pilot (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                                |
|-------------------------------------|--------------------------------|
| Actual                              |                                |
| - Walls                             | N,W-C/NR;S-C/3;E-C/2,NR        |
| - Floors, Ceiling, or Roof          | Concrete; concrete and grating |
| - Fixed Openings                    | OH,CH,OS/0101,1101A;SG/0101    |
| - Penetrations                      | See area 1101 text             |
| - Doors (Fire-rated Class/Zone no.) | NR/1101J,1104                  |

### CONSTRUCTION

All the walls are reinforced concrete. The north and west walls are nonrated. The south wall is 3-h rated. The east wall is nonrated with the exception of the portion adjacent to the stairwell (area 1103) where it is 2-h rated. The east wall also contains a nonrated steam blowout panel communicating with area 1203 (see exemptions in area 1101). The floor and ceiling are concrete and open grating and are nonrated. There is a nonrated door in the east wall to area 1104 and a nonrated door in the north wall to zone 1101J. The portion of the floor over the control building switchgear and transformer rooms is 3-h rated. The floor of the main steam piping section of this zone forms the ceiling of area 1104 and the east wall of the zone forms the west boundary of area 1104. Both of these boundaries are exempted from rating requirements. See area 1101 for details of this exemption and the penetrations in this portion of area 1101.

### FIRE PROTECTION

Partial preaction sprinkler coverage, actuated by a dry pilot detection system, is provided in the west part of this zone, which is a potential oil spill/leak section. Activation of the suppression system results in an alarm, both locally and in the MCR. Manual firefighting equipment in this zone consists of hose stations and a portable dry chemical fire extinguisher.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains a low loading of combustible materials. The low fire loading and substantial construction of the concrete walls preclude the lateral propagation of the fire beyond the boundaries of this zone. Propagation of a fire through the grating to zones above or below this zone is acceptable since all redundant safe shutdown circuits and components throughout area 1101 are protected as necessary. The preaction sprinkler system is expected to immediately suppress a fire in the oil spill/leak section. There is sufficient manual firefighting equipment in the zone to extinguish a fire outside of the oil spill/leak section.

FIRE ZONE 1101M

This area is not considered safety related.

DESCRIPTION

East Switchgear Mezzanine  
Unit 1 Turbine Building - el 147 ft

DRAWING NUMBER(S)

H-11806

AREA

1,620 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil and Grease      | Transformer oil  |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | None             |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | CO <sub>2</sub>                  |
| Detectors (type)       | Smoke det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                                             |
|-----------------------------------|---------------------------------------------|
| Actual                            |                                             |
| - Walls                           | N-Open;S,E,-C/NR;W-C,B/NR,2,Open (see text) |
| - Floors, Ceiling or Roof         | Concrete                                    |
| - Fixed Openings                  | OP/1101J                                    |
| - Penetrations                    | See area 1101 text                          |
| - Doors (Fire-rated Class/Zone #) | B/1103                                      |

### CONSTRUCTION

The east and south walls are reinforced concrete and nonrated. The west wall is block and 2-h rated around the stairwell (area 1103) and concrete and nonrated adjacent to the main condenser area. The north boundary is open to zone 1101J. The ceiling and floor are nonrated, reinforced concrete. There is a fire-rated class B door to area 1103. See area 1101 for penetrations.

### FIRE PROTECTION

This zone is equipped with smoke detection which provides an early warning alarm both locally and in the MCR. There is no automatic suppression. Manual firefighting equipment in this zone consists of a portable CO<sub>2</sub> fire extinguisher.

### CONSEQUENCES OF DESIGN BASIS FIRE

The open boundary between this zone and zone 1101J creates a fire propagation possibility. However, the low combustible loading, substantial wall construction, and large dilution volume preclude the propagation of the fire to any other adjacent areas or zones. Propagation to adjacent area 0101 is not considered to be credible as is discussed in the text for areas 1101 and 0101. Propagation to zone 1101J is acceptable since all redundant safe shutdown circuits and components throughout area 1101 have been protected as necessary. The installed smoke detectors will ensure prompt response by the plant fire brigade. Manual firefighting equipment located in this zone is sufficient to extinguish the fire.



FIRE ZONE 1101N

This zone is not considered safety related.

DESCRIPTION

West Switchgear Mezzanine  
Unit 1 Turbine Building - el 147 ft

DRAWING NUMBER(S)

H-11806

AREA

3,185 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil and Grease      | Transformer oil  |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | None             |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 114,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | CO <sub>2</sub>                  |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                                       |
|-----------------------------------|---------------------------------------|
| Actual                            |                                       |
| - Walls                           | N,W-C/NR;S-Open;E-B/2,Open (see text) |
| - Floors, Ceiling or Roof         | Concrete                              |
| - Fixed Openings                  | OP/1101J                              |
| - Penetrations                    | See area 1101 text                    |
| - Doors (Fire-rated Class/Zone #) | B/1102                                |

### CONSTRUCTION

The north and west walls are reinforced concrete turbine building exterior and are nonrated. The east and south boundaries are open to zone 1101J. There is a stairwell (area 1102) at the east end of the zone enclosed by 2-h rated block walls. The floor and the ceiling are nonrated, reinforced concrete. There is a fire-rated class B door to area 1102. See area 1101 for penetrations.

### FIRE PROTECTION

This zone is equipped with full coverage smoke detection. There is no automatic suppression; however, manual firefighting equipment consists of a portable CO<sub>2</sub> fire extinguisher. A hose station is available in adjacent area 1102.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains a moderate loading of combustible material consisting primarily of IEEE-383 qualified cable and transformer oil. There is no barrier between this zone and adjacent zone 1101J which creates a fire propagation possibility to that zone. Due to the large volume of area 1101, significant dilution of combustion products would occur. Therefore, propagation to adjacent zones is unlikely. Propagation to adjacent area 0101 is not considered credible as is discussed in the text for areas 1101 and 0101. In addition, propagation to zone 1101J is acceptable since all redundant safe shutdown circuits and components throughout area 1101 have been protected as appropriate. The smoke detection system provides both local and MCR alarms which provide sufficient early warning to ensure prompt response by the plant fire brigade. The available firefighting equipment in this zone is adequate to extinguish the fire.

FIRE AREA 1102

This area is not considered safety related.

DESCRIPTION

Northwest Stairway

Turbine Building - el 112 ft, 130 ft, 147 ft, and 164 ft

DRAWING NUMBER(S)

H-11804, H-11805, H-11806, H-11807

AREA

151 ft<sup>2</sup>

COMBUSTIBLES

|                     |         |
|---------------------|---------|
| Oil and Grease      | None    |
| Cable               | None    |
| Class A             | None    |
| Charcoal            | None    |
| Plastics            | Plastic |
| Miscellaneous       | None    |
| Miscellaneous Gases | None    |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                  |
|------------------------|------------------|
| Suppression (type)     | None             |
| Hose Stations          | H <sub>2</sub> O |
| Portable Extinguishers | None             |
| Detectors (type)       | None             |

FIRE RESISTANCE RATING

|                                   |                  |
|-----------------------------------|------------------|
| Actual                            |                  |
| - Walls                           | N,S,E,W-B/2      |
| - Floors, Ceiling or Roof         | Concrete         |
| - Fixed Openings                  | SD/0101          |
| - Penetrations                    | See text         |
| - Doors (Fire-rated Class/Zone #) | 4-B/1101;B/0101A |

### CONSTRUCTION

On all elevations the walls are block and are 2-h-rated fire barriers. The floors are nonrated, reinforced concrete. The ceilings are nonrated, reinforced concrete with smoke dampers. There are four fire-rated Class B doors to zones 1101C, 1101J, and 1101N and one fire-rated Class B door to area 0101.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

There are no automatic detection or suppression systems in this area. Manual firefighting equipment in this zone consists of a hose station. In addition, portable CO<sub>2</sub> and dry chemical fire extinguishers can be easily accessed in adjacent zones 1101C, 1101J, and 1101N and area 0101.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

The negligible fire loading and substantial, rated construction preclude the propagation of the design basis fire beyond the boundaries of this area. The available firefighting equipment is adequate to extinguish a fire. Since this area contains no safe shutdown components or circuits, the design basis fire will not affect the ability to achieve safe shutdown. There are no radioactive materials in this area which could be released in the event of a fire.

FIRE AREA 1103

This area is not considered safety related.

DESCRIPTION

Northeast Stairway

Turbine Building - el 112 ft, 130 ft, 147 ft, and 164 ft

DRAWING NUMBER(S)

H-11804, H-11805, H-11806, H-11807

AREA

174 ft<sup>2</sup>

COMBUSTIBLES

|                     |         |
|---------------------|---------|
| Oil and Grease      | None    |
| Cable               | None    |
| Class A             | None    |
| Charcoal            | None    |
| Plastics            | Plastic |
| Miscellaneous       | None    |
| Miscellaneous Gases | None    |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                       |
|-----------------------------------|-----------------------|
| Actual                            |                       |
| - Walls                           | N,S,E-B/2;W-B,C/2     |
| - Floors, Ceiling or Roof         | Concrete              |
| - Fixed Openings                  | SD/0101               |
| - Penetrations                    | See text              |
| - Doors (Fire-rated Class/Zone #) | 2-B/1101;B/0101A,1104 |

### CONSTRUCTION

The north, south, and east walls are block and are 2-h rated. The west wall is 2-h-rated, reinforced concrete with the exception of the 164-ft elevation, where it is 2-h-rated block. The floor is nonrated, reinforced concrete. The ceiling is nonrated, reinforced concrete with a smoke damper. There is a fire-rated Class B door to each of zone 1101H, area 1104, zone 1101M, and area 0101.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

There are no automatic detection systems or suppression systems or manual firefighting equipment in this area. Portable CO<sub>2</sub> fire extinguishers are also available in adjacent zones 1101H, 1101M, and 1101J and areas 0101 and 1104. A CO<sub>2</sub> hose reel is available in zone 1101M.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

This area contains an insignificant loading of combustible materials. The negligible fire loading and substantial, rated construction preclude the propagation of the design basis fire beyond the boundaries of this area. The available firefighting equipment is adequate to extinguish a fire. Since this area contains no safe shutdown components or circuits, the design basis fire will not affect the ability to achieve safe shutdown. There are no radioactive materials in this area which could be released in the event of a fire.

FIRE AREA 1104

This area is considered safety related.

DESCRIPTION

East Cableway

Unit I Turbine Building - el 130 ft

DRAWING NUMBER(S)

H-11805, H-11814

AREA

2,820 ft<sup>2</sup>

COMBUSTIBLES

Oil and Grease

None

Cable

Cable insulation

Class A

None

Charcoal

None

Plastics

Plastic

Miscellaneous

None

Miscellaneous Gases

None

DESIGN BASIS FIRE

Combustible Loading

High

Max. Permissible Loading

235,000 Btu/ft<sup>2</sup>

Fire Duration

Less than 3 h

FIRE PROTECTION (AVAILABLE)

Suppression (type)

Wet pipe (FC) (see section 7.0)

Hose Stations

H<sub>2</sub>O

Portable Extinguishers

CO<sub>2</sub>

Detectors (type)

Smoke det (FC) (see section 7.0)

FIRE RESISTANCE RATING

Actual

- Walls

N-Open;S-Promat/3;E-C/NR;W-C,B/NR,3

- Floors, Ceiling or Roof

Concrete

- Fixed Openings

OP/1101

- Penetrations

See text

- Doors (Fire-rated Class/Zone #)

A/1105,1301;B/1103;NR/1101

## CONSTRUCTION

The east wall is nonrated, reinforced concrete adjacent to the 3-h-rated reactor building and radwaste building walls. The west wall from column lines T4 to T10 is reinforced concrete and is nonrated (see exemptions) and from column line T10 to the south wall is block and is 3-h rated. The south wall is layered Promat board and is 3-h rated. The north boundary is open to area 1101. The floor and ceiling are nonrated, reinforced concrete (see exemptions). There are two fire-rated Class A doors: one in the south wall to area 1105 and one in the east wall to area 1301. There is one fire-rated Class B door in the west wall to area 1103 and a nonrated door in the west wall to area 1101.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier, are exempted, or have been evaluated as acceptable as is documented in Appendix I of this document.

## FIRE PROTECTION

This area is equipped with full coverage wet pipe sprinklers and full coverage smoke detectors which alarm both locally and in the MCR. Hose stations and portable CO<sub>2</sub> fire extinguisher are located in this area for manual firefighting.

## APPENDIX R EXEMPTIONS

The nonrated walls, floor, and ceiling of this area and the opening from this area to area 1101 have been exempted from the Section III.G.2 requirement for complete 3-h-rated fire barriers per the April 1984 NRC SER.

## CONSEQUENCES OF DESIGN BASIS FIRE

A design basis fire in this area will involve primarily cable insulation. High traffic in the area and available smoke detection will alert the plant fire brigade to ensure prompt response. The cable used at HNP is predominantly IEEE-383 qualified, which ensures that the design basis fire will develop and propagate through the area slowly, allowing ample time for response by the plant fire brigade. The combination of rated and exempted fire barriers surrounding this area, the automatic sprinkler coverage, and the available manual firefighting equipment preclude propagation of the fire to adjacent areas.

A fire in this area will not affect the ability to achieve safe shutdown or result in a significant release of radioactivity.



FIRE ZONE 1105

This area is considered safety related.

DESCRIPTION

East Cableway Foyer  
Unit 1 Turbine Building - el 130 ft

DRAWING NUMBER(S)

H-11814

AREA

265 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil and Grease      | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | None             |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | High                        |
| Max. Permissible Loading | 225,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | Wet pipe (FC) (see section 7.0)  |
| Hose Stations          | H <sub>2</sub> O                 |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                  |                               |
|----------------------------------|-------------------------------|
| Actual                           |                               |
| -Walls                           | N-Promat/3;S-B/3;E-C/NR;W-B/3 |
| -Floors, Ceiling or Roof         | Concrete                      |
| -Fixed Openings                  | None                          |
| -Penetrations                    | See text                      |
| -Doors (Fire-rated Class/Zone #) | A/1203, 1104, 0014, 2104      |

### CONSTRUCTION

The east wall is nonrated, reinforced concrete adjacent to the 3-h-rated reactor building. The west wall is block and is 3-h rated. The south wall is block and is 3-h rated. The north wall is layered Promat board and is 3-h rated. The floor and ceiling are nonrated, reinforced concrete (see exemptions). There are four fire-rated Class A doors: one in the west wall to area 1203, one in the north wall to area 1104, one in the west wall to area 0014, and one in the south wall to area 2104.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier, are exempted, or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full coverage wet pipe sprinklers and full coverage smoke detectors which alarm both locally and in the MCR. A hose station is located in this area for manual firefighting.

### APPENDIX R EXEMPTIONS

The nonrated walls, floor, and ceiling of this area and the opening from this area to area 1101 have been exempted from the Section III.G.2 requirement for complete 3-h-rated fire barriers per the April 1984 NRC SER.

### CONSEQUENCES OF DESIGN BASIS FIRE

A design basis fire in this area will involve primarily cable insulation. High traffic in the area and available smoke detection will alert the plant fire brigade to ensure prompt response. The cable used at HNP is predominantly IEEE-383 qualified, which ensures that the design basis fire will develop and propagate through the area slowly, allowing ample time for response by the plant fire brigade. The combination of rated and exempted fire barriers surrounding this area, the automatic sprinkler coverage, and the available manual firefighting equipment precludes propagation of the fire to adjacent areas.

A fire in this area will not affect the ability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 1201

This area is considered safety related.

DESCRIPTION

Unit 1 Drywell and Torus  
Unit 1 Reactor Building

DRAWING NUMBER(S)

H-11826, H-11827, H-11828, H-11829, H-11830

AREA

3,157 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | Lube oil         |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | None             |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 55,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                 |
|-------------------------------------|-----------------|
| Actual                              |                 |
| - Walls                             | S, C/NR         |
| - Floors, Ceiling or Roof           | Steel           |
| - Fixed Openings                    | See text        |
| - Penetrations                      | See text        |
| - Doors (Fire-rated Class/Zone no.) | NR/1203F, 1205F |

## CONSTRUCTION

The boundaries of this area are nonrated, reinforced concrete and steel exempted barriers (see exemptions). The torus and downcomers are steel, approximately 1-in. thick. All penetrations and doors to adjacent areas are nonrated and airtight.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier, have been exempted, or have been evaluated as acceptable as is documented in appendix I of this document.

## FIRE PROTECTION

There is no detection system, automatic suppression system, or manual firefighting equipment in the drywell. However, the drywell is inerted during power operation, thereby preventing fires from being ignited or sustained. A hose stream can be provided to all parts of this area using the hose stations located in areas 1205 and 1203, during nonpower operation.

## APPENDIX R EXEMPTIONS

The drywell vessel and shield walls comprise a portion of the boundary between the north and south halves of the reactor building. This boundary, including the drywell walls, has been exempted from the Section III.G.2 requirement for complete, 3-h-rated barriers per the April 1984 NRC Safety Evaluation Report (SER).

## CONSEQUENCES OF DESIGN BASIS FIRE

During power operation, the drywell is inerted and a fire is not credible. A design basis fire in this area will, therefore, not affect the ability to achieve safe shutdown. Per Appendix R to 10 CFR 50, no further protection is required. During periods when the drywell is not inerted (i.e., outages) a fire will not propagate to other fire areas due to the substantial construction and the low combustible loading. In the event of a fire during an outage, the high traffic in the drywell will ensure prompt detection of a fire in its early stages. Existing drywell temperature instruments may also be used for drywell fire detection. Fire detection by either means is expected to result in prompt response by the plant fire brigade. The available manual firefighting equipment in the adjacent areas is adequate to extinguish the fire. The primary combustibles in this area are concentrated in four specific locations; in each of the two recirculation pumps and each of two cable penetration sections. Curbs are provided under each recirculation pump to contain any oil spills to the localized area of the pump, thereby preventing propagation of a pump lube oil fire throughout the area. The two cable penetration sections are on opposite sides of the area. Each section contains cables of predominantly one safe shutdown path. This separation provides assurance that damage to only one safe shutdown path will result from a fire in this area and that a fire originating in one cable penetration section will not propagate to the other.

Similarly, any radioactive materials contained in the area will be confined to the area in the event of a fire.

FIRE AREA 1203

This area is considered safety related.

DESCRIPTION

Reactor Building South

Unit 1 Reactor Building - All elevations

DRAWING NUMBER(S)

H-11826, H-11827, H-11828, H-11829, H-11830, H-11831

AREA

22,226 ft<sup>2</sup>

COMBUSTIBLES

Oil & Grease

Cable

Class A

Charcoal

Plastics

Miscellaneous

Miscellaneous Gases

Grease, lube oil

Cable insulation

Plank, plywood, paper, rags, wood, clothing,  
trash, cardboard

None

Plastic, ladders

Rubber

Acetylene

DESIGN BASIS FIRE

Combustible Loading

Max. Permissible Loading

Fire Duration

Low

100,000 Btu/ft<sup>2</sup>

Less than 1 h

FIRE PROTECTION (AVAILABLE)

Suppression (type)

Hose Stations

Portable Extinguishers

Detectors (type)

Wet pipe (PC) (see section 7.0)

H<sub>2</sub>O

CO<sub>2</sub>

Lin therm det (PC); Smoke det (PC)  
(see section 7.0)

FIRE RESISTANCE RATING

Actual

- Walls

- Floors, Ceiling, or Roof

- Fixed Openings

- Penetrations

- Doors (Fire-rated Class/Zone no.)

N-C, S/3-NR, Open; S-C, S/3; E-C/NR; W-C/3  
(See text)

Concrete

OP, OD, OH/1205; SD/Outside; CH/1201

See text

2-A/1205, 2203; A/0101, 1105;

B/0201, 1205; 2-NR/1604; NR/1609

## CONSTRUCTION

### Below Elevation 130 ft

The west and south walls are reinforced concrete reactor building exterior walls and are 3-h-rated barriers. The east wall is a nonrated, below grade, reinforced concrete exterior wall. The north boundary is open on the east and west to area 1205 and defined by the nonrated concrete drywell in the center (see exemptions). Area 1201 (drywell and torus) is separated from area 1203 at this elevation by the nonrated but substantial torus vessel and downcomer walls which are constructed of approximately 1-in.-thick steel. The floor and ceiling are nonrated, reinforced concrete. There are several equipment hatches and two stairwells accessing the 130 ft elevation of this area.

### Elevation 130 ft

The west and south walls are exterior, 3-hr-rated, reinforced concrete. The east wall is a nonrated, reinforced concrete exterior wall except for that portion of the wall adjacent to area 1604. The north boundary is comprised of: the steam chase on the west which is open to area 1205 through the labyrinth entrys, the nonrated concrete drywell in the center, and the open corridor east to area 1205 (see exemptions). Access to other levels of the reactor building is provided through open stairways to el 87 ft and 158 ft. In addition, there is an elevator enclosed in a block wall and a large open equipment hatch to upper levels of the reactor building. The east wall contains a large, nonrated, railroad airlock door and a nonrated door accessing the railroad airlock, area 1604. The west wall contains a fire-rated Class A door to area 1105 and a nonrated steam blowout panel to area 1101 (see exemptions). The floor and ceiling are nonrated, reinforced concrete. The ceiling and floor contain steam vent openings to area 1205 and zone 1203A, respectively (see exemptions).

### Elevation 158 ft

The east wall is nonrated, reinforced concrete exterior wall. The west wall is reinforced concrete and 3-h rated. The southwest corner walls (around the stairwell) are reinforced concrete and 3-h rated. The north area boundary consists of the nonrated, reinforced concrete shield wall adjacent to the phase separators (zone 1205M), the concrete drywell wall, and the open corridor on the east side to area 1205 (see exemptions). The floor and ceiling are nonrated, reinforced concrete. The ceiling of this elevation is the boundary between areas 1203 and 1205. It is provided with full coverage wet pipe suppression at el 185 ft.

There are three fire-rated Class A doors in the stairwell portion of this elevation; one in the west wall, one in the south wall, and one in the north wall, which access the Unit 1 turbine building (0101), the Unit 2 reactor building (area 2203), and the HVAC room (area 1205), respectively. There is an elevator and a stairwell which access the 130-ft and 185-ft elevations of this area. In addition, there is an open equipment hatch which accesses the 130-ft elevation below and area 1205 on the 185-ft elevation above. The hatch is equipped with a fixed water spray suppression system around its perimeter on the 185-ft elevation.

CONSTRUCTION (cont'd)185-ft Elevation (Stairwell)

All the walls are reinforced concrete and 3-h barriers. There is an elevator and an open stairwell which access the 203-ft and 158-ft elevations within this area. The floor and ceiling are nonrated, reinforced concrete. There are two fire-rated Class A doors which access adjacent areas 1205 and 2203 in the east and south walls, respectively. A nonrated airlock vault type door in the north wall accesses area 1609.

203-ft Elevation (Stairwell)

All the walls are reinforced concrete and 3-h rated. An elevator and open stairwell access the 185-ft and 228-ft elevations of this area. The east wall contains a fire-rated Class B door which accesses area 1205. The floor and ceiling are reinforced, nonrated concrete.

228-ft Elevation (Stairwell)

All the walls are concrete and 3-h rated. An elevator and open stairwell access lower elevation 203 ft of this area. A fire-rated class B door in the east wall accesses area 0201 and a nonrated door in the west wall accesses the turbine building roof.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier, have been exempted, or have been evaluated as acceptable as is documented in appendix I of this document.

FIRE PROTECTION

The area is equipped with wet pipe sprinkler systems which are designed to function as a fire propagation barrier to separate the south half of the reactor building (area 1203) from the north half (area 1205). These systems are described and defined in section 3.4 of this document. These wet pipe systems are located in the east and west torus room on el 87 ft, in the east corridor on el 130 ft, on either side of the main steam chase on el 130 ft, and in the east corridor on el 158 ft. The ceiling of the 158-ft elevation east of column line RB is the 185-ft elevation reactor building working floor (area 1205). The hatchway penetrating this ceiling is equipped with a high density, fixed water spray suppression system around the hatch. The remainder of the 185-ft elevation working floor (with exception of the corridor south of the fuel pool) on the south half of the reactor building is equipped with a full coverage sprinkler system. The combination of sprinkler systems is designed to preclude propagation of a fire either up or down through the floor or hatch.

FIRE PROTECTION (cont'd)

An additional wet pipe system is provided in the RCIC pump room. Linear thermal detectors are provided in the reactor building centerline suppression system sections on el 87 ft and the east reactor building centerline suppression system section on el 130 ft. Linear thermal detectors are also provided in the RHR pump room on el 87 ft and the CRD area on elevation 130 ft. Smoke detectors are provided in the reactor building centerline suppression system section south of the main steam chase on el 130 ft, in the southeast corner of the area at el 130 ft and in the east reactor building centerline suppression system section on el 158 ft. Activation of the detection or suppression systems results in an alarm, both locally and in the MCR.

There are hose stations and portable CO<sub>2</sub> fire extinguishers located throughout the area.

APPENDIX R EXEMPTIONS

An exemption from the Section III.G.2 requirements of Appendix R has been approved for the nonrated walls, openings (such as steam vents) and open areas separating this area from the north half of the reactor building for the nonrated steam blowout panel between this area and area 1101, and for the lack of areawide suppression coverage per the April 1984 NRC SER.

An exemption from Section III.G.2 requirements has been approved for certain safe shutdown components located under the reactor building centerline suppression system per the January 1987 NRC SER.

An exemption from Section III.G.2 requirements has been requested for the 1 ½-h-rated doors between this area and areas 0201 and 1205, as is detailed in appendix C of this document. However, per the January 1987 NRC SER, no exemption is required, based on part 4 of NRC Generic Letter 86-10.



### CONSEQUENCES OF DESIGN BASIS FIRE

The north half of the Unit 1 reactor building primarily contains components and cables for safe shutdown path 2 and the south half primarily contains components and cables for safe shutdown path 1. Path 1 systems that are located in the north half and path 2 systems that are located in the south half of the reactor building and are required for safe shutdown, are protected by a 1-h fire-rated barrier. All safe shutdown circuits in the reactor building centerline suppression system sections are protected by a 1-h fire-rated barrier.

The existing fire detection systems provide reasonable assurance that a fire will be detected in its initial stages before significant damage occurs. The fire will then be suppressed by the automatic systems or manually by the plant fire brigade before it represents a serious threat to safe shutdown systems. The fire suppression systems, fire barriers, the large open areas of the reactor building, and the existing spatial separation between redundant paths provide assurance that one path will remain free of fire damage.

Therefore, a fire in the north half of the Unit 1 reactor building will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE ZONE 1203A

This zone is considered safety related.

DESCRIPTION

Reactor Building South

Unit 1 Reactor Building - Below el 130 ft

DRAWING NUMBER(S)

H-11826

AREA

6,670 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | Trash            |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                      |
|------------------------|--------------------------------------|
| Suppression (type)     | Wet pipe (PC) (see section 7.0)      |
| Hose Stations          | H <sub>2</sub> O                     |
| Portable Extinguishers | CO <sub>2</sub>                      |
| Detectors (type)       | Lin therm det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                                                |
|-----------------------------------|------------------------------------------------|
| Actual                            |                                                |
| - Walls                           | N-C, S/NR, Open; S, W-C/3; E-C/NR; SE, SW-C/NR |
| - Floors, Ceiling or Roof         | Concrete                                       |
| - Fixed Openings                  | OP/1205; CH, M, OP/1203F                       |
| - Penetrations                    | See area 1203 text                             |
| - Doors (Fire-rated Class/Zone #) | None                                           |

### CONSTRUCTION

The north zone boundary consists of the drywell in the center, which is nonrated steel and concrete. The east and west sides of the north boundary are open to adjacent area 1205. The west and south walls (along column lines RA and RI3, respectively) are reinforced concrete and are 3-h fire barriers. The southeast, southwest, and east walls are nonrated, reinforced concrete. The ceiling and floor are also nonrated, reinforced concrete. There are concrete and metal covered hatches and steam vent openings in the ceiling which access zone 1203F above. Area 1201, the drywell and torus, is separated from area 1203 in this zone by the nonrated steel torus vessel walls. See area 1203 for penetrations.

### FIRE PROTECTION

The zone is equipped with a partial coverage linear heat detection system and wet pipe sprinkler system along the openings accessing area 1205. In addition, hose stations and a CO<sub>2</sub> fire extinguisher are provided for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

The reactor building centerline suppression system sprinklers are designed to prevent fire propagation through the open sections of this zone along column line R7 to area 1205. The suppression system, low combustible loading, and substantial construction preclude propagation of a design basis fire to other adjacent zones or areas. Activation of the suppression or detection system results in an alarm both locally and in the MCR to ensure prompt response by the plant fire brigade. The available manual firefighting equipment is sufficient to extinguish the fire.

FIRE ZONE 1203B

This zone is considered safety related.

DESCRIPTION

Reactor Building Southeast Corner Room  
Unit 1 Reactor Building - el 87 ft

DRAWING NUMBER(S)

H-11826

AREA

714 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | Grease           |
| Cable               | Cable insulation |
| Class A             | Clothing, trash  |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                      |
|------------------------|--------------------------------------|
| Suppression (type)     | None                                 |
| Hose Stations          | H <sub>2</sub> O                     |
| Portable Extinguishers | CO <sub>2</sub>                      |
| Detectors (type)       | Lin therm det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                    |
|-----------------------------------|--------------------|
| Actual                            |                    |
| - Walls                           | E, NW-C/NR; S-C/3  |
| - Floors, Ceiling or Roof         | Concrete           |
| - Fixed Openings                  | CH, OS/1203F       |
| - Penetrations                    | See area 1203 text |
| - Doors (Fire-rated Class/Zone #) | None               |

### CONSTRUCTION

The south wall is reinforced concrete with a 3-h rating. The east and northwest diagonal walls are nonrated, reinforced concrete. The east wall is below grade reactor building exterior wall. The floor and ceiling are nonrated, reinforced concrete. Stairs along the east wall access zone 1203F at the 130-ft elevation. Concrete covered hatches in the ceiling at the 130-ft elevation are provided for removal of the pumps and heat exchanger. See area 1203 for penetrations.

### FIRE PROTECTION

This zone is provided with full linear thermal detector coverage which provides alarms both locally and in the MCR. Manual firefighting equipment consisting of a hose station and portable CO<sub>2</sub> fire extinguishers is located in this zone. No automatic suppression is provided in this zone.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains a low combustible loading consisting primarily of IEEE-383 qualified, fire retardant cables. The open stairwell creates a fire propagation possibility to zone 1203F. However, the detection and alarm systems are expected to promptly alert the plant fire brigade to respond and suppress a fire using hose stations and portable fire extinguishers located in this zone. If propagation does occur, it will not result in any adverse impact on safe shutdown, since only other zones of area 1203 will be affected.

FIRE ZONE 1203C

This zone is considered safety related.

DESCRIPTION

Reactor Building Southwest Corner Room  
Unit 1 Reactor Building - el 87 ft

DRAWING NUMBER(S)

H-11826, H-11827

AREA

714 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | Lube oil         |
| Cable               | Cable insulation |
| Class A             | Clothing, trash  |
| Charcoal            | None             |
| Plastics            | Plastic, ladders |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                 |
|------------------------|---------------------------------|
| Suppression (type)     | Wet pipe (FC) (see section 7.0) |
| Hose Stations          | H <sub>2</sub> O                |
| Portable Extinguishers | CO <sub>2</sub>                 |
| Detectors (type)       | None                            |

FIRE RESISTANCE RATING

|                                   |                                          |
|-----------------------------------|------------------------------------------|
| Actual                            |                                          |
| - Walls                           | NE-C/NR; W, S-C/3; B/NR around stairwell |
| - Floors, Ceiling or Roof         | Concrete                                 |
| - Fixed Openings                  | None                                     |
| - Penetrations                    | See area 1203 text                       |
| - Doors (Fire-rated Class/Zone #) | NR/1203F                                 |

### CONSTRUCTION

The south and west walls of this zone are reinforced concrete and 3-h fire rated. The northeast diagonal wall is nonrated, reinforced concrete. The stairway along the south wall provides access to zone 1203F at el 130 ft. The floor is reinforced concrete base slab and the ceiling is nonrated, reinforced concrete. The stairwell penetrates the ceiling and is enclosed at el 130 ft by a nonrated block enclosure containing a nonrated door. See area 1203 for penetrations.

### FIRE PROTECTION

This zone is equipped with an automatic wet pipe suppression system. Activation of the suppression system results in an alarm both locally and in the MCR. The manual firefighting equipment provided in this zone includes a hose station and portable CO<sub>2</sub> fire extinguishers.

### CONSEQUENCES OF DESIGN BASIS FIRE

The nonrated ceiling and diagonal wall provide a fire propagation possibility to zone 1203F and 1203A, respectively. However, the low combustible loading, the automatic suppression, and the substantial wall construction preclude the propagation of the fire to adjacent zones. The alarms which would result from suppression system actuation ensure prompt response by the plant fire brigade. In addition, if propagation of the design basis fire did occur, no adverse impact on safe shutdown would result, since only other zones of fire area 1203 would be affected. Manual firefighting equipment provided is adequate to extinguish the fire.

FIRE ZONE 1203F

This zone is considered safety related.

DESCRIPTION

Working Floor South

Unit 1 Reactor Building - el 130 ft

DRAWING NUMBER(S)

H-11827

AREA

8172 ft<sup>2</sup>

COMBUSTIBLES

|                     |                       |
|---------------------|-----------------------|
| Oil & Grease        | None                  |
| Cable               | Cable insulation      |
| Class A             | Clothing, trash, rags |
| Charcoal            | None                  |
| Plastics            | Plastic, ladders      |
| Miscellaneous       | Rubber                |
| Miscellaneous Gases | Acetylene             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 116,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                                         |
|------------------------|---------------------------------------------------------|
| Suppression (type)     | Wet pipe (PC) (see section 7.0)                         |
| Hose Stations          | H <sub>2</sub> O                                        |
| Portable Extinguishers | CO <sub>2</sub>                                         |
| Detectors (type)       | Lin therm det (PC); Smoke det (PC)<br>(see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                                                                       |
|-----------------------------------|-----------------------------------------------------------------------|
| Actual                            |                                                                       |
| - Walls                           | N-C/NR, Open; S-C/3, B/NR; E-C/NR; W-C/3, B/NR                        |
| - Floors, Ceiling or Roof         | Concrete                                                              |
| - Fixed Openings                  | CH, OS/1203B; OD, OP/1205; CH, M, OP/1203A; OH/1203K, 1205N; OS/1203I |
| - Penetrations                    | See area 1203 text                                                    |
| - Doors (Fire-rated Class/Zone #) | A/1105; 2-NR/1604; NR/1203C, I                                        |



## CONSTRUCTION

The south wall and essentially all of the west wall is 3-h-rated, reinforced concrete reactor building exterior. The east wall and the portion of the north wall around the drywell and personnel access area are nonrated, reinforced concrete. The remainder of the north boundary (northeast and northwest portions) is open to area 1205. The elevator (zone 1203I) and stairwell (zone 1203C) located in the southwest corner of this zone are enclosed in nonrated block structures with nonrated access doors. The floor and the ceiling are nonrated, reinforced concrete. The floor and ceiling inside the main steam chase portion of this zone contain nonrated steam vents to area 1205 above and zone 1203A below (see exemptions in area 1203). An open stairwell in the southeast corner communicates with zone 1203B. A fire-rated Class A door accesses the east cableway foyer of the control building (area 1105). A nonrated railroad airlock vault door and a nonrated door in the east wall communicate with the railroad airlock (area 1604). Nonrated, concrete covered equipment hatches penetrate the floor and ceiling and a large open hatch in the ceiling communicates with zone 1203K. A nonrated steam blowout panel to area 1101 is located in the west wall of the zone (see exemptions in area 1203). See area 1203 for penetrations.

## FIRE PROTECTION

Linear thermal and smoke detection systems provide alarms both locally and in the MCR for the entire zone except the main steam chase and above adjacent to area 1604. A wet pipe reactor building centerline suppression system is installed to separate the reactor building into two halves (areas 1203 and 1205). The portion of the suppression system in this zone extends approximately 20 ft south of R7 on the east side of the drywell and extends from the main steam chase to the southwest stairwell enclosure. This zone contains no other automatic suppression system. In addition, hose stations and portable CO<sub>2</sub> fire extinguishers are located in this zone.

## CONSEQUENCES OF DESIGN BASIS FIRE

This zone has a moderate combustible loading and substantial fire barriers which are expected to prevent propagation to adjacent zones and areas. Fire propagation possibilities are greatest at the nonrated east wall to the railroad airlock (area 1604) and at the stairwells and floor and ceiling hatches. However, the moderate combustible loading and minimal amounts of intervening combustibles greatly reduce this possibility. The railroad airlock door is constructed of solid steel, approximately 1 in. thick. The east wall is a reactor building exterior wall constructed of reinforced concrete a minimum of 8 in. thick. Propagation through the stairwells and hatches would have no adverse impact on safe shutdown since it would affect only other zones of fire area 1203. The detection system ensures rapid detection and prompt response by the plant fire brigade. The available firefighting equipment in this zone is adequate to extinguish the fire.

FIRE ZONE 1203I

This zone is not considered safety related.

DESCRIPTION

Stairwell Vestibule

Reactor Building - el 130 ft, 158 ft, 185 ft, 203 ft, and 228 ft

DRAWING NUMBER(S)

H-11827, H-11828, H-11829, H-11830, H-11831

AREA

677 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                                               |
|---------------------|---------------------------------------------------------------|
| Oil & Grease        | Lube oil                                                      |
| Cable               | None                                                          |
| Class A             | Wood, plank, plywood, paper, clothing, trash, cardboard, rags |
| Charcoal            | None                                                          |
| Plastics            | Plastic, ladders                                              |
| Miscellaneous       | Rubber                                                        |
| Miscellaneous Gases | None                                                          |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 90,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                 |
|------------------------|-----------------|
| Suppression (type)     | None            |
| Hose Stations          | None            |
| Portable Extinguishers | CO <sub>2</sub> |
| Detectors (type)       | None            |

FIRE RESISTANCE RATING

|                                   |                                                                       |
|-----------------------------------|-----------------------------------------------------------------------|
| Actual                            |                                                                       |
| - Walls                           | N, S, E, W-C/3 (See text)                                             |
| - Floors, Ceiling or Roof         | Concrete                                                              |
| - Fixed Openings                  | OS/1203F                                                              |
| - Penetrations                    | See text                                                              |
| - Doors (Fire-rated Class/Zone #) | 2-A/1205; 2-A/2203I; A/0101; B/0201, 1205; NR/1203F, K, 1609; Outside |

### CONSTRUCTION

All stairwell walls are 3-h rated, reinforced concrete. The stairwell is open to the reactor building 130-ft floor (zone 1203F). The stairwell doors are fire-rated Class A except for the nonrated secondary containment airlock vault doors at el 185 ft (to area 1609) and at approximately el 245 ft (to turbine building roof) and the fire-rated Class B doors to areas 1205 and 0201 on the 203-ft and 228-ft elevations, respectively. The elevator doors at all elevations, as well as the block enclosure around the elevator shaft, are nonrated. See area 1203 for penetrations.

### FIRE PROTECTION

Portable CO<sub>2</sub> fire extinguishers are located in this zone. Hose stations are accessible from the reactor building at all elevations except 203 ft. The zone contains no detection or automatic suppression systems.

### CONSEQUENCES OF DESIGN BASIS FIRE

The low combustible loading and substantial, rated concrete wall construction of this zone preclude the propagation of fire to adjacent zones. The only credible propagation which may occur is into the base of the stairwell from a design basis fire in zone 1203F. This propagation is acceptable since all redundant safe shutdown circuits throughout area 1203 are protected as required. Although there are no automatic detection or suppression systems, this zone is a high traffic area. Prompt detection by plant personnel and prompt response by the plant fire brigade using the available firefighting equipment are adequate to contain the fire.

FIRE ZONE 1203K

This zone is considered safety related.

DESCRIPTION

Working Floor South

Unit 1 Reactor Building - el 158 ft

DRAWING NUMBER(S)

H-11828

AREA

5,956 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                                  |
|---------------------|--------------------------------------------------|
| Oil & Grease        | None                                             |
| Cable               | Cable insulation                                 |
| Class A             | Plank, plywood, paper, clothing, rags, and cloth |
| Charcoal            | None                                             |
| Plastics            | Plastic                                          |
| Miscellaneous       | None                                             |
| Miscellaneous Gases | None                                             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | Wet pipe (PC) (see section 7.0)  |
| Hose Stations          | H <sub>2</sub> O                 |
| Portable Extinguishers | CO <sub>2</sub>                  |
| Detectors (type)       | Smoke det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                                    |
|-----------------------------------|------------------------------------|
| Actual                            |                                    |
| - Walls                           | N-C/NR, Open; E-C/NR; S-S/3; W-C/3 |
| - Floors, Ceiling or Roof         | Concrete                           |
| - Fixed Openings                  | OH/1203F, 1205; OD, OP/1205        |
| - Penetrations                    | See area 1203 text                 |
| - Doors (Fire-rated Class/Zone #) | NR/1203I                           |

## CONSTRUCTION

The east wall is a nonrated, reinforced concrete exterior wall. The west wall is 3-h-rated, reinforced concrete. The entire north boundary is an exempted Appendix R boundary consisting of the concrete shield wall adjacent to the reactor water cleanup phase separators, the drywell wall, shield wall adjacent to the reactor water cleanup pump, and the open corridor to area 1205. The south wall is a steel and fire resistant material composite and is a 3-h-rated fire barrier. There is a nonrated door in the west wall which accesses zone 1203I. The floor and ceiling are nonrated, reinforced concrete. There is an open equipment hatch which accesses zone 1203F below and area 1205 above. The ceiling of this zone serves as the area boundary between area 1203 and 1205. To ensure that propagation of a fire through this boundary does not occur, the majority of the 185-ft south floor is covered by a wet pipe suppression system and the hatch is equipped with closely spaced fixed spray sprinkler heads around its perimeter. See area 1203 for penetrations.

## FIRE PROTECTION

A wet pipe reactor building centerline suppression system, installed to separate the reactor building into two halves (areas 1203 and 1205), extends approximately 20 ft into this zone south of column line R7 on the east side of this zone. Smoke detection is provided in the suppression coverage section. Individual full coverage wet pipe suppression systems are provided in the ASD "A" area and ASD "B" area of this fire zone as full coverage suppression systems. Activation of the system results in an alarm both locally and in the MCR. The ASD "A" area and ASD "B" area contain no manual firefighting equipment. However, manual firefighting equipment including hose stations and portable CO<sub>2</sub> fire extinguishers is available in this fire zone (Fire Zone 1203K). Manual firefighting equipment consists of a hose station and portable CO<sub>2</sub> fire extinguishers.

## CONSEQUENCES OF DESIGN BASIS FIRE

In the event of a design basis fire in this zone, the open passageways and hatches create a fire propagation hazard to adjacent areas and zones. The suppression system in the northeast section of this zone is designed to prevent this propagation. Similarly, the areawide sprinkler coverage and hatch spray system around the open hatch on the 185-ft elevation are designed to prevent propagation through the hatch. The remainder of the zone boundaries are rated fire barriers or nonrated but substantial shield walls (see exemptions in area 1203). Products of combustion due to a fire in this zone are expected to actuate the detection system in the northeast part of the zone to ensure prompt response by the plant fire brigade. The substantial or rated construction, the installed suppression systems, the likelihood of early detection, and the low combustible loading preclude propagation of the design basis fire beyond the boundaries of this zone.

FIRE AREA 1205

This area is considered safety related.

DESCRIPTION

Unit 1 Reactor Building North

Unit 1 Reactor Building - All elevations

DRAWING NUMBER(S)

H-11826, H-11827, H-11828, H-11829, H-11830, H-11831

AREA

49,759 ft<sup>2</sup>

COMBUSTIBLES

Oil & Grease

Cable

Class A

Charcoal

Plastics

Miscellaneous

Miscellaneous Gases

Grease, lube oil

Cable insulation

Clothing, trash, wood, paper, rags, plank,  
plywood, tape (cloth)

Charcoal

Plastic, ladders, respirators

Rubber, solvent

Hydrogen

DESIGN BASIS FIRE

Combustible Loading

Max. Permissible Loading

Fire Duration

Low

100,000 Btu/ft<sup>2</sup>

Less than 1 h

FIRE PROTECTION (AVAILABLE)

Suppression (type)

Hose Stations

Portable Extinguishers

Detectors (type)

Wet pipe; Water spray; Preaction (PC)  
(see section 7.0)

H<sub>2</sub>O

CO<sub>2</sub>

Lin therm det; Smoke det; Heat det (PC)  
(see section 7.0)

FIRE RESISTANCE RATING

Actual

- Walls

- Floors, Ceiling, or Roof

- Fixed Openings

- Penetrations

- Doors (Fire-rated Class/Zone no.)

W, N-C/3, NR; S-C, S/3, NR, Open; E-C/NR

Concrete

CH, MH/1201; OP, OD, OH/1203; SD, CH/0201

See text

2-A/1203; A/1301; B/1203; NR/0201

CONSTRUCTIONBelow Elevation 130 ft

The north and west walls of this area consist of 3-h-rated, reinforced concrete, reactor building exterior walls separating this area from the radwaste building and turbine building, respectively. The central part of the south boundary (enclosing the drywell) is nonrated, reinforced concrete; the remaining part of the south boundary is open to area 1203 (see exemptions). The east wall is a nonrated, reinforced concrete, reactor building exterior wall. Access from the el 130-ft working floor to the northeast and southwest corner rooms is provided through open stairways. Access to the main floor at this elevation is by a small hatch on the north side of the 130-ft elevation floor. The floor is nonrated, reinforced concrete slab. The ceiling is nonrated, reinforced concrete. The drywell and torus (area 1201) are separated from this area by the nonrated but substantial steel torus vessel and downcomer walls which are constructed of approximately one 1-in.-thick steel.

The west wall and west portion of the north wall (adjacent to area 1301) are 3-h-rated, reinforced concrete, reactor building exterior walls. The east wall and the remainder of the north wall are nonrated, reinforced concrete exterior walls. The south boundary is open to area 1203 on the east side, open to area 1203 through the labyrinth entries of the main steam chase on the west side, and defined by the drywell and personnel access area walls in the center (see exemptions). There is one fire-rated Class A door in the north wall accessing area 1301. There are open stairwells and covered equipment hatches accessing the upper and lower elevations of this area. The floor and ceiling are nonrated, reinforced concrete. The ceiling and floor contain steam vent openings to zones 1205A below and 1205N above.

Elevation 158 ft

The west wall, the section of wall along column line RB from column lines R5 to R11 and the west portion of the north wall (adjacent to area 1301), are 3-h-rated, reinforced concrete, reactor building exterior wall. The east wall and remainder of the north wall are nonrated, reinforced concrete exterior walls. The south wall is 3-h-rated, reinforced concrete around zone 1203I and open to area 1203 on the east side of this floor. The remainder of the south boundary consists of the nonrated, reinforced concrete, drywell, reactor water cleanup (RWCU) phase separator room and RWCU pump room south shield walls (see exemptions). The floor and ceiling are nonrated, reinforced concrete. There is an open stairwell and several covered equipment hatches which access the upper and lower elevations of this area. Openings in the floor to area 1203 and zone 1205F and steam blowout panels located in the west wall are designed to vent steam from a main steam piping rupture to the turbine building, area 0101 (see exemptions). There is a fire-rated Class A door in the south wall to area 1203.

CONSTRUCTION (cont'd)185 ft and 203 ft Elevations

This section consists of the entire reactor building floor on these elevations with the exception of the 185-ft elevation roof (area 1609), the drywell (area 1201), the refueling and storage pools (area 0201), and the stairwell (zone 1203I). All walls are nonrated, reinforced concrete with the exception of the south wall and the walls enclosing the stairwell, which are both 3-h-rated, reinforced concrete. The floors and ceilings are reinforced, nonrated concrete. The floors contain open stairwells and equipment hatches to the lower elevations of this area and area 1203. The ceiling is the refueling floor, a part of secondary containment. It contains a stairwell opening, enclosed in a block "dog-house," with a nonrated access door to area 0201. The ceiling also contains several covered and sealed equipment hatches. See area 0201 for an evaluation of this area boundary. There is a fire-rated Class A door on the 185-ft elevation and a fire-rated Class B door on the 203-ft elevation to zone 1203I.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier, have been exempted, or have been evaluated as acceptable as is documented in Appendix I of this document.

FIRE PROTECTION

This area is equipped with wet pipe sprinklers designed as a fire propagation barrier to separate the north half of the reactor building (area 1205) from the south half (area 1203). These systems are described and defined in section 3.4 of this document. These wet pipe systems are located on the east and west sides of the drywell at el 87 ft, on the east side of the drywell at el 130 ft, on both sides of the main steam chase at el 130 ft, on the east side of the drywell at el 158 ft, the entire south half of the building at el 185 ft with the exception of the corridor (zone 1205W) beside the fuel pool. A high density, fixed water spray suppression system is provided around the equipment hatch at el 185 ft. This combination of suppression systems at el 185 ft is designed to prevent propagation of a fire either up or down through the floor or hatch.

Additional suppression systems include a wet pipe system in zone 1205Z, a water spray system with directional spray heads to provide a propagation barrier for the south wall of this zone, a preaction system in zone 1205N, and individual deluge systems for the charcoal filters in zones 1205N and 1205Q. Linear thermal heat detectors are provided in the reactor building centerline suppression systems sections at el 87 ft and 130 ft, in zone 1205B, in zone 1205F at el 130 ft, and in zones 1205N and 1205Q.



FIRE PROTECTION (cont'd)

at el 158 ft. Smoke detectors are provided in the corners of el 130 ft (in the vicinity of stairwells and hatches) and in the reactor building centerline suppression system section of el 158 ft. Thermal detectors are provided for the deluge systems in all filters containing charcoal. Activation of any of the detection or suppression systems (except zone 1205Z south wall water curtain) results in both local and MCR alarms.

The area is equipped with hose stations and portable CO<sub>2</sub> fire extinguishers for manual firefighting.

APPENDIX R EXEMPTIONS

An exemption from the Section III.G.2 requirements has been approved for the nonrated walls and open areas separating this area from the south half of the reactor building, for the lack of full area suppression coverage, and for the nonrated main steam blowout panels, per the April 1984 NRC SER.

Additional exemptions from the Section III.G.2 separation requirements have been approved for certain safe shutdown components located under the reactor building centerline suppression systems and for HPCI system components located in this area per the January 1987 NRC SER.

Requests for exemptions from the Section III.G.2 requirement for complete 3-h-rated barriers have been submitted as documented in appendix C of this document for the nonrated refueling floor and refueling floor access stairwell doghouses. However, per the January 1987 NRC SER, no exemption is required based on part 4 of NRC Generic Letter 86-10.

CONSEQUENCES OF DESIGN BASIS FIRE

The north half of the Unit 1 reactor building primarily contains components and cables for safe shutdown path 2, and the south half primarily contains components and cables for safe shutdown path 1. Path 1 systems that are located in the north half and path 2 systems that are located in the south half of the reactor building are protected by a 1-h fire-rated barrier. All safe shutdown circuits for both paths are protected by a 1-h fire-rated barrier in the reactor building centerline suppression system zones.

The existing fire detection systems provide reasonable assurance that a fire will be detected in its initial stages before significant damage occurs. The fire will then be suppressed by the automatic systems or manually by the plant fire brigade before it represents a serious threat to shutdown systems. The fire suppression systems, fire barriers, the large open areas of the reactor building, and the existing spatial separation between redundant safe shutdown paths provide assurance that one path will remain free of fire damage.

Therefore, a fire in the south half of the Unit 1 reactor building will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE ZONE 1205A

This zone is considered safety related.

DESCRIPTION

Reactor Building North

Unit 1 Reactor Building - Below el 130 ft

DRAWING NUMBER(S)

H-11826

AREA

6,770 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | Trash            |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                      |
|------------------------|--------------------------------------|
| Suppression (type)     | Wet pipe (PC) (see section 7.0)      |
| Hose Stations          | H <sub>2</sub> O                     |
| Portable Extinguishers | CO <sub>2</sub>                      |
| Detectors (type)       | Lin therm det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                                                       |
|-------------------------------------|-------------------------------------------------------|
| Actual                              |                                                       |
| - Walls                             | N-C/3; S-C, S/NR, Open; E-C/NR; W-C/3;<br>NE, NW-C/NR |
| - Floors, Ceiling or Roof           | Concrete                                              |
| - Fixed Openings                    | CH, M, OP/1205F; OP/1203                              |
| - Penetrations                      | See area 1205 text                                    |
| - Doors (Fire-rated Class/Zone no.) | None                                                  |

### CONSTRUCTION

The north and west walls are reinforced concrete, below grade, reactor building exterior walls and are 3-h fire barriers. The northeast, northwest, and east walls are nonrated, reinforced concrete. The south zone boundary is nonrated concrete and steel, defined by the drywell in the center. The east and west sides of the south boundary along column line R7 are open to area 1203. The floor and ceiling are nonrated, reinforced concrete. There are several covered equipment hatches and a steam vent opening in the ceiling which communicate with zone 1205F above. Area 1201 (drywell and torus) is separated from area 1205 in this zone by the nonrated steel torus vessel and downcomer walls. See area 1205 for penetrations.

### FIRE PROTECTION

The zone is equipped with partial coverage linear heat detection and wet pipe sprinklers along the openings in the south boundary and extending approximately 25 ft into this zone. Activation of a detection or suppression system results in an alarm both locally and in the MCR to ensure prompt response by the plant fire brigade. In addition, hose stations and a portable CO<sub>2</sub> fire extinguisher are provided for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

The suppression systems in this zone are designed to prevent fire propagation through the openings along column line R7 to area 1203. The suppression system, the low fire loading, and substantial concrete walls preclude propagation of the design basis fire beyond the boundaries of this zone. Actuation of the installed suppression or detection system provides both local and MCR alarms which ensure prompt response by the plant fire brigade. The available firefighting equipment in this zone is adequate to extinguish a fire.

FIRE ZONE 1205B

This zone is considered safety related.

DESCRIPTION

Reactor Building Northeast Corner Room  
Unit 1 Reactor Building - el 87 ft

DRAWING NUMBER(S)

H-11826

AREA

714 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | Grease           |
| Cable               | Cable insulation |
| Class A             | Clothing, trash  |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                      |
|------------------------|--------------------------------------|
| Suppression (type)     | None                                 |
| Hose Stations          | H <sub>2</sub> O                     |
| Portable Extinguishers | CO <sub>2</sub>                      |
| Detectors (type)       | Lin therm det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N, E, SW-C/NR      |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | OS, CH/1205F       |
| - Penetrations                      | See area 1205 text |
| - Doors (Fire-rated Class/Zone no.) | NR/1205Z           |

### CONSTRUCTION

The north and southwest walls are nonrated, reinforced concrete. The east wall is reinforced concrete, below grade, reactor building exterior wall. The floor is nonrated, reinforced concrete base slab. The ceiling is nonrated, reinforced concrete with an open stairwell and concrete covered hatches to zone 1205F. There is one nonrated, water tight door in the north wall to zone 1205Z. See area 1205 for penetrations.

### FIRE PROTECTION

This zone is equipped with a full coverage linear heat detection system which alarms both locally and in the MCR to ensure prompt response by the plant fire brigade. There is no automatic suppression system in this zone. There is a suppression system in adjacent zone 1205Z equipped with spray heads directed onto the interface wall designed to prevent fire propagation through the wall. A hose station and portable CO<sub>2</sub> fire extinguishers are provided in this zone for manual firefighting. An additional hose station is available from adjacent zones 1205Z and 1205F.

### CONSEQUENCES OF DESIGN BASIS FIRE

During a design basis fire, the linear heat detection system in this zone is expected to alarm both locally and in the MCR to ensure prompt response by the plant fire brigade. The available firefighting equipment is adequate to extinguish the fire. The low fire loading combined with the substantial wall construction is expected to preclude the possibility of propagation of the fire beyond the boundaries of this zone. The suppression system in zone 1205Z provides additional assurance that propagation through this boundary will not occur.

FIRE ZONE 1205C

This zone is considered safety related.

DESCRIPTION

Northwest Corner Room

Unit 1 Reactor Building - Below el 130 ft

DRAWING NUMBER(S)

H-11826

AREA

714 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | Grease           |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | None             |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 40,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                  |
|------------------------|------------------|
| Suppression (type)     | None             |
| Hose Stations          | H <sub>2</sub> O |
| Portable Extinguishers | CO <sub>2</sub>  |
| Detectors (type)       | None             |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N, W-C/3; SE-C/NR  |
| - Floors, Ceiling, or Roof          | Concrete           |
| - Fixed Openings                    | OS, CH/1205F       |
| - Penetrations                      | See area 1205 text |
| - Doors (Fire-rated Class/Zone no.) | None               |

### CONSTRUCTION

The north and west walls are reinforced concrete, reactor building exterior and are 3-h fire barriers. The southeast wall is nonrated, reinforced concrete adjacent to zone 1205A. The floor and ceiling are nonrated, reinforced concrete. There is an open stairwell and a concrete hatch which access zone 1205F above. See area 1205 for penetrations.

### FIRE PROTECTION

The zone is not equipped with any detection or automatic suppression systems; however, a hose station and portable CO<sub>2</sub> fire extinguishers are located in this zone, and an additional hose station is available in zone 1205F for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains a low loading of combustible materials. The low fire loading and substantial or rated concrete walls preclude propagation of the design basis fire beyond the boundaries of this zone, except potentially through the open stairwell to zone 1205F. This is not expected to occur, since there are no intervening combustibles in the vicinity of the stairwell opening in zone 1205F. This zone contains a low combustible loading, and the minimal quantities of hot smoke and gas propagating through the opening would be rapidly diluted in the large volume of zone 1205F. In the unlikely event that propagation occurs, the ability to achieve safe shutdown will not be affected. Detection of a fire will likely be provided by the smoke detectors in the vicinity of the stairwell in zone 1205F and result in prompt response by the plant fire brigade. The available firefighting equipment in this zone is adequate to extinguish a fire.

FIRE ZONE 1205F

This zone is considered safety related.

DESCRIPTION

Working Floor North

Unit 1 Reactor Building - el 130 ft

DRAWING NUMBER(S)

H-11827

AREA

8,083 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                       |
|---------------------|---------------------------------------|
| Oil & Grease        | None                                  |
| Cable               | Cable insulation                      |
| Class A             | Plank, plywood, clothing, trash, rags |
| Charcoal            | None                                  |
| Plastics            | Plastic, ladders                      |
| Miscellaneous       | Rubber                                |
| Miscellaneous Gases | None                                  |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 136,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                                      |
|------------------------|------------------------------------------------------|
| Suppression (type)     | Wet pipe (PC) (see section 7.0)                      |
| Hose Stations          | H <sub>2</sub> O                                     |
| Portable Extinguishers | CO <sub>2</sub>                                      |
| Detectors (type)       | Lin therm det (PC); Smoke det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                                                                     |
|-------------------------------------|---------------------------------------------------------------------|
| Actual                              |                                                                     |
| - Walls                             | N-C/3, NR; S-C/NR, Open; E-C/NR; W-C/3                              |
| - Floors, Ceiling or Roof           | Concrete                                                            |
| - Fixed Openings                    | OS, CH/1205B, C, I; M, CH, OP/1205A; OD, OP/1203; CH/1201; OH/1205N |
| - Penetrations                      | See area 1205 text                                                  |
| - Doors (Fire-rated Class/Zone no.) | A/1301; NR/1201                                                     |



## CONSTRUCTION

The north wall of the zone from column line RA to approximately column line RH is a reinforced concrete 3-h-rated fire barrier. The remainder of the north wall and the east wall are nonrated, reinforced concrete reactor building exterior walls. The south boundary is partially open to area 1203 along column line R7 on the east and west and is defined by the drywell concrete walls in the center. The west wall is a reinforced concrete, 3-h-rated fire barrier adjacent to the turbine building. There is a fire-rated Class A door in the north wall to the radwaste building. The floor is nonrated, reinforced concrete with covered equipment hatches accessing zones 1205A, 1205B, and 1205C below. There are two open stairways which access zones 1205B and 1205C. The ceiling is nonrated, reinforced concrete with one open stairway accessing zone 1205I above. The floor and ceiling in the main steam chase portion of this zone contain steam vent openings to zone 1205A below and 1205N above this zone. There is a nonrated airtight door accessing area 1201. See area 1205 for penetrations.

## FIRE PROTECTION

The zone contains a partial coverage detection system in the corners of the area near the stairs and hatches and partial coverage linear heat detection. There are hose stations and portable CO<sub>2</sub> fire extinguishers provided for manual firefighting. An automatic reactor building centerline suppression system is provided as a propagation barrier on the east side of the south zone boundary along column line R7 and adjacent to the steam chase.

## CONSEQUENCES OF DESIGN BASIS FIRE

During a design basis fire, the installed smoke and heat detection systems will provide an early warning alarm, both locally and in the MCR, to ensure prompt response by the plant fire brigade. The 3-h-rated north and west walls which border the radwaste and turbine buildings and the substantial, nonrated east reactor building exterior wall are adequate to contain a design basis fire. The automatic reactor building centerline suppression system and substantial construction of the drywell wall will preclude any potential fire propagation into area 1203 (zone 1203F) and area 1201, respectively. Due to the substantial construction, the installed suppression systems and the moderate combustible loading, propagation through the floor or ceiling is not considered probable. Fire propagation through the northeast and northwest stairwells is unlikely due to the minimal amount of combustibles in the immediate area.

In the unlikely event that propagation does occur, only other zones of area 1205 will be affected, thus ensuring that only one train of safe shutdown systems is damaged. Prompt detection and response combined with the utilization of the manual firefighting equipment available should be sufficient to extinguish a fire.

FIRE ZONE 1205I

This zone is not considered safety related.

DESCRIPTION

Working Floor North  
Reactor Building - el 158 ft

DRAWING NUMBER(S)

H-11828

AREA

3,700 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                             |
|---------------------|---------------------------------------------|
| Oil & Grease        | Lube oil                                    |
| Cable               | Cable insulation                            |
| Class A             | Wood, plank, plywood, clothing, trash, rags |
| Charcoal            | None                                        |
| Plastics            | Plastic, respirators, ladders               |
| Miscellaneous       | Rubber                                      |
| Miscellaneous Gases | Hydrogen                                    |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | Wet pipe (PC) (see section 7.0)  |
| Hose Stations          | H <sub>2</sub> O                 |
| Portable Extinguishers | CO <sub>2</sub>                  |
| Detectors (type)       | Smoke det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                                      |
|-------------------------------------|--------------------------------------|
| Actual                              |                                      |
| - Walls                             | N-C/3, NR; S-C/NR, Open; W, E-C/NR   |
| - Floors, Ceiling or Roof           | Concrete                             |
| - Fixed Openings                    | 2-OD/1205L; OP/1203; CH, OS/1205F, R |
| - Penetrations                      | See area 1205 text                   |
| - Doors (Fire-rated Class/Zone no.) | None                                 |

### CONSTRUCTION

All the walls are nonrated, reinforced concrete except for the west portion of the north wall which is a 3-h-rated fire barrier and the portion of the south boundary along column line R7 which is open to area 1203. The floor and ceiling are nonrated, reinforced concrete with an open stairwell and covered hatches to zones 1205F below and 1205R above. There are two open doorways to zone 1205L. See area 1205 for penetrations.

### FIRE PROTECTION

This zone is equipped with partial coverage smoke detection which provides an early warning alarm, both locally and in the MCR, to ensure prompt response by the plant fire brigade. This zone is also equipped with hose stations and a portable CO<sub>2</sub> fire extinguisher for manual firefighting. An automatic reactor building centerline suppression system is provided in the southeast portion of the zone in the open passage to area 1203.

### CONSEQUENCES OF DESIGN BASIS FIRE

In the event of a design basis fire, the two open passageways create a fire propagation path to adjacent zone 1205L and area 1203. The automatic reactor building centerline suppression system in the southeast portion of the zone is designed to suppress or contain a fire and eliminate any potential for propagation to area 1203. The open entryway to adjacent zone 1205L is located in close proximity to the portion of zone 1203I protected by smoke detectors, so that immediate response to a fire is expected. The substantial construction, low combustible loading, installed detection and suppression systems, and likelihood of prompt plant fire brigade response preclude propagation of the design basis fire beyond the boundaries of this zone. In the unlikely event that propagation occurs to zone 1205L, it will result in no acceptable consequences on the ability to achieve safe shutdown.

FIRE ZONE 1205L

This zone is not considered safety related.

DESCRIPTION

Reactor Water Cleanup (RWCU) Heat Exchanger Room  
Unit 1 Reactor Building - el 158 ft

DRAWING NUMBER(S)

H-11828

AREA

1,926 ft<sup>2</sup>

COMBUSTIBLES

|                     |         |
|---------------------|---------|
| Oil & Grease        | None    |
| Cable               | None    |
| Class A             | None    |
| Charcoal            | None    |
| Plastics            | Plastic |
| Miscellaneous       | Rubber  |
| Miscellaneous Gases | None    |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                       |
|-----------------------------------|-----------------------|
| Actual                            |                       |
| - Walls                           | N, E, W-C/NR; S-C/NR  |
| - Floors, Ceiling or Roof         | Concrete              |
| - Fixed Openings                  | OD/1203, 1205I, 1205M |
| - Penetrations                    | See area 1205 text    |
| - Doors (Fire-rated Class/Zone #) | None                  |

### CONSTRUCTION

The north, west, and east walls are nonrated, reinforced concrete except for the removable block shielding on the east wall around the RWCU heat exchangers. The south wall is the nonrated, reinforced concrete and steel drywell. The extreme southeast corner of this zone containing the RWCU pumps is separated from the balance of the zone by a partial height reinforced concrete shield wall, approximately 15 ft high which provides an effective heat shield to prevent propagation within this zone. The ceiling and floor are nonrated, reinforced concrete. There are open doorways which access adjacent zones 1205I, 1205M, and 1203K. See area 1205 for penetrations.

### FIRE PROTECTION

This zone contains no detection, automatic suppression, or manual firefighting equipment; however, manual firefighting equipment consisting of hose stations and a portable CO<sub>2</sub> fire extinguisher is available in adjacent zone 1205I.

### CONSEQUENCES OF DESIGN BASIS FIRE

Early detection of a fire in this zone is improbable; however, a fire in this zone is unlikely due to the negligible combustion loading. The only significant fire postulated for this zone would result from the introduction of controlled amounts of transient combustibles. Propagation of a fire resulting from the introduction of transient combustibles will not occur through the openings to zones 1203K and 1203I since the sprinkler systems in zones 1203K and 1203I are expected to actuate to prevent propagation. The substantial construction with limited penetrations and the negligible amount of combustibles preclude fire propagation beyond the boundaries of this zone.

FIRE ZONE 1205M

This zone is not considered safety related.

DESCRIPTION

Cleanup Phase Separators  
Unit 1 Reactor Building - el 158 ft

DRAWING NUMBER(S)

H-11828

AREA

488 ft<sup>2</sup>

COMBUSTIBLES

|                     |         |
|---------------------|---------|
| Oil & Grease        | None    |
| Cable               | None    |
| Class A             | None    |
| Charcoal            | None    |
| Plastics            | Plastic |
| Miscellaneous       | None    |
| Miscellaneous Gases | None    |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                    |
|-----------------------------------|--------------------|
| Actual                            |                    |
| - Walls                           | N, S, E, W-C/NR    |
| - Floors, Ceiling or Roof         | Concrete           |
| - Fixed Openings                  | OD/1205L           |
| - Penetrations                    | See area 1205 text |
| - Doors (Fire-rated Class/Zone #) | None               |

### CONSTRUCTION

The north, east, and west walls of the zone are nonrated, reinforced concrete. Access to the zone is via an open doorway from zone 1205L in the east wall. Credit is taken for the substantial concrete construction of the south wall to provide separation of the north and south halves of the reactor building per an approved Appendix R exemption (see area 1205 text). The floor and ceiling are nonrated, reinforced concrete. See area 1205 for penetrations.

### FIRE PROTECTION

The zone contains no automatic fire suppression, detection, or manual firefighting equipment. In the unlikely event of a fire in this zone, there is manual firefighting equipment consisting of a portable CO<sub>2</sub> fire extinguisher and hose stations in zone 1205I, which can be accessed through adjacent zone 1205L. A hose stream can be provided to this zone using multiple lengths of fire hose.

### CONSEQUENCES OF DESIGN BASIS FIRE

The only fire postulated for this zone would involve controlled amounts of transient combustibles. In the unlikely event of a significant fire due to the introduction of transient combustibles, the open passageway in the west wall creates a fire propagation hazard to adjacent zone 1205L. However, due to the lack of fixed combustibles, the absence of any intervening combustibles in the adjacent zone and the extremely substantial construction of the balance of the zone boundaries, propagation of a fire outside of this zone is precluded.

FIRE ZONE 1205N

This zone is considered safety related.

DESCRIPTION

HVAC Room

Unit 1 Reactor Building - el 164 ft

DRAWING NUMBER(S)

H-11828

AREA

3,305 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | Charcoal         |
| Plastics            | Ladders          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                                        |
|------------------------|--------------------------------------------------------|
| Suppression (type)     | Pre-action (FC); Water spray (PC)<br>(see section 7.0) |
| Hose Stations          | None                                                   |
| Portable Extinguishers | CO <sub>2</sub>                                        |
| Detectors (type)       | Heat det (PC); Lin therm det (FC)<br>(see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                             |
|-----------------------------------|-----------------------------|
| Actual                            |                             |
| - Walls                           | N-C/NR; S, W-C/3; E-C/3, NR |
| - Floors, Ceiling or Roof         | Concrete                    |
| - Fixed Openings                  | OD/1205Q; MH/1203; OH/1205F |
| - Penetrations                    | See area 1205 text          |
| - Doors (Fire-rated Class/Zone #) | A/1203                      |



### CONSTRUCTION

The south and west walls are reinforced concrete and are 3-h fire barriers. The south wall has a fire-rated Class A double door which accesses area 1203. The north wall is nonrated concrete and has an open doorway to zone 1205Q. The east wall, adjacent to the reactor building working floor, zone 1203K, is 3-h rated, reinforced concrete. The balance of the east wall is reinforced, nonrated concrete. The floor and ceiling are nonrated, reinforced concrete, except for the portion of the floor over the main steam chase, containing the main steam vent openings. These openings and the main steam blowout panels located in the west wall of this zone are exempted from the requirements for complete 3-h barriers (see exemptions). See area 1205 for penetrations.

### FIRE PROTECTION

The HVAC filters are provided with individual heat detection devices and water spray suppression systems in the filters. The zone is also equipped with an areawide linear heat detection system and a preaction sprinkler system actuated by the linear thermal detectors. Actuation of any of the detection or suppression systems, excluding the HVAC filter suppression system, results in both local and MCR alarms. A portable CO<sub>2</sub> fire extinguisher is located in this zone and a hose station is available in nearby zone 1203K. An additional portable CO<sub>2</sub> fire extinguisher is available in adjacent zone 1203I.

### CONSEQUENCES OF DESIGN BASIS FIRE

In the event of a design basis fire in this area, the full coverage detection system would assure prompt response by the plant fire brigade. The available manual firefighting equipment is adequate to extinguish the fire. A design basis fire would be concentrated at the HVAC charcoal filters. The filter water spray systems initiated by the fire brigade are expected to rapidly extinguish the fire and prevent propagation outside of the filter units. In the event that the water spray systems fail, the zone is also equipped with preaction sprinklers which are expected to extinguish a fire within the zone. The low fire loading, likelihood of early detection, the available automatic and manual suppression, and the lack of intervening combustibles preclude propagation through the open doorway or nonrated barriers to adjacent areas or zones.

FIRE ZONE 1205Q

This zone is considered safety related.

DESCRIPTION

Standby Gas Filter Room  
Unit 1 Reactor Building - el 164 ft

DRAWING NUMBER(S)

H-11828

AREA

796 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | Charcoal         |
| Plastics            | Ladders          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                                        |
|------------------------|--------------------------------------------------------|
| Suppression (type)     | Water spray (PC) (see section 7.0)                     |
| Hose Stations          | None                                                   |
| Portable Extinguishers | None                                                   |
| Detectors (type)       | Heat det (PC); Lin therm det (FC)<br>(see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                     |
|-----------------------------------|---------------------|
| Actual                            |                     |
| - Walls                           | W, N-C/3; S, E-C/NR |
| - Floors, Ceiling or Roof         | Concrete            |
| - Fixed Openings                  | OD/1205N            |
| - Penetrations                    | See area 1205 text  |
| - Doors (Fire-rated Class/Zone #) | None                |

### CONSTRUCTION

The south and east walls are nonrated, reinforced concrete. The north and west walls are reinforced concrete, reactor building exterior, 3-h-rated fire barriers. There is one open doorway on the west side of the south wall to zone 1205N. The floor and ceiling are nonrated, reinforced concrete. See area 1205 for penetrations.

### FIRE PROTECTION

The zone is equipped with full coverage linear heat detection and thermal detectors in the filter units which would provide an early warning alarm both locally and in the MCR to ensure prompt response by the plant fire brigade. The HVAC filters in this zone are equipped with water spray systems. The zone contains no manual firefighting equipment. The hose station in nearby zone 1203K is able to provide an effective hose stream to this zone if additional hose lengths are used. In addition, a portable CO<sub>2</sub> fire extinguisher is available in adjacent zone 1205N.

### CONSEQUENCES OF DESIGN BASIS FIRE

In the event of a design basis fire, the local heat detectors within the charcoal filters or the full coverage linear heat detection system in the zone are expected to provide an early warning alarm both locally and in the MCR to ensure prompt response by the plant fire brigade. Due to the small quantities of fixed and transient combustibles and the substantial or rated construction, a design basis fire is not expected to propagate beyond this zone. The primary combustible in the zone is the HVAC charcoal filters. The water spray system initiated by the fire brigade is capable of extinguishing a fire of this type. The manual hose station available in zone 1203K and the portable CO<sub>2</sub> extinguisher in adjacent zone 1205N provide adequate manual suppression capability to extinguish a fire.

FIRE ZONE 1205R

This zone is not considered safety related.

DESCRIPTION

Working Floor North

Unit 1 Reactor Building - el 185 ft

DRAWING NUMBER(S)

H-11829

AREA

7,361 ft<sup>2</sup>

COMBUSTIBLES

Oil & Grease

None

Cable

Cable insulation

Class A

Wood, paper, clothing, tape (cloth),  
trash, rags

Charcoal

Charcoal

Plastics

Plastic, ladders

Miscellaneous

Rubber, solvent

Miscellaneous Gases

None

DESIGN BASIS FIRE

Combustible Loading

Low

Max. Permissible Loading

30,000 Btu/ft<sup>2</sup>

Fire Duration

Less than 1 h

FIRE PROTECTION (AVAILABLE)

Suppression (type)

None

Hose Stations

H<sub>2</sub>O

Portable Extinguishers

CO<sub>2</sub>

Detectors (type)

None

FIRE RESISTANCE RATING

Actual

- Walls

N, E, W-C/NR; S-C/NR-Open

- Floors, Ceiling or Roof

Concrete

- Fixed Openings

OP/1205S, U; OS, CH/1205I, Y; OD/1205T

- Penetrations

See area 1205 text

- Doors (Fire-rated Class/Zone #)

NR/1205S

### CONSTRUCTION

This zone consists of the entire north half of the 185-ft reactor building floor with the exception of the filter demineralizer room (zone 1205T) in the northwest corner. All the walls are reinforced concrete and nonrated except for the walls around the decontamination room, which are nonrated block. Part of the south zone boundary is the drywell which is nonrated, reinforced concrete and steel (exempted barrier). The balance of the south boundary is open on the east and west side of the drywell to zones 1205S and 1205U, respectively. A portion of the south boundary consists of the south wall of the decontamination room. The floor is nonrated, reinforced concrete with an open stairwell and covered equipment hatches down to zone 1205I. The ceiling is nonrated, reinforced concrete with an open stairwell and covered equipment hatches up to zone 1205Y. There is an open doorway to zone 1205T. There are closed equipment hatches which access zones 1205I and 1205Y and a nonrated door in the block wall around the decontamination room, which accesses zone 1205S. See area 1205 for penetrations.

### FIRE PROTECTION

This zone is equipped with no automatic suppression or detection system; however, the south boundary is the edge of the wet pipe suppression systems in zones 1205S and 1205U. Hose stations and CO<sub>2</sub> fire extinguishers are provided in the zone for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire is postulated to be a slow developing fire consisting primarily of fire retardant, IEEE-383 qualified cable insulation, and Class A combustibles. Propagation of the fire to adjacent zones 1205S and 1205U is precluded by the wet pipe suppression systems in these zones. The substantial construction with limited penetrations and the low combustible loading make it unlikely for a fire to propagate to zone 1205T or area 1609. The only potential propagation path through the floor or ceiling is the open stairwell. Due to the low fire loading, this is credible but unlikely. In the unlikely event that propagation to any of these adjacent zones or areas does occur, only one safe shutdown path will be affected. The manual firefighting equipment in the zone is adequate to extinguish the fire.

FIRE ZONE 1205S

This zone is not considered safety related.

DESCRIPTION

Working Floor South

Unit 1 Reactor Building - el 185 ft

DRAWING NUMBER(S)

H-11829

AREA

3,049 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                |
|---------------------|--------------------------------|
| Oil & Grease        | None                           |
| Cable               | None                           |
| Class A             | Wood, plywood, clothing, trash |
| Charcoal            | None                           |
| Plastics            | Plastic, ladders               |
| Miscellaneous       | Rubber                         |
| Miscellaneous Gases | None                           |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                 |
|------------------------|---------------------------------|
| Suppression (type)     | Wet pipe (FC) (see section 7.0) |
| Hose Stations          | H <sub>2</sub> O                |
| Portable Extinguishers | CO <sub>2</sub>                 |
| Detectors (type)       | None                            |

FIRE RESISTANCE RATING

|                                   |                                              |
|-----------------------------------|----------------------------------------------|
| Actual                            |                                              |
| - Walls                           | N-B/NR, Open; S-C/3; E-C/NR; W-C/NR          |
| - Floors, Ceiling or Roof         | Concrete                                     |
| - Fixed Openings                  | OP/1205R; OS/1205Y; OH/1203, 1205Y; OD/1205W |
| - Penetrations                    | See area 1205 text                           |
| - Doors (Fire-rated Class/Zone #) | NR/1205R; NR/1205W                           |

### CONSTRUCTION

The north side of this zone has a partial, nonrated block wall around the decontamination room. There is a nonrated door in this wall which accesses zone 1205R. The remainder of the north boundary is open to zone 1205R. The east and west walls are reinforced concrete, nonrated reactor building exterior and fuel pool walls, respectively. There is a nonrated door in the east wall access to zone 1205W. The south wall is the reinforced concrete, reactor building exterior, 3-h-rated fire barrier. The floor and ceiling are reinforced concrete and nonrated. There is an open stairwell which accesses upper level zone 1205Y. An equipment hatch, which is open to zone 1205Y above and area 1203 below, is located in the center of this zone. There is an open doorway to zone 1205W. See area 1205 for penetrations.

### FIRE PROTECTION

This zone is not equipped with a fire detection system. The portion of the zone around the equipment hatch is equipped with a high density ring of fixed spray heads designed to prevent propagation either up or down through the hatch. The balance of the zone is equipped with a full coverage wet pipe suppression system. Manual firefighting equipment available in this zone consists of a hose station and a portable CO<sub>2</sub> fire extinguisher.

### CONSEQUENCES OF DESIGN BASIS FIRE

In the event of a design basis fire, actuation of the suppression systems in the zone will result in both local and MCR alarms to ensure prompt response by the plant fire brigade. The construction is substantial and the expected fire severity is sufficiently low to preclude fire propagation to adjacent zones 1205W and 1205R. The open equipment hatch and open hallway pose some threat of propagation to area 1203 and zone 1205Y and to zone 1205R, respectively. Propagation to zone 1205R or 1205Y is acceptable since both zones rely on path 2 for safe shutdown. However, the installed full coverage suppression system is expected to rapidly extinguish any fire which might occur. The automatic high density suppression system around the equipment hatch is designed to preclude propagation of a design basis fire through the hatch in either direction. Propagation is, therefore, not expected to occur. The manual firefighting equipment provided in this zone is adequate to extinguish any fire which may occur.

FIRE ZONE 1205T

This zone is considered safety related.

DESCRIPTION

Filter Demineralizer Room  
Unit 1 Reactor Building - el 185 ft

DRAWING NUMBER(S)

H-11829

AREA

748 ft<sup>2</sup>

COMBUSTIBLES

|                     |                 |
|---------------------|-----------------|
| Oil & Grease        | Lube oil        |
| Cable               | None            |
| Class A             | Clothing, trash |
| Charcoal            | None            |
| Plastics            | Plastic         |
| Miscellaneous       | Rubber          |
| Miscellaneous Gases | None            |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                    |
|-----------------------------------|--------------------|
| Actual                            |                    |
| - Walls                           | N, S, E, W-C/NR    |
| - Floors, Ceiling or Roof         | Concrete           |
| - Fixed Openings                  | CH/1205X; OD/1205R |
| - Penetrations                    | See area 1205 text |
| - Doors (Fire-rated Class/Zone #) | None               |



### CONSTRUCTION

All the zone walls are reinforced concrete and nonrated. The floor and ceiling are nonrated, reinforced concrete. There is an open doorway in the east wall to zone 1205R. There are four reinforced concrete tank enclosures in this zone, with concrete covered hatches up to zone 1205X. See area 1205 for penetrations.

### FIRE PROTECTION

No automatic suppression or detection system coverage is provided in this zone; however, manual firefighting equipment consisting of hose stations and portable CO<sub>2</sub> fire extinguishers is available from adjacent zone 1205R.

### CONSEQUENCES OF DESIGN BASIS FIRE

The open doorway in the east wall creates a fire propagation hazard to the adjacent zone; however, the substantial wall construction and the low combustible loading preclude propagation of a fire beyond the boundaries of this zone. The available firefighting equipment in the adjacent zone is adequate to extinguish the fire.

FIRE ZONE 1205U

This zone is not considered safety related.

DESCRIPTION

Southwest Corridor

Unit 1 Reactor Building - el 185 ft

DRAWING NUMBER(S)

H-11829

AREA

696 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | None             |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | Plastic, ladders |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                 |
|------------------------|---------------------------------|
| Suppression (type)     | Wet pipe (FC) (see section 7.0) |
| Hose Stations          | H <sub>2</sub> O                |
| Portable Extinguishers | CO <sub>2</sub>                 |
| Detectors (type)       | None                            |

FIRE RESISTANCE RATING

|                                   |                                  |
|-----------------------------------|----------------------------------|
| Actual                            |                                  |
| - Walls                           | N-Open; S-C/3; E-C/NR; W-C/3, NR |
| - Floors, Ceiling or Roof         | Concrete                         |
| - Fixed Openings                  | OD/1205W; OP/1205R               |
| - Penetrations                    | See area 1205 text               |
| - Doors (Fire-rated Class/Zone #) | A/1203; NR/1205W                 |

### CONSTRUCTION

The north end of this zone is open to zone 1205R. The east wall consists of the drywell and fuel pool walls which are substantial nonrated, reinforced concrete and steel. The west wall is nonrated, reinforced concrete reactor building exterior wall with the exception of the south portion adjacent to area 1203 which is a 3-h fire barrier. There is a nonrated door in the west wall access to zone 1205W. The south wall is a 3-h rated barrier. The floor and ceiling are nonrated, reinforced concrete. There is a fire-rated Class A door to area 1203 and an open doorway to zone 1205W. See area 1205 for penetrations.

### FIRE PROTECTION

No early warning fire detection system is provided in this zone; however, full area coverage by wet pipe sprinklers is provided. Activation of the sprinkler system initiates an alarm both in the MCR and locally. In addition, a hose station and CO<sub>2</sub> fire extinguisher are provided for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

The open passageway and doorway create a fire propagation threat to adjacent zones 1205R and 1205W, respectively; however, the negligible combustible loading, the substantial construction with limited penetrations, and the automatic wet pipe sprinklers preclude propagation of a fire beyond the boundaries of this zone. Actuation of the suppression system will provide both local and MCR alarms to ensure prompt response by the plant fire brigade. The available firefighting equipment in this zone is adequate to extinguish the fire.

FIRE ZONE 1205W

This zone is not considered safety related.

DESCRIPTION

Room South of Spent Fuel Pit  
Unit 1 Reactor Building - el 185 ft

DRAWING NUMBER(S)

H-11829

AREA

355 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                 |
|------------------------|-----------------|
| Suppression (type)     | None            |
| Hose Stations          | None            |
| Portable Extinguishers | CO <sub>2</sub> |
| Detectors (type)       | None            |

FIRE RESISTANCE RATING

|                                   |                     |
|-----------------------------------|---------------------|
| Actual                            |                     |
| - Walls                           | N, E, W-C/NR; S-C/3 |
| - Floors, Ceiling or Roof         | Concrete            |
| - Fixed Openings                  | OD/1205S, U         |
| - Penetrations                    | See area 1205 text  |
| - Doors (Fire-rated Class/Zone #) | NR/1205S; NR/1205U  |

### CONSTRUCTION

The north, east, and west walls of this zone are nonrated, reinforced concrete. The north wall is a portion of the refueling pool wall. The south wall is a reinforced concrete, 3-h fire barrier. The floor and ceiling are nonrated, reinforced concrete. There are two doorways with nonrated grating doors, one to zone 1205S and one to zone 1205U in the east and west walls, respectively. See area 1205 for penetrations.

### FIRE PROTECTION

There is no detection or automatic suppression system in the zone. A portable CO<sub>2</sub> fire extinguisher is located in this zone and hose stations are located in adjacent zones 1205S and 1205U.

### CONSEQUENCES OF DESIGN BASIS FIRE

The only fire postulated for this zone would involve controlled amounts of transient combustibles. In the unlikely event of a fire in this zone due to the introduction of transient combustibles, the open doorways in the east and west walls of this zone create a fire propagation possibility to the adjacent zones. However, the lack of fixed combustibles, the automatic wet pipe suppression systems in these adjacent zones, and the substantial construction preclude propagation of the fire beyond the boundaries of this zone. The available firefighting equipment in adjacent zones is adequate to extinguish the fire.

FIRE ZONE 1205X

This zone is not considered safety related.

DESCRIPTION

Stack Monitoring Room  
Unit 1 Reactor Building - el 203 ft

DRAWING NUMBER(S)

H-11830

AREA

2,121 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                 |
|---------------------|---------------------------------|
| Oil & Grease        | None                            |
| Cable               | None                            |
| Class A             | Plank, plywood, clothing, trash |
| Charcoal            | None                            |
| Plastics            | Plastic                         |
| Miscellaneous       | Rubber                          |
| Miscellaneous Gases | None                            |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                                     |
|-----------------------------------|-------------------------------------|
| Actual                            |                                     |
| - Walls                           | N-C/NR; S-C/3; E-C, S/NR; W-C/3, NR |
| - Floors, Ceiling or Roof         | Concrete                            |
| - Fixed Openings                  | CH/1205T, 0201                      |
| - Penetrations                    | See area 1205 text                  |
| - Doors (Fire-rated Class/Zone #) | B/1203                              |

### CONSTRUCTION

All the zone walls are reinforced concrete and nonrated except the south wall and the west wall adjacent to the reactor building stairwell, zone 1203I, which is a 3-h fire barrier. The east wall consists of the nonrated but substantially constructed dryer/separator storage pool, drywell, and refuel pool walls. The west wall is reactor building exterior wall. The floor and ceiling are nonrated, reinforced concrete with concrete covered hatches to zone 1205T and area 0201. There is a fire-rated Class B door in the west wall to zone 1203I. See area 1205 for penetrations.

### FIRE PROTECTION

No manual firefighting equipment, detection or automatic suppression systems are provided in this zone; however, an effective hose stream can be provided to this zone using multiple hose lengths from the hose station provided in zone 1205U. A portable fire extinguisher is available in adjacent zone 1203I.

### CONSEQUENCES OF DESIGN BASIS FIRE

Early detection of a fire in this zone is not likely. However due to the extremely low combustible loading and substantial wall construction, propagation of the design basis fire outside of the zone boundaries is not credible.

FIRE\_ZONE 1205Y

This zone is considered safety related.

DESCRIPTION

Working Floor

Unit 1 Reactor Building - el 203 ft

DRAWING NUMBER(S)

H-11830, H-11831

AREA

7,545 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                    |
|---------------------|------------------------------------|
| Oil & Grease        | None                               |
| Cable               | Cable insulation                   |
| Class A             | Wood, paper, clothing, trash, rags |
| Charcoal            | None                               |
| Plastics            | Plastic, ladders                   |
| Miscellaneous       | Rubber                             |
| Miscellaneous Gases | None                               |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 33,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                  |
|------------------------|------------------|
| Suppression (type)     | None             |
| Hose Stations          | H <sub>2</sub> O |
| Portable Extinguishers | CO <sub>2</sub>  |
| Detectors (type)       | None             |

FIRE RESISTANCE RATING

|                                   |                                     |
|-----------------------------------|-------------------------------------|
| Actual                            |                                     |
| - Walls                           | E, N-C/NR; S-C/3, W-C/NR            |
| - Floors, Ceiling or Roof         | Concrete                            |
| - Fixed Openings                  | CH, SD/0201; OS, OH/1205S; OS/1205R |
| - Penetrations                    | See area 1205 text                  |
| - Doors (Fire-rated Class/Zone #) | NR/0201                             |



### CONSTRUCTION

All the zone walls are reinforced concrete and nonrated except for the south wall which is 3-h rated. The west wall consists of the nonrated but substantially constructed dryer/separator pool, the drywell, and the refuel pool walls. The remaining walls are reactor building exterior walls. The floor is nonrated, reinforced concrete with two open stairwells, one down to zone 1205S and one down to zone 1205R. There is also an open hatch down to zone 1205S. The ceiling is nonrated, reinforced concrete with an open stairwell and a closed hatch up to area 0201. The ceiling consists of the refueling floor, which assures that all penetrations in the ceiling are closed and airtight sealed. See area 0201 for an evaluation of this area boundary. The stairwell is enclosed in a block "doghouse" on the 228-ft elevation with a nonrated door. See area 1205 for penetrations.

### FIRE PROTECTION

There are no detection or automatic suppression systems in this zone. Manual firefighting equipment consists of hose stations and portable CO<sub>2</sub> fire extinguishers.

### CONSEQUENCES OF DESIGN BASIS FIRE

Due to the extremely substantial construction of the zone boundaries, the only credible propagation paths for a design basis fire in this zone are through the open stairwells and hatches. All of the combustibles in this zone are concentrated toward the center of the zone, away from these potential propagation paths. Propagation up through the stairwell to area 0201 is not considered credible as discussed in the text for area 0201. Propagation down through the hatches and stairwells is unlikely due to the lack of intervening combustibles. In the event that propagation does occur through the hatch or stairwell in the south part of this zone, actuation of the hatch water spray system and/or general area wet pipe sprinklers on the 185-ft elevation is expected. Actuation of these suppression systems will provide both local and MCR alarms to ensure prompt response by the plant fire brigade. Propagation through these openings or the stairwell in the north part of the zone will affect only other zones of area 1205 which assures damage to only one safe shutdown path.

FIRE ZONE 1205Z

This zone is considered safety related.

DESCRIPTION

HPCI Pump Room

Unit 1 Reactor Building - Below el 130 ft

DRAWING NUMBER(S)

H-11826

AREA

1,388 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | Lube oil         |
| Cable               | Cable insulation |
| Class A             | Clothing, trash  |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                                      |
|------------------------|------------------------------------------------------|
| Suppression (type)     | Wet pipe (FC); Water spray (PC)<br>(see section 7.0) |
| Hose Stations          | H <sub>2</sub> O                                     |
| Portable Extinguishers | CO <sub>2</sub>                                      |
| Detectors (type)       | None                                                 |

FIRE RESISTANCE RATING

|                                     |                     |
|-------------------------------------|---------------------|
| Actual                              |                     |
| - Walls                             | N, W-C/3; S, E-C/NR |
| - Floors, Ceiling or Roof           | Concrete            |
| - Fixed Openings                    | CH/Outside          |
| - Penetrations                      | See area 1205 text  |
| - Doors (Fire-rated Class/Zone no.) | NR/1205B            |

### CONSTRUCTION

The north and west walls are below grade, concrete reactor building exterior walls and are 3-hour rated fire barriers. The south and east walls are reinforced concrete and nonrated. The floor and ceiling are reinforced concrete and nonrated. There is one nonrated door in the south wall which accesses zone 1205B. A concrete hatch in the ceiling accesses the outside. See area 1205 for penetrations.

### FIRE PROTECTION

This zone is not equipped with any early warning fire detection system. A full coverage wet pipe sprinkler suppression system is provided in this zone as well as a water spray system with directional water spray nozzles to provide spray onto the nonrated south wall. Actuation of the full coverage sprinkler system results in an alarm both locally and in the MCR. In addition, a hose station and a portable CO<sub>2</sub> fire extinguisher are provided for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

The only credible propagation of the design basis fire is through the south wall of this zone. This propagation is acceptable since only other zones of area 1205 would be damaged, thereby limiting fire damage to one safe shutdown path. In the event of a design basis fire, the substantial or rated wall construction coupled with the limited number of penetrations would limit the potential for fire propagation to adjacent areas or zones. The wet pipe sprinkler system is expected to activate during a fire, alarming both locally and in the MCR to ensure prompt response by the plant fire brigade. In addition, the directional spray nozzles are expected to prevent the propagation of fire through the south wall. The manual firefighting equipment provided is adequate to control a fire in the zone.

FIRE AREA 1301

This area is not considered safety related.

DESCRIPTION

Unit 1 Radwaste Building  
Radwaste Building - All Elevations

DRAWING NUMBER(S)

H-11839, H-11840

AREA

21,135 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                                            |
|---------------------|------------------------------------------------------------|
| Oil and Grease      | Lube oil, grease                                           |
| Cable               | Cable insulation                                           |
| Class A             | Clothing, trash, rags, wood, paper,<br>tape (cloth), files |
| Charcoal            | Charcoal                                                   |
| Plastics            | Plastic, ladders, PVC                                      |
| Miscellaneous       | Rubber, resin                                              |
| Miscellaneous Gases | None                                                       |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                              |
|------------------------|----------------------------------------------|
| Suppression (type)     | Dry pipe; water spray (PC) (see section 7.0) |
| Hose Stations          | H <sub>2</sub> O                             |
| Portable Extinguishers | CO <sub>2</sub>                              |
| Detectors (type)       | Smoke det (PC) (see section 7.0)             |

FIRE RESISTANCE RATING

|                                   |                                      |
|-----------------------------------|--------------------------------------|
| Actual                            |                                      |
| - Walls                           | N,E,W-C/NR;W-C/3                     |
| - Floors, Ceiling or Roof         | Concrete                             |
| - Fixed Openings                  | OP/Outside                           |
| - Penetrations                    | See text                             |
| - Doors (Fire-rated Class/Zone #) | A/1101,1105,1205;5-NR/outside;W/1302 |

## CONSTRUCTION

All the walls are reinforced concrete and nonrated with the exception of the west wall which is 3-h rated. The south wall is adjacent to the 3-h-rated reactor building wall. The floor and the ceiling are nonrated, reinforced concrete. There are fire-rated Class A doors that communicate with fire areas 1101, 1104, and 1205. There are five nonrated doors to the outside; a double door on the 130-ft elevation in the north wall, a door on the 144-ft elevation in the north wall to the roof, and three steel radiation shield doors which provide access to the drum storage area. A nonrated, waterproof, submarine-type door to area 1302 is located in the east wall at the 108-ft elevation.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this fire hazard analysis.

## FIRE PROTECTION

This area is equipped with smoke detection in the radwaste control room and the 132-ft elevation drum filling and capping hallway which provides both local and MCR alarms to ensure prompt response by the plant fire brigade. The exhaust filter room has heat detectors and a water spray system associated with the filters. The drywaste storage area at the 132-ft elevation is equipped with a dry pipe sprinkler system. Manual firefighting equipment consists of hose stations and portable CO<sub>2</sub> fire extinguishers throughout the area.

## APPENDIX "R" EXEMPTIONS

None.

## CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire for this area may propagate among zones of the area through the open and nonrated zone boundaries, particularly in the few places where local concentrations of combustibles are located near openings between zones. This propagation is acceptable within the area since no safe shutdown circuits or components are located in the area. The effects of a fire on the radwaste systems are bounded by the analysis as described in the HNP-2-FSAR. No significant radioactive releases were determined to result from exposure of these systems to fire. All radwaste building exterior walls are approximately 2 ft thick. The design basis fire is not considered capable of breaching these area boundaries. In addition, all sections of this area which contain specific fire hazards (charcoal filters) or high concentrations of combustibles (drywaste storage area, radwaste control room) are equipped with detection, suppression, or both. The combustible loading in many zones is negligible and is very low throughout the area.

CONSEQUENCES OF DESIGN BASIS FIRE (cont'd)

Although the internal walls are nonrated and contain openings between zones, they are of substantial, reinforced concrete construction. Actuation of any of the detection or suppression systems, expected to occur in the incipient stages of a fire, will provide both local and MCR alarms to ensure prompt response by the plant fire brigade. The available manual firefighting equipment is adequate to extinguish any fire which might occur. Therefore, propagation of a fire among zones is considered unlikely; and propagation outside of the area is not credible. A fire in this area will not affect the capability to achieve or maintain safe shutdown or result in a significant release of radioactivity.

FIRE ZONE 1301A

This zone is not considered safety related.

DESCRIPTION

West Condensate Phase Separator Room  
Unit 1 Radwaste Building - el 108 ft

DRAWING NUMBER(S)

H-11839

AREA

357 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                     |
|-----------------------------------|---------------------|
| Actual                            |                     |
| - Walls                           | N, S, E-C/NR; W-C/3 |
| - Floors, Ceiling or Roof         | Concrete            |
| - Fixed Openings                  | OD/1301G            |
| - Penetrations                    | See area 1301 text  |
| - Doors (Fire-rated Class/Zone #) | None                |

### CONSTRUCTION

The walls of the zone are reinforced concrete and are nonrated with the exception of the west wall which is 3-h rated. The floor and the ceiling are nonrated, reinforced concrete. There is an open doorway in the south wall to zone 1301G. See area 1301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with any detection or suppression system; however, a hose station and portable CO<sub>2</sub> fire extinguisher are located in adjacent zone 1301G.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible materials. The only fire postulated for this zone would involve controlled amounts of transient combustibles. The negligible fire loading and substantial construction preclude propagation of a design basis fire beyond the boundaries of this zone. The available firefighting equipment in adjacent zone 1301G is adequate to extinguish any fire which may result from the introduction of transient combustibles to this zone.



FIRE ZONE 1301B

This zone is not considered safety related.

DESCRIPTION

East Condensate Phase Separator Room  
Unit 1 Radwaste Building - el 108 ft

DRAWING NUMBER(S)

H-11839

AREA

368 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                    |
|-----------------------------------|--------------------|
| Actual                            |                    |
| - Walls                           | N, S, E, W-C/NR    |
| - Floors, Ceiling or Roof         | Concrete           |
| - Fixed Openings                  | OD/1301G           |
| - Penetrations                    | See area 1301 text |
| - Doors (Fire-rated Class/Zone #) | None               |

### CONSTRUCTION

The walls of this zone are reinforced concrete and are nonrated. The floor and the ceiling are also nonrated, reinforced concrete. There is an open doorway in the south wall to zone 1301G. See area 1301 for penetrations.

### FIRE PROTECTION

There is no automatic suppression or detection system or manual firefighting equipment available in this zone. However, a hose station and portable CO<sub>2</sub> fire extinguisher are provided in adjacent zone 1301G.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible materials. The only fire postulated for this zone would involve controlled amounts of transient combustibles. The negligible fire loading and substantial construction preclude propagation of a design basis fire beyond the boundaries of this zone. The available firefighting equipment in the adjacent zone 1301G is adequate to extinguish any fire which may result from the introduction of transient combustibles to this zone.

FIRE ZONE 1301C

This zone is not considered safety related.

DESCRIPTION

Waste Sludge and Spent Resin Tank and Pump Rooms  
Unit 1 Radwaste Building - el 108 ft

DRAWING NUMBER(S)

H-11839

AREA

552 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                    |
|-----------------------------------|--------------------|
| Actual                            |                    |
| - Walls                           | N, S, E, W-C/NR    |
| - Floors, Ceiling or Roof         | Concrete           |
| - Fixed Openings                  | OD/1301G           |
| - Penetrations                    | See area 1301 text |
| - Doors (Fire-rated Class/Zone #) | None               |

### CONSTRUCTION

The walls are reinforced concrete and are nonrated. The two rooms (waste sludge tank room and spent resin tank room) in this zone are separated by a nonrated wall. The floor and the ceiling are nonrated reinforced concrete. There is an open doorway in the south wall to zone 1301G. See area 1301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with any detection or suppression system. However, a hose station and portable CO<sub>2</sub> fire extinguisher are available in adjacent zone 1301G.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible materials. The only fire postulated for this zone would involve controlled amounts of transient combustibles. The low fire loading and substantial construction preclude propagation of a design basis fire beyond the boundaries of this zone. The available firefighting equipment in adjacent zone 1301G is adequate to extinguish any fire which may result from the introduction of transient combustibles to this zone.

FIRE ZONE 1301D

This zone is not considered safety related.

DESCRIPTION

Chemical Waste and Floor Drain Collection Tank Room  
Unit 1 Radwaste Building - el 108 ft

DRAWING NUMBER(S)

H-11839

AREA

540 ft<sup>2</sup>

COMBUSTIBLES

|                     |         |
|---------------------|---------|
| Oil & Grease        | None    |
| Cable               | None    |
| Class A             | None    |
| Charcoal            | None    |
| Plastics            | Plastic |
| Miscellaneous       | Rubber  |
| Miscellaneous Gases | None    |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                    |
|-----------------------------------|--------------------|
| Actual                            |                    |
| - Walls                           | N, S, E, W-C/NR    |
| - Floors, Ceiling or Roof         | Concrete           |
| - Fixed Openings                  | OD/1301G           |
| - Penetrations                    | See area 1301 text |
| - Doors (Fire-rated Class/Zone #) | None               |

### CONSTRUCTION

The walls are constructed of reinforced concrete and are nonrated. The east and west walls are partial-height walls, open at the top to zones 1301F and 1301E, respectively. The floor and ceiling are nonrated, reinforced concrete. This zone is accessed from zone 1301G through an open doorway in the north wall. See area 1301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with any detection or suppression system. However, a hose station and portable CO<sub>2</sub> fire extinguisher are available in adjacent zone 1301G.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible materials. The negligible fire loading and substantial construction preclude propagation of the design basis fire beyond the boundaries of this zone. The available fire fighting equipment in the adjacent zone 1301G is adequate to extinguish a fire in this zone.

FIRE ZONE 1301E

This zone is not considered safety related.

DESCRIPTION

Waste Collector Tank Room

Unit 1 Radwaste Building - el 108 ft

DRAWING NUMBER(S)

H-11839

AREA

378 ft<sup>2</sup>

COMBUSTIBLES

|                     |         |
|---------------------|---------|
| Oil & Grease        | None    |
| Cable               | None    |
| Class A             | Trash   |
| Charcoal            | None    |
| Plastics            | Plastic |
| Miscellaneous       | None    |
| Miscellaneous Gases | None    |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                     |
|-----------------------------------|---------------------|
| Actual                            |                     |
| - Walls                           | N, S, E-C/NR; W-C/3 |
| - Floors, Ceiling or Roof         | Concrete            |
| - Fixed Openings                  | OD/1301G            |
| - Penetrations                    | See area 1301 text  |
| - Doors (Fire-rated Class/Zone #) | None                |

## 2ONSTRUCTION

The north, south and east walls of this zone are nonrated, reinforced concrete walls. The west wall is a 3-h-rated, reinforced concrete wall. The east wall is a partial-height wall, open at the top to zone 1301D. The floor and ceiling are nonrated, reinforced concrete. There is an open doorway in the north wall to zone 1301G. See area 1301 for penetrations.

## FIRE PROTECTION

This zone is not equipped with any detection or suppression system. However, a hose station and portable CO<sub>2</sub> fire extinguisher are provided in adjacent zone 1301G.

## CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible products. The negligible fire loading and substantial construction preclude propagation of the design basis fire beyond the boundaries of this zone. The available firefighting equipment in adjacent zone 1301G is adequate to extinguish a fire in this zone.



FIRE ZONE 1301F

This zone is not considered safety related.

DESCRIPTION

Waste Sludge and Sample Tank Room  
Radwaste Building - el 108 ft

DRAWING NUMBER(S)

H-11839

AREA

2,255 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | None             |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 42,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                    |
|-----------------------------------|--------------------|
| Actual                            |                    |
| - Walls                           | N, S, E, W-C/NR    |
| - Floors, Ceiling or Roof         | Concrete           |
| - Fixed Openings                  | OD/1301G           |
| - Penetrations                    | See area 1301 text |
| - Doors (Fire-rated Class/Zone #) | W/1302             |

### CONSTRUCTION

The north, south, east, and west walls of this zone are nonrated, reinforced concrete. The south end of the west wall is open at the top to zone 1301D. This zone also communicates with zone 1301G and area 1302 via an open doorway in the west wall and a nonrated water tight door in the east wall, respectively. See area 1301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with any fire detection or automatic suppression system. However, a portable CO<sub>2</sub> fire extinguisher and hose station are available in adjacent zone 1301G.

### CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire for this zone involves only cable which is predominantly IEEE-383 qualified. The design basis fire would, therefore, develop and propagate through the zone very slowly. The low combustible loading and substantial construction of the zone minimize the possibility of a fire propagating to other zones. The fire may be detected in the early stages due to the slow development and personnel traffic in the vicinity. The manual firefighting equipment available in this zone and adjacent zones is adequate to extinguish the fire.

FIRE ZONE 1301G

This zone is not considered safety related.

DESCRIPTION

Working Floor

Radwaste Building - el 108 ft

DRAWING NUMBER(S)

H-11839

AREA

2,396 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | Lube oil         |
| Cable               | Cable insulation |
| Class A             | Clothing, trash  |
| Charcoal            | None             |
| Plastics            | Plastic, ladders |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 80,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                  |
|------------------------|------------------|
| Suppression (type)     | None             |
| Hose Stations          | H <sub>2</sub> O |
| Portable Extinguishers | CO <sub>2</sub>  |
| Detectors (type)       | None             |

FIRE RESISTANCE RATING

|                                   |                                   |
|-----------------------------------|-----------------------------------|
| Actual                            |                                   |
| - Walls                           | N, S, E-C/NR; W-C/3               |
| - Floors, Ceiling or Roof         | Concrete                          |
| - Fixed Openings                  | OD/1301A, B, C, D, E, F; OS/1301J |
| - Penetrations                    | See area 1301 text                |
| - Doors (Fire-rated Class/Zone #) | A/1101                            |

### CONSTRUCTION

The north, south, and east walls of this zone are nonrated, reinforced concrete. The west wall is a reinforced concrete 3-h fire barrier. The north wall communicates with zones 1301A, 1301B, and 1301C via open doorways. The east wall has an open doorway to zone 1301F and the south wall contains open doorways to zone 1301D and zone 1301E. A stairway also communicates with zone 1301J. There is a fire-rated Class A door located in the west wall, accessing area 1101. The ceiling and floor are nonrated, reinforced concrete. See area 1301 for penetrations.

### FIRE PROTECTION

This area is not equipped with any fire detection or automatic suppression system. However, manual firefighting equipment in this zone consists of portable CO<sub>2</sub> fire extinguishers and a hose station.

### CONSEQUENCES OF DESIGN BASIS FIRE

The combustibles in this zone consist of localized concentrations (dress out areas, waste oil drums at sumps) which are separated by significant distance (typically greater than 20 ft). The adjacent zones at the 108-ft elevation all contain negligible combustible loadings. Propagation of the design basis fire among these zones is, therefore, unlikely.

The open stairwell and nonrated ceiling of the zone are credible propagation paths; however, the migration of combustion products through these paths would likely result in actuation of the detection systems located in zones 1301H and 1301J, directly above this zone, or in detection by the continuous staffing in zone 1301H. The resulting local and MCR alarms would ensure prompt response by the plant fire brigade. The available manual firefighting equipment is adequate to extinguish the fire.

FIRE ZONE 1301H

This zone is not considered safety related.

DESCRIPTION

Unit I Radwaste Control Room  
Radwaste Building - el 130 ft

DRAWING NUMBER(S)

H-11839

AREA

776 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | Trash, files     |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | Halon                            |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                     |
|-----------------------------------|---------------------|
| Actual                            |                     |
| - Walls                           | N, S, E-C/NR; W-C/3 |
| - Floors, Ceiling or Roof         | Concrete            |
| - Fixed Openings                  | None                |
| - Penetrations                    | See area 1301 text  |
| - Doors (Fire-rated Class/Zone #) | NR/1301I            |

### CONSTRUCTION

The east, west, north, and south walls of the radwaste control room are reinforced concrete and nonrated except for the west wall which is 3 h rated. The south wall is adjacent to the 3-h-rated reactor building wall. The floor and ceiling are reinforced, nonrated concrete. A nonrated door is located on the north wall of the radwaste control room communicating with zone 1301I. See area 1301 for penetrations.

### FIRE PROTECTION

This area is equipped with smoke detectors which provide an early warning alarm, both locally and in the MCR, to ensure prompt response by the plant fire brigade. Manual firefighting equipment consists of a halon extinguisher beside the door inside zone 1301H and a CO<sub>2</sub> portable fire extinguisher available from adjacent zone 1301I. In addition, a hose station is available in adjacent zone 1301H.

### CONSEQUENCES OF DESIGN BASIS FIRE

The detectors located in this zone are expected to detect the combustion products from an incipient fire and alert the personnel in the radwaste control room and in the MCR to ensure prompt response by the plant fire brigade. The available firefighting equipment provided in this and adjacent zones is adequate to extinguish the fire.

In addition, the presence of an operator in this zone at all times allows for rapid detection and suppression of a fire. The likelihood of early detection and substantial construction of the walls precludes the propagation of the design basis fire beyond the boundaries of this zone.

FIRE ZONE 1301I

This zone is not considered safety related.

DESCRIPTION

Chemical Treatment Room  
Radwaste Building - el 130 ft

DRAWING NUMBER(S)

H-11839

AREA

700 ft<sup>2</sup>

COMBUSTIBLES

|                     |                       |
|---------------------|-----------------------|
| Oil & Grease        | None                  |
| Cable               | Cable insulation      |
| Class A             | Clothing, trash, rags |
| Charcoal            | None                  |
| Plastics            | Plastic, ladders      |
| Miscellaneous       | Rubber, resin         |
| Miscellaneous Gases | None                  |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 90,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                     |
|-----------------------------------|---------------------|
| Actual                            |                     |
| - Walls                           | N, S, E-C/NR; W-C/3 |
| - Floors, Ceiling or Roof         | Concrete            |
| - Fixed Openings                  | OD/1301J            |
| - Penetrations                    | See area 1301 text  |
| - Doors (Fire-rated Class/Zone #) | A/1104; NR/1301H    |

### CONSTRUCTION

All walls of the zone are nonrated, reinforced concrete with the exception of the west wall which is 3-h rated. The east wall is separated from the main hall area (1301J) by two open doorways and a fire-rated Class A door separates this zone from area 1104. A nonrated door separates this zone from zone 1301H. See area 1301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with fire detection or automatic suppression systems. Manual firefighting equipment in this zone consists of a portable CO<sub>2</sub> fire extinguisher. Additional extinguishers and a hose station are available in adjacent zone 1301J.

### CONSEQUENCES OF DESIGN BASIS FIRE

The personnel traffic in this area may provide early detection of a fire. Available manual firefighting equipment is adequate to extinguish the fire. In the event a fire did propagate to zone 1301J (drywaste storage), there is a dry pipe sprinkler system in that zone that would provide immediate suppression. Any propagation of combustion products to either adjacent zone (1301J, 1301H) would likely result in actuation of early warning fire alarms, both locally and in the MCR, by the installed smoke detection systems in these zones. These alarms would ensure prompt response by the plant fire brigade. Due to the low combustible loading, the likelihood of early fire detection and the substantial construction of the walls, propagation of a fire to other zones is unlikely.



FIRE ZONE 1301J

This zone is not considered safety related.

DESCRIPTION

Working Floor  
Radwaste Building - el 132 ft

DRAWING NUMBER(S)

H-11839

AREA

5,687 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                                  |
|---------------------|--------------------------------------------------|
| Oil & Grease        | None                                             |
| Cable               | Cable insulation                                 |
| Class A             | Wood, paper, clothing, tape (cloth), trash, rags |
| Charcoal            | None                                             |
| Plastics            | Plastic, PVC                                     |
| Miscellaneous       | Rubber                                           |
| Miscellaneous Gases | None                                             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | Dry pipe (PC) (see section 7.0)  |
| Hose Stations          | H <sub>2</sub> O                 |
| Portable Extinguishers | CO <sub>2</sub>                  |
| Detectors (type)       | Smoke det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                       |
|-----------------------------------|-----------------------|
| Actual                            |                       |
| - Walls                           | N, S, E, W-C/NR       |
| - Floors, Ceiling or Roof         | Concrete              |
| - Fixed Openings                  | OD/1301I; OS/1301G, M |
| - Penetrations                    | See area 1301 text    |
| - Doors (Fire-rated Class/Zone #) | A/1205; 4-NR/Outside  |

## CONSTRUCTION

The walls of the main working floor zone of the radwaste building at 132-ft elevation are reinforced concrete except the part of the west wall adjacent to zone 1301I which is a block wall. Three small, heavy steel radiation shield "doors" are provided in the northeast and east walls for access to the drum storage area. All walls are nonrated. The south wall contains a fire-rated Class A door which accesses area 1205. The west wall has open doorways to zone 1301I. The north wall has a nonrated vault-type double door which accesses the outside. The floor and ceiling are nonrated, reinforced concrete. The floor and ceiling have stairs connecting zones 1301G below and 1301M above. See area 1301 for penetrations.

## FIRE PROTECTION

The drum fill and cap area is equipped with smoke detectors which provide an early warning alarm both locally and in the MCR. The dry waste storage area (northwest end of the zone) is equipped with a dry pipe suppression system. Actuation of the sprinklers also results an alarm both locally and in the MCR. Manual firefighting equipment in this zone consists of portable CO<sub>2</sub> fire extinguishers and a hose station.

## CONSEQUENCES OF DESIGN BASIS FIRE

The drywaste storage section of this zone contains the bulk of the combustibles in the zone. A fire originating in this section is expected to be rapidly extinguished by the installed dry pipe sprinkler system. In addition, alarms resulting from actuation of the suppression system over the drywaste storage area or the smoke detectors in the drum fill and cap area and personnel traffic in this zone ensure early fire detection and prompt response by the plant fire brigade. The open stairwells and doorways represent a fire propagation possibility to adjacent zones 1301G, 1301M, and 1301I, respectively; however, the low combustible loading and the likelihood of early fire detection preclude fire propagation. Propagation of a fire to other zones in this area, in the unlikely event that it does occur, will not affect the ability to achieve safe shutdown.

FIRE ZONE 1301K

This zone is not considered safety related.

DESCRIPTION

Radwaste Exhaust Filter Room  
Radwaste Building - el 144 ft

DRAWING NUMBER(S)

H-11840

AREA

1,015 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | Charcoal         |
| Plastics            | None             |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                    |
|------------------------|------------------------------------|
| Suppression (type)     | Water spray (PC) (see section 7.0) |
| Hose Stations          | None                               |
| Portable Extinguishers | None                               |
| Detectors (type)       | Heat det (PC) (see section 7.0)    |

FIRE RESISTANCE RATING

|                                   |                     |
|-----------------------------------|---------------------|
| Actual                            |                     |
| - Walls                           | N, S, E-C/NR; W-C/3 |
| - Floors, Ceiling or Roof         | Concrete            |
| - Fixed Openings                  | None                |
| - Penetrations                    | See area 1301 text  |
| - Doors (Fire-rated Class/Zone #) | NR/1301M            |

### CONSTRUCTION

The north, south, east, and west walls are nonrated, reinforced concrete walls except the west wall which is 3-h rated. The south wall is adjacent to the 3-h-rated reactor building wall. A nonrated double door in east wall connects this zone with the 144-ft elevation radwaste working floor (1301M). See area 1301 for penetrations.

### FIRE PROTECTION

This zone is equipped with heat detectors in the charcoal filters which provide an early warning alarm both locally and in the MCR. Fire brigade personnel will actuate a water spray system to suppress a fire in the filters. The zone is not equipped with any manual firefighting equipment. A hose station and CO<sub>2</sub> portable fire extinguishers are available in adjacent zone 1301M.

### CONSEQUENCES OF DESIGN BASIS FIRE

The major combustible in this zone is charcoal, contained in the filters which are equipped with internal heat detectors and suppression systems. The heat detectors are expected to provide an early warning alarm both locally and in the MCR, to ensure prompt response by the plant fire brigade. The suppression system provided in the filter units will be initiated by the fire brigade to suppress the fire. The manual firefighting equipment provided in the adjacent zone 1301M is also available. The low fire loading and substantial wall construction precludes the propagation of the fire beyond the boundaries of this zone.

FIRE ZONE 1301L

This zone is not considered safety related.

DESCRIPTION

Hopper B Room

Unit 1 Radwaste Building - el 144 ft

DRAWING NUMBER(S)

H-11840

AREA

238 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                    |
|-----------------------------------|--------------------|
| Actual                            |                    |
| - Walls                           | N, S, E, W-C/NR    |
| - Floors, Ceiling or Roof         | Concrete           |
| - Fixed Openings                  | None               |
| - Penetrations                    | See area 1301 text |
| - Doors (Fire-rated Class/Zone #) | NR/1301M           |

### CONSTRUCTION

The zone walls are reinforced concrete and nonrated. The ceiling and floor are also reinforced, nonrated concrete. There is a nonrated door in the west wall to zone 1301M. See area 1301 for penetrations.

### FIRE PROTECTION

This zone contains no manual or automatic detection or suppression system. However, there are portable CO<sub>2</sub> fire extinguishers and a hose station available in adjacent zone 1301M for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible material. The only fire postulated for this zone would involve controlled amounts of transient combustibles. The negligible fire loading and substantial construction preclude propagation of a design basis fire beyond the boundaries of this zone. The available firefighting equipment in adjacent zone 1301M is adequate to extinguish any fire which may result from the introduction of transient combustibles to this zone.

FIRE ZONE 1301M

This zone is not considered safety related.

DESCRIPTION

Southeast Radwaste Building

Unit 1 Radwaste Building - el 144 ft

DRAWING NUMBER(S)

H-11840

AREA

2,101 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | Clothing, trash  |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 39,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                  |
|------------------------|------------------|
| Suppression (type)     | None             |
| Hose Stations          | H <sub>2</sub> O |
| Portable Extinguishers | CO <sub>2</sub>  |
| Detectors (type)       | None             |

FIRE RESISTANCE RATING

|                                   |                         |
|-----------------------------------|-------------------------|
| Actual                            |                         |
| - Walls                           | N, S, E, W-C/NR         |
| - Floors, Ceiling or Roof         | Concrete                |
| - Fixed Openings                  | OS/1301J, P             |
| - Penetrations                    | See area 1301 text      |
| - Doors (Fire-rated Class/Zone #) | NR/1301K, L, N, Outside |

### CONSTRUCTION

The zone walls are reinforced, nonrated concrete. The floor and ceiling are also reinforced, nonrated concrete. The west wall contains a nonrated double door to zone 1301K. This zone communicates with zone 1301J at the 132-ft elevation and zone 1301P at the 156-ft elevation via the stairway provided in the southwest corner of this zone. There is a nonrated door to zone 1301N, a nonrated door to zone 1301L, and a nonrated door in the north wall that accesses the roof of the radwaste building. See area 1301 for penetrations.

### FIRE PROTECTION

There is no detection or automatic suppression system in the zone. However, a hose station and portable CO<sub>2</sub> fire extinguishers are provided in the zone.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible material. The low fire loading and substantial construction precludes fire propagation beyond the boundaries of this zone. The available firefighting equipment in this zone is adequate to extinguish the fire.



FIRE ZONE 1301N

This zone is not considered safety related.

DESCRIPTION

Hopper A Room

Unit 1 Radwaste Building - el 144 ft

DRAWING NUMBER(S)

H-11840

AREA

224 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                    |
|-----------------------------------|--------------------|
| Actual                            |                    |
| - Walls                           | N, S, E, W-C/NR    |
| - Floors, Ceiling or Roof         | Concrete           |
| - Fixed Openings                  | None               |
| - Penetrations                    | See area 1301 text |
| - Doors (Fire-rated Class/Zone #) | NR/1301M           |

### CONSTRUCTION

All the walls of this zone are nonrated, reinforced concrete. The floor and ceiling are also reinforced, nonrated concrete. There is a nonrated door in the east wall to zone 1301M. See area 1301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with detection or suppression systems or manual firefighting equipment. A hose station and portable CO<sub>2</sub> fire extinguishers are available in adjacent zone 1301M.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible material. The only fire postulated for this zone would involve controlled amounts of transient combustibles. The negligible fire loading and substantial construction preclude propagation of a design basis fire beyond the boundaries of this zone. The available firefighting equipment in adjacent zone 1301M is adequate to extinguish any fire which resulted from the introduction of transient combustibles.

FIRE ZONE 1301P

This zone is not considered safety related.

DESCRIPTION

Working Floor

Unit 1 Radwaste Building - el 156 ft-4 in.

DRAWING NUMBER(S)

H-11840

AREA

1,975 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                  |
|------------------------|------------------|
| Suppression (type)     | None             |
| Hose Stations          | H <sub>2</sub> O |
| Portable Extinguishers | CO <sub>2</sub>  |
| Detectors (type)       | None             |

FIRE RESISTANCE RATING

|                                   |                    |
|-----------------------------------|--------------------|
| Actual                            |                    |
| - Walls                           | N, S, E, W-C/NR    |
| - Floors, Ceiling or Roof         | Concrete           |
| - Fixed Openings                  | CH, OS/1301M       |
| - Penetrations                    | See area 1301 text |
| - Doors (Fire-rated Class/Zone #) | NR/1301Q, R, S     |

### CONSTRUCTION

The zone walls are nonrated, reinforced concrete. The floor and ceiling are also nonrated, reinforced concrete. A nonrated double door in the west wall provides access to zone 1301Q. Two nonrated doors provide access to zones 1301R and 1301S. A stairway in the southwest portion of the zone communicates with zone 1301M at the 144-ft elevation. See area 1301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with detection or automatic suppression systems. However, a hose station and portable CO<sub>2</sub> fire extinguishers are provided in the zone.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible material. The only fire postulated for this zone would involve controlled amounts of transient combustibles. The insignificant fire loading and substantial construction preclude propagation of a design basis fire beyond the boundaries of this zone. The available firefighting equipment in this zone is adequate to extinguish any fire which may occur as a result of the introduction of transient combustibles.

FIRE ZONE 1301Q

This zone is not considered safety related.

DESCRIPTION

Ventilation Room

Unit 1 Radwaste Building - el 156 ft-4 in.

DRAWING NUMBER(S)

H-11840

AREA

1,025 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | None             |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 28,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                     |
|-----------------------------------|---------------------|
| Actual                            |                     |
| - Walls                           | E, S, N-C/NR; W-C/3 |
| - Floors, Ceiling or Roof         | Concrete            |
| - Fixed Openings                  | OP/outside          |
| - Penetrations                    | See area 1301 text  |
| - Doors (Fire-rated Class/Zone #) | NR/1301P            |

### CONSTRUCTION

The north, south, east, and west walls are nonrated, reinforced concrete with the exception of the west wall which is 3-h rated. The floor and ceiling are also reinforced, nonrated concrete. There is a nonrated double door in the east wall to zone 1301P. See area 1301 for penetrations.

### FIRE PROTECTION

No automatic detection or suppression systems or manual firefighting equipment is provided in this zone. A hose station and portable CO<sub>2</sub> fire extinguishers are provided in adjacent zone 1301P.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible material. The negligible fire loading and substantial construction preclude propagation of the design basis fire beyond the boundaries of this zone. The available firefighting equipment in the adjacent zones is adequate to extinguish the fire.

FIRE ZONE 1301R

This zone is not considered safety related.

DESCRIPTION

Centrifuge Room - A  
Radwaste Building - el 156 ft-4 in.

DRAWING NUMBER(S)

H-11840

AREA

261 ft<sup>2</sup>

COMBUSTIBLES

|                     |                       |
|---------------------|-----------------------|
| Oil & Grease        | Grease                |
| Cable               | None                  |
| Class A             | Clothing, trash, rags |
| Charcoal            | None                  |
| Plastics            | Plastic, ladders      |
| Miscellaneous       | Rubber                |
| Miscellaneous Gases | None                  |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 51,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                    |
|-----------------------------------|--------------------|
| Actual                            |                    |
| - Walls                           | N, S, E, W-C/NR    |
| - Floors, Ceiling or Roof         | Concrete           |
| - Fixed Openings                  | None               |
| - Penetrations                    | See area 1301 text |
| - Doors (Fire-rated Class/Zone #) | NR/1301P           |

### CONSTRUCTION

All zone walls are nonrated, reinforced concrete. The floor and ceiling are nonrated, reinforced concrete. A nonrated door is provided in the east wall of this zone to zone 1301P. See area 1301 for penetrations.

### FIRE PROTECTION

No automatic suppression, fire detection, or manual firefighting equipment is provided in this zone. However, a hose station and portable CO<sub>2</sub> fire extinguishers are provided in adjacent zone 1301P.

### CONSEQUENCES OF DESIGN BASIS FIRE

The low fire loading and substantial construction of the concrete walls preclude the possibility of a design basis fire from propagating beyond the boundaries of this zone. The manual firefighting equipment (hose station and CO<sub>2</sub> portable fire extinguishers) provided in the adjacent zone are adequate to suppress a fire in this zone.



FIRE ZONE 1301S

This zone is not considered safety related.

DESCRIPTION

Centrifuge Room - B  
Radwaste Building - el 156 ft-4 in.

DRAWING NUMBER(S)

H-11840

AREA

287 ft<sup>2</sup>

COMBUSTIBLES

|                     |                       |
|---------------------|-----------------------|
| Oil & Grease        | Lube oil              |
| Cable               | None                  |
| Class A             | Clothing, trash, rags |
| Charcoal            | None                  |
| Plastics            | Plastic               |
| Miscellaneous       | Rubber                |
| Miscellaneous Gases | None                  |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 47,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                    |
|-----------------------------------|--------------------|
| Actual                            |                    |
| - Walls                           | N, S, E, W-C/NR    |
| - Floors, Ceiling or Roof         | Concrete           |
| - Fixed Openings                  | None               |
| - Penetrations                    | See area 1301 text |
| - Doors (Fire-rated Class/Zone #) | NR/1301P           |

### CONSTRUCTION

All zone walls are nonrated, reinforced concrete walls. The floor and ceiling are nonrated, reinforced concrete. A nonrated door is provided in the west wall of this zone to zone 1301P. See area 1301 for penetrations.

### FIRE PROTECTION

No automatic suppression, fire detection, or manual firefighting equipment is provided in this zone. However, a hose station and portable CO<sub>2</sub> fire extinguishers are provided in the adjacent zone 1301P.

### CONSEQUENCES OF DESIGN BASIS FIRE

The low fire loading and substantial construction of the concrete walls preclude the possibility of a design basis fire from propagating beyond the boundaries of this zone. The manual firefighting equipment (hose station and portable CO<sub>2</sub> fire extinguishers) provided in the adjacent zone will be adequate to suppress a fire in this zone.

FIRE AREA 1302

This area is not considered safety related.

DESCRIPTION

Unit I Radwaste Addition Building  
All elevations

DRAWING NUMBER(S)

H-11841

AREA

9,274 ft<sup>2</sup>

COMBUSTIBLES

|                     |                        |
|---------------------|------------------------|
| Oil & Grease        | None                   |
| Cable               | Cable insulation       |
| Class A             | Paper, clothing, trash |
| Charcoal            | Charcoal               |
| Plastics            | Plastic                |
| Miscellaneous       | Rubber                 |
| Miscellaneous Gases | None                   |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                    |
|------------------------|------------------------------------|
| Suppression (type)     | Water spray (PC) (see section 7.0) |
| Hose Stations          | H <sub>2</sub> O                   |
| Portable Extinguishers | CO <sub>2</sub>                    |
| Detectors (type)       | Heat det (PC) (see section 7.0)    |

FIRE RESISTANCE RATING

|                                     |                       |
|-------------------------------------|-----------------------|
| Actual                              |                       |
| - Walls                             | N, S, E, W-C/NR       |
| - Floors, Ceiling, or Roof          | Concrete              |
| - Fixed Openings                    | OP, CH/Outside        |
| - Penetrations                      | See text              |
| - Doors (Fire-rated Class/Zone no.) | 3-NR/Outside; NR/1301 |

## CONSTRUCTION

All the walls are reinforced concrete and nonrated. The floor and ceiling are also nonrated, reinforced concrete. There are four nonrated doors, two vault-type doors in the north wall, one in the south wall communicating with the outside at el 132 ft, and one watertight door in the west wall to area 1301 at el 108 ft.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this fire hazard analysis.

## FIRE PROTECTION

This area is not equipped with any detection or automatic suppression systems except for heat detector actuated automatic water spray systems in the filters (zone 1302J) at el 150 ft. Manual firefighting equipment in this area includes hose stations and portable CO<sub>2</sub> fire extinguishers.

## APPENDIX "R" EXEMPTIONS

None.

## CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire for this area may propagate among zones of the area through the open and nonrated zone boundaries, particularly in the places where local concentrations of combustibles are located near openings between zones. This propagation is acceptable within the area since no safe shutdown circuits or components are located in the area. The effects of a fire on the radwaste systems are bounded by the analysis described in the Unit 2 FSAR. No significant radioactive releases were determined to result from exposure of these systems to fire. All radwaste addition building exterior walls are approximately 2-ft thick. The design basis fire is not considered capable of breaching these area boundaries. In addition, the sections of this area which contain specific fire hazards (charcoal filters) are equipped with detection systems, automatic suppression systems, or both. The combustible loading in many zones is negligible and is very low throughout the area. Although the internal walls are nonrated and contain openings between zones, they are of substantial reinforced concrete construction. The available manual firefighting equipment is adequate to extinguish any fire that might occur. Therefore, propagation of a fire among zones is considered unlikely and propagation outside of the area is not credible. A fire in this area will not affect the capability to achieve or maintain safe shutdown or result in a significant release of radioactivity.

FIRE ZONE 1302A

This zone is not considered safety related.

DESCRIPTION

Concentrated Radwaste Pump Room  
Radwaste Addition Building - el 108 ft

DRAWING NUMBER(S)

H-11841

AREA

205 ft<sup>2</sup>

COMBUSTIBLES

|                     |        |
|---------------------|--------|
| Oil & Grease        | None   |
| Cable               | None   |
| Class A             | None   |
| Charcoal            | None   |
| Plastics            | None   |
| Miscellaneous       | Rubber |
| Miscellaneous Gases | None   |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                    |
|-----------------------------------|--------------------|
| Actual                            |                    |
| - Walls                           | N, S, E, W-C/NR    |
| - Floors, Ceiling or Roof         | Concrete           |
| - Fixed Openings                  | OD/1302C           |
| - Penetrations                    | See area 1302 text |
| - Doors (Fire-rated Class/Zone #) | None               |

### CONSTRUCTION

All zone walls are nonrated, reinforced concrete. The north and west walls are exterior walls. This zone communicates with zone 1302C via an open doorway in the south wall. The floor and ceiling are nonrated, reinforced concrete. See area 1302 for penetrations.

### FIRE PROTECTION

There is no fire detection, automatic suppression, or manual firefighting equipment in this zone; however, a hose station and portable CO<sub>2</sub> fire extinguisher are provided in adjacent zone 1302C.

### CONSEQUENCES OF DESIGN BASIS FIRE

The negligible combustible loading and substantial construction of the concrete walls preclude the possibility of a design basis fire from propagating to other zones. The available firefighting equipment in adjacent zone 1302C is adequate to extinguish a fire.

FIRE ZONE 1302B

This zone is not considered safety related.

DESCRIPTION

Chemical Waste Neutralizer Tank Room  
Unit 1 Radwaste Addition Building

DRAWING NUMBER(S)

H-11841

AREA

400 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N, S, E, W-C/NR    |
| - Floors, Ceiling, or Roof          | Concrete           |
| - Fixed Openings                    | OD/1302E           |
| - Penetrations                      | See area 1302 text |
| - Doors (Fire-rated Class/Zone no.) | None               |

### CONSTRUCTION

The zone walls are reinforced concrete and are nonrated. The floor and ceiling are also nonrated, reinforced concrete. There is an open doorway in the west wall to zone 1302E. See area 1302 for penetrations.

### FIRE PROTECTION

This zone is not equipped with any detection or suppression systems or manual firefighting equipment. However, a hose station and portable CO<sub>2</sub> fire extinguisher are available in nearby zone 1302C, and a hose station is available in adjacent zone 1302E.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains a negligible combustible loading. The only fire postulated for this zone would involve controlled amounts of transient combustibles. The open doorway in the west wall creates a fire propagation hazard to the adjacent zone; however, the negligible combustible loading reduces the probability of propagation of the fire to the adjacent zone. The available firefighting equipment in adjacent zones 1302C and 1302E is adequate to extinguish any fire that occurs as a result of the introduction of transient combustibles.



FIRE ZONE 1302C

This zone is not considered safety related.

DESCRIPTION

Chemical Waste Sample Tank Room  
Radwaste Addition Building - el 108 ft

DRAWING NUMBER(S)

H-11841

AREA

1935 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | Paper, trash     |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 48,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                  |
|------------------------|------------------|
| Suppression (type)     | None             |
| Hose Stations          | H <sub>2</sub> O |
| Portable Extinguishers | CO <sub>2</sub>  |
| Detectors (type)       | None             |

FIRE RESISTANCE RATING

|                                   |                          |
|-----------------------------------|--------------------------|
| Actual                            |                          |
| - Walls                           | N, S, E, W-C/NR          |
| - Floors, Ceiling or Roof         | Concrete                 |
| - Fixed Openings                  | OS/1302F; OD/1302A, E, D |
| - Penetrations                    | See area 1302 text       |
| - Doors (Fire-rated Class/Zone #) | W/1301                   |

### CONSTRUCTION

All zone walls are constructed of nonrated, reinforced concrete. Part of the east wall communicates with zone 1302D via an open doorway. The north wall of this zone contains doorways open to zones 1302A and 1302E. The zone also communicates with zone 1302F via open stairways. There is a nonrated, watertight, submarine-type door in the west wall communicating with zone 1301F. The floor and ceiling are nonrated, reinforced concrete. See area 1302 for penetrations.

### FIRE PROTECTION

There is no automatic suppression or fire detection system in the zone. The manual firefighting equipment consists of a hose station and portable CO<sub>2</sub> fire extinguisher.

### CONSEQUENCES OF DESIGN BASIS FIRE

The majority of the combustibles in this zone are located in the hot tool room which is surrounded by concrete walls with an open doorway to the rest of the rooms in the zone. The low combustible loading and substantial construction of the walls precludes a design basis fire from propagating to other zones. Although this zone communicates with other zones through open doorways, hot gases from a fire in this zone will be significantly diluted by passage through the labyrinth propagation path before reaching other zones. Therefore, a fire is not likely to propagate. The substantial reinforced concrete, below grade, radwaste addition building exterior wall on the west side of this zone, and the nonrated, watertight door in the wall are capable of withstanding the less than 30-min duration of the design basis fire without being breached. The available fire protection is adequate to extinguish a fire.

FIRE ZONE 1302D

This zone is not considered safety related.

DESCRIPTION

Concentrator Tank Room

Unit I Radwaste Addition Building - el 108 ft

DRAWING NUMBER(S)

H-11841

AREA

100 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                    |
|-----------------------------------|--------------------|
| Actual                            |                    |
| - Walls                           | N, S, E, W-C/NR    |
| - Floors, Ceiling or Roof         | Concrete           |
| - Fixed Openings                  | None               |
| - Penetrations                    | See area 1302 text |
| - Doors (Fire-rated Class/Zone #) | OD/1302C           |

### CONSTRUCTION

The zone walls are reinforced, nonrated concrete. The floor and ceiling are also reinforced, nonrated concrete. There is an open doorway in the west wall to zone 1302C. See area 1302 for penetrations.

### FIRE PROTECTION

This zone is not equipped with any detection or suppression systems or manual firefighting equipment. However, a hose station and portable CO<sub>2</sub> fire extinguisher are provided in adjacent zone 1302C.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains a negligible combustible loading. The only fire postulated for this zone would involve controlled amounts of transient combustibles. The open passageway in the west wall creates a fire propagation hazard to the adjacent zone; however, the low combustible loading and the substantial construction preclude propagation of the fire to the adjacent zone. The available firefighting equipment in adjacent zone 1302C is adequate to extinguish any fire which occurred as a result of the introduction of transient combustibles.

FIRE ZONE 1302E

This zone is not considered safety related.

DESCRIPTION

Chemical Waste Neutralizer Pump Room and Dumbwaiter Hall  
Unit I Radwaste Addition Building - el 108 ft

DRAWING NUMBER(S)

H-11841

AREA

207 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                  |
|------------------------|------------------|
| Suppression (type)     | None             |
| Hose Stations          | H <sub>2</sub> O |
| Portable Extinguishers | None             |
| Detectors (type)       | None             |

FIRE RESISTANCE RATING

|                                   |                       |
|-----------------------------------|-----------------------|
| Actual                            |                       |
| - Walls                           | N, S, E, W-C/NR       |
| - Floors, Ceiling or Roof         | Concrete              |
| - Fixed Openings                  | OD/1302B, C; OP/1302L |
| - Penetrations                    | See area 1302 text    |
| - Doors (Fire-rated Class/Zone #) | None                  |

### CONSTRUCTION

The zone walls are reinforced, nonrated concrete walls. The floor and the ceiling are also nonrated, reinforced concrete. This zone communicates with zones 1302B and 1302C through open doorways and with zone 1302L above this zone through the dumbwaiter opening. See area 1302 for penetrations.

### FIRE PROTECTION

This zone is not equipped with any detection or automatic suppression systems; however, the zone is provided with a hose station. In addition, a hose station and portable CO<sub>2</sub> fire extinguisher are available in adjacent zone 1302C.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains a negligible combustible loading. The only fire postulated for this zone would involve controlled amounts of transient combustibles. The open doorways in the east and south walls create a fire propagation hazard to the adjacent zones 1302B and 1302C; however, the negligible combustible loading and substantial construction preclude propagation of the fire to the adjacent zone. The available manual firefighting equipment in this and the adjacent zones is adequate to extinguish any fire which occurs as a result of the introduction of transient combustibles.

FIRE ZONE 1302F

This zone is not considered safety related.

DESCRIPTION

Working Floor

Radwaste Addition Building - el 132 ft

DRAWING NUMBER(S)

H-11841

AREA

1,985 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | None             |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 40,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                 |
|------------------------|-----------------|
| Suppression (type)     | None            |
| Hose Stations          | None            |
| Portable Extinguishers | CO <sub>2</sub> |
| Detectors (type)       | None            |

FIRE RESISTANCE RATING

|                                   |                          |
|-----------------------------------|--------------------------|
| Actual                            |                          |
| - Walls                           | N, S, E, W-C/NR          |
| - Floors, Ceiling or Roof         | Concrete                 |
| - Fixed Openings                  | OS/1302C, J              |
| - Penetrations                    | See area 1302 text       |
| - Doors (Fire-rated Class/Zone #) | NR/outside, 1302H, 1302L |

### CONSTRUCTION

All walls of this zone are nonrated, reinforced concrete. There are two nonrated doors in the north wall, one communicating with zone 1302H and the other with zone 1302L. A nonrated door in the south wall communicates with the outside and an open stairway communicates with zones 1302C below and 1302J above this zone. The floor and ceiling are nonrated, reinforced concrete. See area 1302 for penetrations.

### FIRE PROTECTION

There is no fire detection or automatic suppression system in the zone. Manual firefighting equipment in the zone consists of a portable CO<sub>2</sub> fire extinguisher. In addition, a hose station and portable CO<sub>2</sub> fire extinguisher are available in fire zone 1302C.

### CONSEQUENCES OF DESIGN BASIS FIRE

The majority of the zone boundaries are radwaste addition building exterior walls, substantially constructed with essentially no penetrations. The low fire loading and substantial construction of the concrete walls preclude a design basis fire from propagating beyond the boundaries of the fire zone. The manual firefighting equipment available is adequate to extinguish a fire.



FIRE ZONE 1302G

This zone is not considered safety related.

DESCRIPTION

Radwaste Concentrate Tank Room  
Unit 1 Radwaste Addition Building - el 132 ft

DRAWING NUMBER(S)

H-11841

AREA

100 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                    |
|-----------------------------------|--------------------|
| Actual                            |                    |
| - Walls                           | N, S, E, W-C/NR    |
| - Floors, Ceiling or Roof         | Concrete           |
| - Fixed Openings                  | CH/Outside         |
| - Penetrations                    | See area 1302 text |
| - Doors (Fire-rated Class/Zone #) | None               |

### CONSTRUCTION

The zone walls are all reinforced, nonrated concrete. The floor and the ceiling are nonrated, reinforced concrete. A concrete covered hatch is provided in the ceiling for equipment removal. There is no other access to this zone. See area 1302 for penetrations.

### FIRE PROTECTION

Since this is a sealed zone with no means of normal access, containing no fixed combustibles, no fire protection features are provided for this zone.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains a negligible loading of combustible material. The only fire postulated for this zone would involve transient combustibles. Since this zone is completely sealed with no normal access possible, the introduction of transient combustibles is not expected. In the unlikely event of any fire in this zone, the negligible fire loading and substantial construction preclude propagation of a fire beyond the boundaries of this zone.

FIRE ZONE 1302H

This zone is not considered safety related.

DESCRIPTION

Floor Drain Sample Tank Room  
Unit 1 Radwaste Addition Building - el 132 ft

DRAWING NUMBER(S)

H-11841

AREA

528 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                    |
|-----------------------------------|--------------------|
| Actual                            |                    |
| - Walls                           | N, S, E, W-C/NR    |
| - Floors, Ceiling or Roof         | Concrete           |
| - Fixed Openings                  | None               |
| - Penetrations                    | See area 1302 text |
| - Doors (Fire-rated Class/Zone #) | NR/1302F           |

### CONSTRUCTION

The zone walls are reinforced, nonrated concrete. The floor and ceiling are also nonrated, reinforced concrete. There is a nonrated door in the south wall to zone 1302F. See area 1302 for penetrations.

### FIRE PROTECTION

This zone is not equipped with any detection or suppression systems or manual firefighting equipment. However, a portable CO<sub>2</sub> fire extinguisher is available in adjacent zone 1302F and hose stations are available in zones 1302C and 1302J.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible material. The only fire postulated for this zone would involve controlled amounts of transient combustibles. The negligible fire loading and substantial construction preclude propagation of fire beyond the boundaries of this zone. The available firefighting equipment in adjacent zones is adequate to extinguish any fire which occurs as a result of the introduction of transient combustibles.

FIRE ZONE 1302I

This zone is not considered safety related.

DESCRIPTION

HVAC Room

Unit 1 Radwaste Addition Building - el 150 ft

DRAWING NUMBER(S)

H-11841

AREA

367 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                  |
|------------------------|------------------|
| Suppression (type)     | None             |
| Hose Stations          | H <sub>2</sub> O |
| Portable Extinguishers | None             |
| Detectors (type)       | None             |

FIRE RESISTANCE RATING

|                                   |                    |
|-----------------------------------|--------------------|
| Actual                            |                    |
| - Walls                           | N, S, E, W-C/NR    |
| - Floors, Ceiling or Roof         | Concrete           |
| - Fixed Openings                  | OP/Outside         |
| - Penetrations                    | See area 1302 text |
| - Doors (Fire-rated Class/Zone #) | NR/1302J           |

### CONSTRUCTION

The zone walls are reinforced, nonrated concrete. The floor and ceiling are also nonrated, reinforced concrete. The east wall has an opening to the outside for air intake. A nonrated door in the west wall communicates with zone 1302J. See area 1302 for penetrations.

### FIRE PROTECTION

This zone is not equipped with any automatic suppression or detection systems. There is a portable CO<sub>2</sub> fire extinguisher and a hose station available in adjacent zone 1302J and a hose station available in this zone.

### CONSEQUENCES OF DESIGN BASIS FIRE

The only fire postulated for this zone would involve controlled amounts of transient combustibles. The negligible combustible loading and substantial construction preclude propagation of a fire to the adjacent zones. The available firefighting equipment in this zone is adequate to extinguish any fire which occurs as a result of the introduction of transient combustibles.

FIRE ZONE 1302J

This zone is not considered safety related.

DESCRIPTION

Working Floor

Radwaste Addition Building - el 150 ft

DRAWING NUMBER(S)

H-11841

AREA

2,797 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | Paper, clothing  |
| Charcoal            | Charcoal         |
| Plastics            | Plastic          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                    |
|------------------------|------------------------------------|
| Suppression (type)     | Water spray (PC) (see section 7.0) |
| Hose Stations          | H <sub>2</sub> O                   |
| Portable Extinguishers | CO <sub>2</sub>                    |
| Detectors (type)       | Heat det (PC) (see section 7.0)    |

FIRE RESISTANCE RATING

|                                   |                    |
|-----------------------------------|--------------------|
| Actual                            |                    |
| - Walls                           | N, S, E, W-C/NR    |
| - Floors, Ceiling or Roof         | Concrete           |
| - Fixed Openings                  | OP/1302L; OS/1302F |
| - Penetrations                    | See area 1302 text |
| - Doors (Fire-rated Class/Zone #) | NR/1302I           |

### CONSTRUCTION

The zone walls are nonrated, reinforced concrete. The floor and ceiling are also nonrated reinforced concrete. A nonrated door at the south end of the east wall connects zone 1302I with this zone. There is an open stairway in the west part of the floor that leads to zone 1302F below this zone. The dumbwaiter shaft in the north section of this zone is open to zone 1302L below. See area 1302 for penetrations.

### FIRE PROTECTION

The charcoal filters in this zone are equipped with heat detection and internal water spray systems. In addition, a hose station and portable CO<sub>2</sub> fire extinguishers are located in the zone.

### CONSEQUENCES OF DESIGN BASIS FIRE

The open stairwell and dumbwaiter shaft in the floor area creates a fire propagation hazard to adjacent zones 1302F and 1302L, respectively; however, the low combustible loading and substantial construction preclude propagation of the fire to adjacent zones. In the event of a design basis fire in the zone, the detection system in the filters would provide early warning alarms in the local area and in the MCR to assure prompt response by the plant fire brigade. The fire brigade will initiate the water spray system in the filter unit to suppress the fire. The available firefighting equipment in this zone is adequate to extinguish the fire.



FIRE ZONE 1302K

This zone is not considered safety related.

DESCRIPTION

Floor Drain Demineralizer Room  
Unit 1 Radwaste Addition Building - el 150 ft

DRAWING NUMBER(S)

H-11841

AREA

100 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                    |
|-----------------------------------|--------------------|
| Actual                            |                    |
| - Walls                           | N, S, E, W-C/NR    |
| - Floors, Ceiling or Roof         | Concrete           |
| - Fixed Openings                  | CH/Outside         |
| - Penetrations                    | See area 1302 text |
| - Doors (Fire-rated Class/Zone #) | None               |

### CONSTRUCTION

The zone walls are nonrated, reinforced concrete. The floor and ceiling are also nonrated, reinforced concrete. A nonrated door in the south wall of this zone accesses adjacent zone 1302I. See area 1302 for penetrations.

### FIRE PROTECTION

Since this is a sealed zone with no means of normal access, containing no fixed combustibles, no fire protection features are provided for this zone.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains a negligible loading of combustible material. The only fire postulated for this zone would involve transient combustibles. Since this zone is completely sealed with no normal access possible, the introduction of transient combustibles is not expected. In the unlikely event of any fire in this zone, the negligible fire loading and substantial construction preclude propagation of a fire beyond the boundaries of this zone.

FIRE ZONE 1302L

This zone is not considered safety related.

DESCRIPTION

Solidification Area

Radwaste Addition Building - el 132 ft

DRAWING NUMBER(S)

H-11841

AREA

550 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | Paper, clothing  |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 46,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                        |
|-----------------------------------|------------------------|
| Actual                            |                        |
| - Walls                           | N, S, E, W-C/NR        |
| - Floors, Ceiling or Roof         | Concrete               |
| - Fixed Openings                  | OP/1302E, J            |
| - Penetrations                    | See area 1302 text     |
| - Doors (Fire-rated Class/Zone #) | 2-NR/Outside; NR/1302F |

### CONSTRUCTION

All zone walls are nonrated, reinforced concrete. A nonrated door in south wall communicates with zone 1302F and two nonrated, vault type double doors in the north wall communicate with the outside. There is a dumbwaiter which accesses zones 1302E below and 1302J above. The floor and ceiling are nonrated, reinforced concrete. See area 1302 for penetrations.

### FIRE PROTECTION

No automatic suppression or fire detection system is located in the zone. There is no manual firefighting equipment provided in this zone; however, hose stations in zones 1302C and 1302J are capable of reaching this zone with an effective hose stream.

### CONSEQUENCES OF DESIGN BASIS FIRE

The north and west zone boundaries are reinforced concrete, radwaste addition building exterior walls containing essentially no penetrations. The balance of the zone boundaries are reinforced concrete, approximately 2 ft thick. The low fire loading and substantial construction preclude a design basis fire from propagating beyond the boundaries of this zone. The available manual fire protection is adequate to extinguish a fire.

FIRE AREA 1401

This area is considered safety related.

DESCRIPTION

Day Tank Room 1C

Diesel Generator Building - el 130 ft

DRAWING NUMBER(S)

H-11846

AREA

83 ft<sup>2</sup>

COMBUSTIBLES

|                     |             |
|---------------------|-------------|
| Oil & Grease        | Diesel fuel |
| Cable               | None        |
| Class A             | Paper       |
| Charcoal            | None        |
| Plastics            | None        |
| Miscellaneous       | None        |
| Miscellaneous Gases | None        |

DESIGN BASIS FIRE

|                          |                               |
|--------------------------|-------------------------------|
| Combustible Loading      | High                          |
| Max. Permissible Loading | 1,814,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Greater than 3 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                                              |
|------------------------|----------------------------------------------|
| Suppression (type)     | CO <sub>2</sub> flood (FC) (see section 7.0) |
| Hose Stations          | None                                         |
| Portable Extinguishers | None                                         |
| Detectors (type)       | Heat det (FC) (see section 7.0)              |

FIRE RESISTANCE RATING

|                                   |                |
|-----------------------------------|----------------|
| Actual                            |                |
| - Walls                           | N, S, E, W-C/3 |
| - Floors, Ceiling or Roof         | Concrete       |
| - Fixed Openings                  | None           |
| - Penetrations                    | See text       |
| - Doors (Fire-rated Class/Zone #) | A/0401         |

### CONSTRUCTION

All area walls are reinforced concrete and 3-h rated. The floor and roof are nonrated, reinforced concrete. A fire-rated Class A door in the east wall provides access to adjacent area 0401. There are ventilation ducts with 3-h fire dampers in the east wall to adjacent area 0401. These dampers close automatically on high temperature or CO<sub>2</sub> flooding system actuation or they may be manually closed.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

The area is equipped with full coverage heat detectors to provide an early warning alarm both locally and in the main control room (MCR). In addition, an automatic CO<sub>2</sub> flooding system is provided. There is no manual firefighting equipment in this area; however, portable CO<sub>2</sub> and dry chemical fire extinguishers are easily accessible in adjacent areas 0401 and 1403. Yard hydrants are located immediately outside of the diesel generator building.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

A fire in this area involving diesel fuel oil as a result of leakage or rupture of the day tank will be rapidly detected by the thermal detectors and extinguished by the CO<sub>2</sub> flooding system. Activation of the detection and suppression system will provide an alarm, both locally and in the MCR to ensure prompt response by the plant fire brigade. The rated construction of the area boundaries is sufficient to contain the fire until it is extinguished. A fire in this area will not affect the capability to achieve safe shutdown or result in a release of radioactivity. Overflow of the day tank as a result of circuit faults in this area is evaluated in calculation 1380-027-C010 in appendix L of this document.

FIRE AREA 1402

This area is considered safety related.

DESCRIPTION

Battery Room 1C

Diesel Generator Building - el 130 ft

DRAWING NUMBER(S)

H-11846

AREA

191 ft<sup>2</sup>

COMBUSTIBLES

|                     |                        |
|---------------------|------------------------|
| Oil & Grease        | None                   |
| Cable               | None                   |
| Class A             | None                   |
| Charcoal            | None                   |
| Plastics            | Plastic, battery cases |
| Miscellaneous       | Rubber                 |
| Miscellaneous Gases | None                   |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                               |
|------------------------|-------------------------------|
| Suppression (type)     | None                          |
| Hose Stations          | None                          |
| Portable Extinguishers | None                          |
| Detectors (type)       | Thermal det (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                |
|-------------------------------------|----------------|
| Actual                              |                |
| - Walls                             | N, S, E, W-C/3 |
| - Floors, Ceiling, or Roof          | Concrete       |
| - Fixed Openings                    | None           |
| - Penetrations                      | See text       |
| - Doors (Fire-rated Class/Zone no.) | A/1404         |

### CONSTRUCTION

All walls of the area are constructed of 3-h-rated, reinforced concrete. The floor is base slab and the roof is nonrated, reinforced concrete. There is a fire-rated Class A door in the west wall to fire area 1404. A 3-h-rated vent damper communicating with area 1403 is provided in the north wall.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with a thermal detection system which will provide an early warning alarm, both locally and in the MCR. There is no automatic suppression system within the area. No manual firefighting equipment is available in this area; however, several dry chemical and portable CO<sub>2</sub> fire extinguishers are located in adjacent areas 1404 and 1403. Also, a CO<sub>2</sub> hose reel is available in area 1404.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

Since the area is bounded on all sides by 3-h-rated barriers, propagation of the design basis fire outside of this area is not considered credible. In addition, due to the low combustible loading and installed detection system, which alarms both locally and in the MCR, the fire is expected to be detected in its incipient stages to ensure prompt response by the plant fire brigade. Hydrogen generated by the batteries is maintained at insignificant concentrations by the ventilation system in the area. See calculation 1380-027-C009 in appendix L of this document for further details. The available manual firefighting equipment from adjacent areas is adequate to extinguish the fire. The design basis fire for this area will not affect the ability to achieve safe shutdown or result in any release of radioactivity.



FIRE AREA 1403

This area is considered safety related.

DESCRIPTION

Diesel Generator Room 1C

Diesel Generator Building - el 130 ft

DRAWING NUMBER(S)

H-11846

AREA

1,598 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | Lube oil         |
| Cable               | Cable insulation |
| Class A             | Paper, trash     |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                              |
|------------------------|----------------------------------------------|
| Suppression (type)     | CO <sub>2</sub> flood (FC) (see section 7.0) |
| Hose Stations          | None                                         |
| Portable Extinguishers | CO <sub>2</sub> ; Dry chem                   |
| Detectors (type)       | Heat det (FC) (see section 7.0)              |

FIRE RESISTANCE RATING

|                                   |                 |
|-----------------------------------|-----------------|
| Actual                            |                 |
| - Walls                           | N, S, E, W-C/3  |
| - Floors, Ceiling or Roof         | Concrete        |
| - Fixed Openings                  | None            |
| - Penetrations                    | See text        |
| - Doors (Fire-rated Class/Zone #) | 2-A/0401;A/1404 |

## CONSTRUCTION

The walls of the area are constructed of 3-h-rated, reinforced concrete. One large nonrated and one small 3-h-rated ventilation damper are located in the east wall, communicating with area 0401. An additional 3-h-rated damper in the south wall communicates with area 1402. All dampers are closed by high temperature, CO<sub>2</sub> flooding system actuation, or manual actuation. Fire-rated Class A doors in the east and west walls access area 0401 and 1404, respectively. A fire-rated Class A rolling door is also provided in the east wall in series with the large vent damper. The floor and ceiling are both nonrated, reinforced concrete.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

## FIRE PROTECTION

Heat detectors are located within the area and provide both local and MCR alarms. The area is also equipped with an automatic CO<sub>2</sub> flooding system. Several portable CO<sub>2</sub> and dry chemical fire extinguishers are located in the area for manual firefighting. In addition, a CO<sub>2</sub> hose reel is located in adjacent area 1404. Hydrants are located immediately outside of the diesel generator building.

## APPENDIX R EXEMPTIONS

None.

## CONSEQUENCES OF DESIGN BASIS FIRE

Due to the enclosure of this area with 3-h-rated barriers and the low combustible loading, the design basis fire is not expected to propagate outside of the area. A design basis fire will, therefore, not affect the capability to achieve or maintain safe shutdown or result in any release of radioactivity. In addition, the installed detection system provides both local and MCR alarms to ensure prompt response by the plant fire brigade. As a result, rapid extinguishment of the fire is expected either by the installed suppression system or by the plant fire brigade using the available manual firefighting equipment. Overflow of the diesel generator fuel oil day tanks as a result of circuit faults in this area is evaluated in calculation 1380-027-C010 in appendix L of this document.

FIRE AREA 1404

This area is considered safety related.

DESCRIPTION

Switchgear Room 1G

Diesel Generator Building - el 130 ft

DRAWING NUMBER(S)

H-11846

AREA

1,013 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | CO <sub>2</sub>                  |
| Portable Extinguishers | CO <sub>2</sub>                  |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                          |
|-----------------------------------|--------------------------|
| Actual                            |                          |
| - Walls                           | N, S, E-C/3; W-C/NR      |
| - Floors, Ceiling or Roof         | Concrete                 |
| - Fixed Openings                  | None                     |
| - Penetrations                    | See text                 |
| - Doors (Fire-rated Class/Zone #) | A/1402; 1403; NR/Outside |

### CONSTRUCTION

The north, south, and east walls of this area are 3-h-rated reinforced concrete walls. The west wall is nonrated, reinforced concrete. There are two fire-rated Class A doors in the east wall to areas 1402 and 1403. There is one nonrated double door in the west wall with nonrated dampers in the vent located above the door, both communicating with the outside. The floor and ceiling are nonrated, reinforced concrete.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full area coverage smoke detection which provides an early warning alarm, both locally and in the MCR to ensure prompt response by the plant fire brigade. The area is also provided with a CO<sub>2</sub> hose reel and a CO<sub>2</sub> portable fire extinguisher to support manual firefighting. Hydrants are located immediately outside of the diesel generator building.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

This area has a low combustible loading consisting of cable insulation. The cable used at E. I. Hatch Nuclear Plant is predominantly IEEE-383 qualified. A fire in this area would, therefore, be expected to develop slowly, allowing ample time for response by the plant fire brigade. The smoke detectors are expected to provide early warning alarms, both locally and in the MCR to further ensure prompt response by the plant fire brigade. The manual firefighting equipment provided is adequate to extinguish a fire in this area. In the unlikely event that early warning and response does not occur, the rated barriers between this and any adjacent areas preclude propagation of the design basis fire beyond the boundaries of this area. A fire in this area will not affect the capability to achieve safe shutdown or result in the release of any radioactivity. Overflow of the diesel generator fuel oil day tanks due to circuit faults in this area is evaluated in calculation 1380-027-C010 in appendix L of this document.

FIRE AREA 1405

This area is considered safety related.

DESCRIPTION

Day Tank Room IB

Diesel Generator Building - el 130 ft

DRAWING NUMBER(S)

H-11846

AREA

83 ft<sup>2</sup>

COMBUSTIBLES

|                     |             |
|---------------------|-------------|
| Oil & Grease        | Diesel fuel |
| Cable               | None        |
| Class A             | Paper       |
| Charcoal            | None        |
| Plastics            | None        |
| Miscellaneous       | None        |
| Miscellaneous Gases | None        |

DESIGN BASIS FIRE

|                          |                               |
|--------------------------|-------------------------------|
| Combustible Loading      | High                          |
| Max. Permissible Loading | 1,990,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Greater than 3 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                                              |
|------------------------|----------------------------------------------|
| Suppression (type)     | CO <sub>2</sub> flood (FC) (see section 7.0) |
| Hose Stations          | None                                         |
| Portable Extinguishers | None                                         |
| Detectors (type)       | Heat det (FC) (see section 7.0)              |

FIRE RESISTANCE RATING

|                                     |                |
|-------------------------------------|----------------|
| Actual                              |                |
| - Walls                             | N, S, E, W-C/3 |
| - Floors, Ceiling, or Roof          | Concrete       |
| - Fixed Openings                    | None           |
| - Penetrations                      | See text       |
| - Doors (Fire-rated Class/Zone no.) | A/0401         |

### CONSTRUCTION

All area walls are reinforced concrete and 3-h rated. The floor and roof are nonrated, reinforced concrete. A fire-rated Class A door in the east wall provides access to adjacent area 0401. There are ventilation ducts with 3-h fire dampers in the east wall to adjacent area 0401. These dampers close automatically on high temperature or CO<sub>2</sub> flooding system actuation or they may be manually closed.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

The area is equipped with full coverage heat detectors to provide an early warning alarm both locally and in the MCR. In addition, an automatic CO<sub>2</sub> flooding system is provided. There is no manual firefighting equipment in this area; however, portable CO<sub>2</sub> and dry chemical fire extinguishers are easily accessible in adjacent areas 0401 and 1407. Yard hydrants are located immediately outside of the diesel generator building.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

A fire in this area involving diesel fuel oil as a result of leakage or rupture of the day tank will be rapidly detected by the thermal detectors and extinguished by the CO<sub>2</sub> flooding system. Activation of the detection and suppression system will provide an alarm, both locally and in the MCR to ensure prompt response by the plant fire brigade. The rated construction of the area boundaries is sufficient to contain the fire until it is extinguished. A fire in this area will not affect the capability to achieve safe shutdown or result in a release of radioactivity. Overflow of the day tank as a result of circuit faults in this area is evaluated in calculation 1380-027-C010 in appendix L of this document.

FIRE AREA 1406

This area is considered safety related.

DESCRIPTION

Battery Room 1B

Diesel Generator Building - el 130 ft

DRAWING NUMBER(S)

H-11846

AREA

191 ft<sup>2</sup>

COMBUSTIBLES

|                     |                        |
|---------------------|------------------------|
| Oil & Grease        | None                   |
| Cable               | None                   |
| Class A             | None                   |
| Charcoal            | None                   |
| Plastics            | Plastic, battery cases |
| Miscellaneous       | Rubber                 |
| Miscellaneous Gases | None                   |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                               |
|------------------------|-------------------------------|
| Suppression (type)     | None                          |
| Hose Stations          | None                          |
| Portable Extinguishers | None                          |
| Detectors (type)       | Thermal det (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                |
|-------------------------------------|----------------|
| Actual                              |                |
| - Walls                             | N, S, E, W-C/3 |
| - Floors, Ceiling, or Roof          | Concrete       |
| - Fixed Openings                    | None           |
| - Penetrations                      | See text       |
| - Doors (Fire-rated Class/Zone no.) | A/1408         |

### CONSTRUCTION

All walls of the area are constructed of 3-h-rated, reinforced concrete. The floor is base slab and the roof is nonrated, reinforced concrete. There is a fire-rated Class A door in the west wall to fire area 1408. A 3-h-rated vent damper communicating with area 1407 is provided in the north wall.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with a thermal detection system which provides both local and MCR alarms. There is no automatic suppression system within the area. No manual firefighting equipment is available in this area; however, portable dry chemical and CO<sub>2</sub> fire extinguishers are located in adjacent area 1407. A CO<sub>2</sub> hose reel is also available in adjacent area 1408.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

Since the area is bounded on all sides by 3-h-rated barriers, propagation of the design basis fire outside of this area is not considered credible. Hydrogen generated by the batteries is maintained at insignificant concentrations by the ventilation system in the area. See calculation 1380-027-C009 in appendix L of this document for further details. In addition, due to the low combustible loading and installed detection system, which alarms both locally and in the MCR, the design basis fire is expected to be detected in its incipient stages to ensure prompt response by the plant fire brigade. A design basis fire in this area will, therefore, not affect the ability to achieve safe shutdown or result in any release of radioactivity.



FIRE AREA 1407

This area is considered safety related.

DESCRIPTION

Diesel Generator Room 1B

Diesel Generator Building - el 130 ft

DRAWING NUMBER(S)

H-11846

AREA

1,598 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | Lube oil         |
| Cable               | Cable insulation |
| Class A             | Paper, trash     |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                              |
|------------------------|----------------------------------------------|
| Suppression (type)     | CO <sub>2</sub> flood (FC) (see section 7.0) |
| Hose Stations          | None                                         |
| Portable Extinguishers | CO <sub>2</sub> ; Dry chem                   |
| Detectors (type)       | Heat det (FC) (see section 7.0)              |

FIRE RESISTANCE RATING

|                                   |                  |
|-----------------------------------|------------------|
| Actual                            |                  |
| - Walls                           | N, S, E, W-C/3   |
| - Floors, Ceiling or Roof         | Concrete         |
| - Fixed Openings                  | None             |
| - Penetrations                    | See text         |
| - Doors (Fire-rated Class/Zone #) | 2-A/0401, A/1408 |

### CONSTRUCTION

The walls of the area are constructed of 3-h-rated, reinforced concrete. One large nonrated and one small 3-h-rated ventilation damper are located in the east wall, communicating with area 0401. An additional 3-h-rated damper in the south wall communicates with area 1406. All dampers are closed by high temperature, CO<sub>2</sub> flooding system actuation, or manual actuation. Fire-rated Class A doors in the east and west walls access area 0401 and 1408, respectively. A fire-rated Class A rolling door is also provided in series with the large damper in the east wall. The floor and ceiling are both nonrated, reinforced concrete.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

Heat detectors located within the area provide both local and MCR alarms. The area is also equipped with an automatic CO<sub>2</sub> flooding system. Portable CO<sub>2</sub> and dry chemical fire extinguishers are located in the area for manual firefighting. In addition, a CO<sub>2</sub> hose reel is located in adjacent area 1408 and yard hydrants are located immediately outside of the diesel generator building.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

Due to the enclosure of this area with 3-h-rated barriers and the low combustible loading, the design basis fire is not expected to propagate outside of the area. A design basis fire in this area will, therefore, not affect the ability to achieve safe shutdown or result in any release of radioactivity. In addition, the local and MCR alarms provided by the installed detection system will ensure prompt response to and extinguishment of the fire either by the installed suppression system or by the plant fire brigade using the available manual firefighting equipment.

Overflow of the diesel generator fuel oil day tanks as a result of circuit faults in this area is evaluated in calculation 1380-027-C010 in appendix L of this document.

FIRE AREA 1408

This area is considered safety related.

DESCRIPTION

Switchgear Room 1F

Diesel Generator Building - el 130 ft

DRAWING NUMBER(S)

H-11846

AREA

1,013 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | CO <sub>2</sub>                  |
| Portable Extinguishers | CO <sub>2</sub>                  |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                          |
|-----------------------------------|--------------------------|
| Actual                            |                          |
| - Walls                           | N, S, E-C/3; W-C/NR      |
| - Floors, Ceiling or Roof         | Concrete                 |
| - Fixed Openings                  | None                     |
| - Penetrations                    | See text                 |
| - Doors (Fire-rated Class/Zone #) | A/1406, 1407; NR/Outside |

### CONSTRUCTION

The north, south, and east walls of this area are 3-h-rated reinforced concrete walls. The west wall is reinforced concrete, nonrated diesel building exterior wall. There are two fire-rated Class A doors in the east wall to areas 1406 and 1407. There is one nonrated double door in the west wall with nonrated dampers in the vent located above the door. The floor and ceiling are nonrated, reinforced concrete.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full area coverage smoke detection which provides an early warning alarm, both locally and in the MCR to ensure prompt response by the plant fire brigade. The area is also provided with a CO<sub>2</sub> hose reel and a CO<sub>2</sub> portable fire extinguisher to support manual firefighting. Hydrants are located immediately outside of the diesel generator building.

### APPENDIX R EXEMPTIONS

An exemption from the section III.G.2 requirement for a full automatic suppression system has been requested for this area as is documented in appendix C of this document. This exemption request was denied per the January 1987 NRC SER. The fire area no longer contains safe shutdown equipment or circuits.

### CONSEQUENCES OF DESIGN BASIS FIRE

This area has a low combustible loading consisting of cable insulation. The cable used at E. I. Hatch Nuclear Plant is predominantly IEEE-383 qualified. A fire in this area would, therefore, be expected to develop slowly, allowing ample time for response by the plant fire brigade. The smoke detectors are expected to provide early warning to further ensure prompt response by the plant fire brigade. The manual firefighting equipment provided is adequate to extinguish a fire in this area. In the unlikely event that early warning and response does not occur, the rated barriers between this and any adjacent areas preclude propagation of the design basis fire beyond the boundaries of this area. A fire in this area will not affect the capability to achieve or maintain safe shutdown or result in the release of any radioactivity. Overflow of the diesel generator fuel oil day tanks due to circuit faults in this area is evaluated in calculation 1380-027-C010 in appendix L of this document.

FIRE AREA 1409

This area is considered safety related.

DESCRIPTION

Day Tank Room 1A

Diesel Generator Building - el 130 ft

DRAWING NUMBER(S)

H-11846

AREA

83 ft<sup>2</sup>

COMBUSTIBLES

|                     |             |
|---------------------|-------------|
| Oil & Grease        | Diesel fuel |
| Cable               | None        |
| Class A             | Paper       |
| Charcoal            | None        |
| Plastics            | None        |
| Miscellaneous       | None        |
| Miscellaneous Gases | None        |

DESIGN BASIS FIRE

|                          |                               |
|--------------------------|-------------------------------|
| Combustible Loading      | High                          |
| Max. Permissible Loading | 1,814,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Greater than 3 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                                              |
|------------------------|----------------------------------------------|
| Suppression (type)     | CO <sub>2</sub> flood (FC) (see section 7.0) |
| Hose Stations          | None                                         |
| Portable Extinguishers | None                                         |
| Detectors (type)       | Heat det (FC) (see section 7.0)              |

FIRE RESISTANCE RATING

|                                   |                |
|-----------------------------------|----------------|
| Actual                            |                |
| - Walls                           | N, S, E, W-C/3 |
| - Floors, Ceiling or Roof         | Concrete       |
| - Fixed Openings                  | None           |
| - Penetrations                    | See text       |
| - Doors (Fire-rated Class/Zone #) | A/0401         |

### CONSTRUCTION

All area walls are reinforced concrete and 3-h rated. The floor and roof are nonrated, reinforced concrete. A fire-rated Class A door in the east wall provides access to adjacent area 0401. There are ventilation ducts with 3-h fire dampers in the east wall to adjacent area 0401. These dampers close automatically on high temperature or CO<sub>2</sub> flooding system actuation or they may be manually closed.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

The area is equipped with full coverage heat detectors to provide an early warning alarm both locally and in the MCR. In addition, an automatic CO<sub>2</sub> flooding system is provided. There is no manual firefighting equipment in this area; however, portable CO<sub>2</sub> and dry chemical fire extinguishers are easily accessible in adjacent areas 0401 and 1411. Yard hydrants are located immediately outside of the diesel generator building.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

A fire in this area involving diesel fuel oil as a result of leakage or rupture of the day tank will be rapidly detected by the thermal detectors and extinguished by the CO<sub>2</sub> flooding system. Activation of the detection and suppression system will provide an alarm, both locally and in the MCR to ensure prompt response by the plant fire brigade. The rated construction of the area boundaries is sufficient to contain the fire until it is extinguished. A fire in this area will not affect the capability to achieve safe shutdown or result in a release of radioactivity. Overflow of the day tank as a result of circuit faults in this area is evaluated in calculation 1380-027-C010 in appendix L of this document.

FIRE AREA 1410

This area is considered safety related.

DESCRIPTION

Battery Room 1A

Diesel Generator Building - el 130 ft

DRAWING NUMBER(S)

H-11846

AREA

191 ft<sup>2</sup>

COMBUSTIBLES

|                     |                        |
|---------------------|------------------------|
| Oil & Grease        | None                   |
| Cable               | None                   |
| Class A             | None                   |
| Charcoal            | None                   |
| Plastics            | Plastic, battery cases |
| Miscellaneous       | Rubber                 |
| Miscellaneous Gases | None                   |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                               |
|------------------------|-------------------------------|
| Suppression (type)     | None                          |
| Hose Stations          | None                          |
| Portable Extinguishers | None                          |
| Detectors (type)       | Thermal det (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                |
|-------------------------------------|----------------|
| Actual                              |                |
| - Walls                             | N, S, E, W-C/3 |
| - Floors, Ceiling, or Roof          | Concrete       |
| - Fixed Openings                    | None           |
| - Penetrations                      | See text       |
| - Doors (Fire-rated Class/Zone no.) | A/1412         |

### CONSTRUCTION

All walls of the area are constructed of 3-h-rated, reinforced concrete. The floor is concrete base slab and the roof is nonrated, reinforced concrete. There is a fire-rated Class A door in the west wall to fire area 1412. A 3-h-rated vent damper communicating with area 1411 is provided in the north wall.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with a thermal detection system which provides both local and MCR alarms. There is no automatic suppression system within the area. No manual firefighting equipment is available in this area; however, dry chemical and portable CO<sub>2</sub> fire extinguishers are located in adjacent areas 1412 and 1411. A CO<sub>2</sub> hose reel is also located in area 1412.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

Since the area is bounded on all sides by 3-h-rated barriers, propagation of the design basis fire outside of this area is not considered credible. Hydrogen generated by the batteries is maintained at insignificant concentrations by the ventilation system in the area. See calculation 1380-027-C009 in appendix L of this document for further details. In addition, due to the low combustible loading and installed detection systems, which alarm both locally and in the MCR, the fire is expected to be detected in its incipient stages to ensure prompt response by the plant fire brigade. A design basis fire in this area will, therefore, not affect the ability to achieve safe shutdown or result in any release of radioactivity.



FIRE AREA 1411

This area is considered safety related.

DESCRIPTION

Diesel Generator Room 1A

Diesel Generator Building - el 130 ft

DRAWING NUMBER(S)

H-11846

AREA

1,598 ft<sup>2</sup>

COMBUSTIBLES

Oil & Grease

Cable

Class A

Charcoal

Plastics

Miscellaneous

Miscellaneous Gases

Lube oil

Cable insulation

Paper, trash

None

Plastic

None

None

DESIGN BASIS FIRE

Combustible Loading

Max. Permissible Loading

Fire Duration

Low

100,000 Btu/ft<sup>2</sup>

Less than 1 h

FIRE PROTECTION (AVAILABLE)

Suppression (type)

Hose Stations

Portable Extinguishers

Detectors (type)

CO<sub>2</sub> flood (FC) (see section 7.0)

None

CO<sub>2</sub>; Dry chem

Heat det (FC) (see section 7.0)

FIRE RESISTANCE RATING

Actual

- Walls

- Floors, Ceiling or Roof

- Fixed Openings

- Penetrations

- Doors (Fire-rated Class/Zone #)

N, S, E, W-C/3

Concrete

None

See text

2-A/0401; A/1412, 2409

## CONSTRUCTION

All walls of this area are 3-h-rated, reinforced concrete. A fire-rated Class A double door is provided in the east wall to area 0401. There are two fire-rated Class A doors in the west wall communicating with areas 1412 and 2409. There are two open vents in the east wall of this area; one large and nonrated and one small and equipped with a 3-h-rated damper. All dampers are closed by high temperature, CO<sub>2</sub> flooding system actuation, or by manual actuation. The east wall also contains a fire-rated Class A rolling door in series with the large vent damper. An additional vent with a 3-h-rated fire damper is provided in the south wall of this area communicating with area 1410. The floor and ceiling are both nonrated, reinforced concrete.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

## FIRE PROTECTION

Heat detectors located within the area provide both local and MCR alarms. The area is also equipped with an automatic CO<sub>2</sub> flooding system. Portable CO<sub>2</sub> and dry chemical fire extinguishers are located in the area and CO<sub>2</sub> hose reels are located in adjacent areas 1412 and 2409 for manual firefighting. Yard hydrants are located immediately outside of the diesel generator building.

## APPENDIX R EXEMPTIONS

None.

## CONSEQUENCES OF DESIGN BASIS FIRE

Due to the enclosure of this area with 3-h-rated barriers and the low combustible loading, the design basis fire is not expected to propagate outside of the area. In addition, the installed detection system will provide both local and MCR alarms to ensure prompt extinguishment of the fire either by the installed suppression system or by the plant fire brigade using the available manual firefighting equipment. A design basis fire in this area will, therefore, not affect the ability to achieve safe shutdown or result in any release of radioactivity. Overflow of the diesel generator fuel oil day tanks as a result of circuit faults in this area is evaluated in calculation 1380-027-C010 in appendix L of this document.

FIRE AREA 1412

This area is considered safety related.

DESCRIPTION

Switchgear Room 1E

Diesel Generator Building - el 130 ft

DRAWING NUMBER(S)

H-11846

AREA

1,013 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | CO <sub>2</sub>                  |
| Portable Extinguishers | CO <sub>2</sub>                  |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                          |
|-----------------------------------|--------------------------|
| Actual                            |                          |
| - Walls                           | N, S, E-C/3; W-C/NR      |
| - Floors, Ceiling or Roof         | Concrete                 |
| - Fixed Openings                  | None                     |
| - Penetrations                    | See text                 |
| - Doors (Fire-rated Class/Zone #) | A/1410, 1411; NR/Outside |

### CONSTRUCTION

The north, south, and the east walls of this area are 3-h-rated, reinforced concrete. Two fire-rated Class A doors are provided in the east wall to areas 1411 and 1410. There is one nonrated double door in the west wall with nonrated dampers in the vent above the door. The west wall is constructed of nonrated, reinforced concrete. The floor and ceiling are nonrated, reinforced concrete.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full area coverage smoke detection which provides an early warning alarm, both locally and in the MCR to ensure prompt response by the plant fire brigade. The area is also provided with a CO<sub>2</sub> hose reel and a CO<sub>2</sub> portable fire extinguisher to support manual firefighting. Hydrants are located immediately outside of the diesel generator building.

### APPENDIX R EXEMPTIONS

An exemption from the section III.G.2 requirement for a full automatic suppression system has been requested for this area as is documented in appendix C of this document. This exemption request was denied per the January 1987 NRC SER. The fire area no longer contains safe shutdown equipment or circuits.

### CONSEQUENCES OF DESIGN BASIS FIRE

This area has a low combustible loading consisting of cable insulation. The cable used at E. I. Hatch Nuclear Plant is predominantly IEEE-383 qualified. A fire in this area would, therefore, be expected to develop slowly allowing ample time for response by the plant fire brigade. The smoke detectors are expected to provide early warning to further ensure prompt response by the plant fire brigade. The manual firefighting equipment provided is adequate to extinguish a fire in this area. In the unlikely event that early warning and response do not occur, the rated barriers between this and any adjacent areas preclude propagation of the design basis fire beyond the boundaries of this area. A fire in this area will not affect the capability to achieve or maintain safe shutdown or result in the release of any radioactivity. Overflow of the diesel generator fuel oil day tanks due to circuit faults in this area is evaluated in calculation 1380-027-C010 in appendix L of this document.

FIRE AREA 1601

This area is considered safety related.

DESCRIPTION

Unit 1 Service Water Valve Pit 1A

East of the Diesel Generator Building - el 130 ft

DRAWING NUMBER(S)

H-11802

AREA

144 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                        |
|------------------------|------------------------|
| Suppression (type)     | None                   |
| Hose Stations          | None - Hydrants nearby |
| Portable Extinguishers | None                   |
| Detectors (type)       | None                   |

FIRE RESISTANCE RATING

|                                     |                                             |
|-------------------------------------|---------------------------------------------|
| Actual                              |                                             |
| - Walls                             | N, S, E, W-C/NR - Below grade               |
| - Floors, Ceiling, or Roof          | Floor-gravel over concrete, ceiling-grating |
| - Fixed Openings                    | OP/Outside                                  |
| - Penetrations                      | See text                                    |
| - Doors (Fire-rated Class/Zone no.) | None                                        |

## CONSTRUCTION

The valve pit is constructed with reinforced concrete walls and floor approximately 14 ft below grade. The "roof" is grating with access hatch. This construction is defined as a separate fire area due to the spatial separation of greater than 20 ft between this and any other plant areas. There are two cable ducts connecting this area with area 1602 (service water valve pit 1B). These are not considered to be propagation paths due to their small size, long length, and the negligible combustible loading in both areas. Since this is an open yard area, there are no other penetrations.

## FIRE PROTECTION

Two hydrants, one to the northwest and one to the east of the valve pits, are accessible for manual firefighting.

## APPENDIX "R" EXEMPTIONS

An exemption from the literal requirements in Section III.G.2 for complete 3-h barriers has been requested for this area as is documented in appendix C of this document. However, per the January 1987 NRC SER, no exemption is required based on part 4 of NRC Generic Letter 86-10.

## CONSEQUENCES OF DESIGN BASIS FIRE

A fire involving transient combustibles within this area will result in no unacceptable consequences, since loss of the single, redundant circuit in the area may be compensated for by manual actions. Thus, the only fires of concern are those external exposure fires involving both this area and area 1602 (service water valve pit 1B). These areas are separated by approximately 28 ft. An asphalt road runs between the two areas and is not considered a propagation path due to a lack of any ignition sources or combustibles sufficient to transfer enough heat to the asphalt material to raise it to its ignition temperature. The largest fixed combustible source presenting a hazard to both pits is the auxiliary boiler fuel oil tank. The maximum probable fire at the nearby auxiliary boiler fuel oil tank will not radiate enough heat to either valve pit to result in damage. (See calculation 1380-027-C007 contained in appendix L of this document. Note from the analysis that radiant heat is the only feasible mode of heat transfer due to the dike constructed around the tank to contain the maximum postulated fuel oil spill to the immediate area of the tank). The only transient combustible presenting an exposure fire hazard to both areas is the truck transport of fuel oil to the tank. The only credible mechanism for a large spill of fuel oil is human error during refilling operations. The auxiliary boiler fuel oil tank refilling connection is greater than 40 ft from the nearest valve pit. The grade slopes to a yard drain located between the fuel oil tank and the valve pits, which then diverts any spill away from the pits. Each pit has a 6-in. curb at the edge of the road to prevent possible entrance of liquid combustibles. Since the safe shutdown components are below grade and a spill will not enter the pits, there is no effect on safe shutdown capability. Thus, a fire in or near this area does not affect the ability to safely shut down the plant. This area contains no radioactive materials which could be released in the event of a fire.

FIRE AREA 1602

This area is considered safety related.

DESCRIPTION

Unit 1 Service Water Valve Pit 1B

East of the Diesel Generator Building - el 130 ft

DRAWING NUMBER(S)

H-11802

AREA

144 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                        |
|------------------------|------------------------|
| Suppression (type)     | None                   |
| Hose Stations          | None - Hydrants nearby |
| Portable Extinguishers | None                   |
| Detectors (type)       | None                   |

FIRE RESISTANCE RATING

|                                     |                                             |
|-------------------------------------|---------------------------------------------|
| Actual                              |                                             |
| - Walls                             | N, S, E, W-C/NR - Below grade               |
| - Floors, Ceiling, or Roof          | Floor-gravel over concrete, ceiling-grating |
| - Fixed Openings                    | OP/Outside                                  |
| - Penetrations                      | See text                                    |
| - Doors (Fire-rated Class/Zone no.) | None                                        |

## CONSTRUCTION

The valve pit is constructed with reinforced concrete walls and floor approximately 14 ft below grade. The "roof" is grating with access hatch. This construction is defined as a separate fire area due to the spatial separation of greater than 20 ft between this and any other plant areas. There are two cable ducts connecting this area with area 1601 (service water valve pit 1A). These are not considered to be propagation paths due to their small size, long length, and the negligible combustible loading in both areas. Since this is an open yard area, there are no other penetrations.

## FIRE PROTECTION

Two hydrants, one to the northwest and one to the east of the valve pits, are accessible for manual firefighting.

## APPENDIX R EXEMPTIONS

An exemption from the literal requirements in Section III.G.2 for complete 3-h barriers has been requested for this area as is documented in appendix C of this document. However, per the January 2, 1987, NRC SER, no exemption is required based on part 4 of NRC Generic Letter 86-10.

## CONSEQUENCES OF DESIGN BASIS FIRE

A fire involving transient combustibles within this area will result in no unacceptable consequences, since loss of the single, redundant circuit in the area may be compensated for by manual actions. Thus, the only fires of concern are those external exposure fires involving both this area and area 1601 (service water valve pit 1A). These areas are separated by approximately 28 ft. An asphalt road runs between the two areas and is not considered a propagation path due to a lack of any ignition sources or combustibles sufficient to transfer enough heat to the asphalt material to raise it to its ignition temperature. Each pit has a 6-in. curb at the edge of the road. The largest fixed combustible source presenting a hazard to both pits is the auxiliary boiler fuel oil tank. The maximum probable fire at the nearby auxiliary boiler fuel oil tank will not radiate enough heat to either valve pit to result in damage. (See calculation 1380-027-C007 contained in appendix L of this document. Note that radiant heat is the only feasible mode of heat transfer due to the dike constructed around the tank to contain the maximum postulated fuel oil spill to the immediate area of the tank.) The only transient combustible presenting an exposure fire hazard to both areas is the truck transport of fuel oil to the tank. The only credible mechanism for a large spill of fuel oil is human error during refilling operations. The auxiliary boiler fuel oil tank refilling connection is greater than 40 ft from the nearest valve pit. The grade slopes to a yard drain located between the fuel oil tank and the valve pits, which then diverts any spill away from the pits. Each pit has a 6-in. curb at the edge of the road to prevent possible entrance of liquid combustibles. Since the safe shutdown components are below grade and a spill will not enter the pits, there is no effect on safe shutdown capability. Thus, a fire in or near this area does not affect the ability to safely shut down the plant. This area contains no radioactive materials which could be released in the event of a fire



FIRE AREA 1603

This area is considered safety related.

DESCRIPTION

Unit 1 Condensate Storage Tank/Pump  
East of the Unit 1 Radwaste Building - el 130 ft

DRAWING NUMBER(S)

H-11802

AREA

4,020 ft<sup>2</sup>

COMBUSTIBLES

|                     |                       |
|---------------------|-----------------------|
| Oil & Grease        | Grease                |
| Cable               | None                  |
| Class A             | Wood, clothing, trash |
| Charcoal            | None                  |
| Plastics            | Plastic, ladders      |
| Miscellaneous       | Paint, rubber         |
| Miscellaneous Gases | None                  |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                        |
|------------------------|------------------------|
| Suppression (type)     | None                   |
| Hose Stations          | None - Hydrants nearby |
| Portable Extinguishers | None                   |
| Detectors (type)       | None                   |

FIRE RESISTANCE RATING

|                                     |                                   |
|-------------------------------------|-----------------------------------|
| Actual                              |                                   |
| - Walls                             | N, S, E, W-C/NR                   |
| - Floors, Ceiling, or Roof          | Floor-concrete slab; ceiling-open |
| - Fixed Openings                    | OP/Outside                        |
| - Penetrations                      | See text                          |
| - Doors (Fire-rated Class/Zone no.) | None                              |

## CONSTRUCTION

The condensate tank and pump enclosures are constructed with reinforced concrete walls approximately 20-ft high. The floor is a reinforced concrete slab, and the "ceiling" is open. Access is via metal stairs on the side of the enclosure. Since this is an open yard area, there are no penetrations.

## FIRE PROTECTION

There is no detection or automatic suppression in the area. A hydrant is located near the southeast corner of the enclosure.

## APPENDIX "R" EXEMPTIONS

An exemption from the literal requirements in Section III.G.2 for complete 3-h barriers has been requested for this area as is documented in appendix C of this document. However, per the January 1987 NRC SER, no exemption is required based on part 4 of NRC Generic Letter 86-10.

## CONSEQUENCES OF DESIGN BASIS FIRE

A fire in this area that damages redundant safe shutdown equipment is not considered credible for the following reasons:

1. The majority of the combustibles in this fire area is small quantities associated with dressout areas at the tops of the access stairs which are separated from the nearest safe shutdown components by at least 15 ft.
2. Due to the very limited amount of equipment inside the enclosure, there is little likelihood of transient combustibles commonly associated with maintenance and modification activities being introduced. Similarly, there is little likelihood for the introduction of ignition sources.
3. The only safe shutdown components are located on opposite sides of the condensate storage tank and are not susceptible to a single exposure fire. The circuits associated with these components are routed in conduit which provides a sufficient radiant heat shield for the low concentration of combustibles.
4. The condensate tank enclosure is sufficiently constructed to protect safe shutdown components from a fire external to the enclosure.

In addition, the available manual suppression is adequate to extinguish any insignificant fire which may occur. A fire in this area will not affect the ability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 1604

The area is considered safety related.

DESCRIPTION

Unit 1 RB Railroad Airlock/Nitrogen Storage Tank  
East of Unit 1 Reactor Building - el 130 ft

DRAWING NUMBER(S)

H-11802, H-11860

AREA

2,500 ft<sup>2</sup>

COMBUSTIBLES

|                     |                          |
|---------------------|--------------------------|
| Oil & Grease        | None                     |
| Cable               | None                     |
| Class A             | Wood, plank, trash, rags |
| Charcoal            | None                     |
| Plastics            | Plastic, ladders         |
| Miscellaneous       | None                     |
| Miscellaneous Gases | None                     |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 200,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                        |
|------------------------|------------------------|
| Suppression (type)     | None                   |
| Hose Stations          | None - Hydrant outside |
| Portable Extinguishers | None                   |
| Detectors (type)       | None                   |

FIRE RESISTANCE RATING

|                                   |                                            |
|-----------------------------------|--------------------------------------------|
| Actual                            |                                            |
| - Walls                           | S-C/NR; N-Open; W-C, Open/NR; E-C, Open/NR |
| - Floors, Ceiling or Roof         | Concrete (see zone text)                   |
| - Fixed Openings                  | None                                       |
| - Penetrations                    | See text                                   |
| - Doors (Fire-rated Class/Zone #) | 2-NR/Outside; 2-NR/1203; NR/2604           |

## CONSTRUCTION

The north boundary of the area is open with no barriers. The south boundary of the area is the reinforced concrete south wall of the railroad airlock with a nonrated door to area 2604. The west boundary includes an open area with no barriers and the nonrated, reinforced concrete reactor building exterior wall containing a nonrated airtight, personnel access door and a nonrated airtight railroad access door. The east boundary includes an open area with no barriers and the reinforced concrete railroad airlock exterior wall containing a nonrated, airtight railroad access door.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier, have been exempted, or have been evaluated as acceptable as is documented in Appendix I of this document.

## FIRE PROTECTION

There is no detection or suppression in the area. Adjacent area 2604 provides hose stations and CO<sub>2</sub> fire extinguishers for manual fire protection. A fire hydrant for manual firefighting is provided on the south side of the Unit 1 condensate storage tank.

## APPENDIX R EXEMPTIONS

An exemption from the Section III.G.2 requirement for complete 3-h barriers, has been requested for this area as is documented in appendix C of this document. However, per the January 1987 NRC SER, no exemption is required, based on part 4 of NRC Generic Letter 86-10.

## CONSEQUENCES OF DESIGN BASIS FIRE

A fire in this area may potentially result in a loss of Unit 1 drywell air system, nitrogen storage, and safe shutdown components. However, shutdown can be achieved using the Unit 2 nitrogen system components. In addition, a fire in this area presents an exposure hazard to safe shutdown equipment in adjacent areas 1203, 1205, 1603, and 2604. The east boundaries of fire areas 1203 and 1205 consist of the nonrated exterior walls of the Unit 1 reactor building.

These secondary containment walls are a minimum of 2-ft thick with no penetrations in the vicinity of the hazard. Thus, a fire in this area will not propagate to areas 1203 and/or 1205.

Fire area 1603 is the condensate storage tank and pump enclosure. The only safe shutdown equipment in this area is located inside the tank enclosure, which is greater than 15 ft from the hazard. In addition to the separation distance, the 20-ft-high enclosure walls act as a radiant heat shield to protect safe shutdown equipment. Fire area 2604 contains the redundant Unit 2 nitrogen system. The boundary between the two areas is the south wall of the reactor building railroad airlock which is reinforced, solid concrete with nonrated doors and limited penetrations. The railroad airlock is free of any substantial combustibles. The significant concentration of combustibles in this area is also separated from area 2604 by the north wall of the railroad airlock which is similar in construction to the south wall. Thus, a fire in area 1604 will not

propagate to area 2604. A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE ZONE 1604A

This zone is considered safety related.

DESCRIPTION

Unit 1 Reactor Building Railroad Airlock - el 130 ft

DRAWING NUMBER(S)

H-11802, H-11852, H-11860

AREA

1,540 ft<sup>2</sup>

COMBUSTIBLES

|                     |                          |
|---------------------|--------------------------|
| Oil & Grease        | None                     |
| Cable               | None                     |
| Class A             | Wood, plank, trash, rags |
| Charcoal            | None                     |
| Plastics            | Plastic, ladders         |
| Miscellaneous       | None                     |
| Miscellaneous Gases | None                     |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 200,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                          |
|-------------------------------------|--------------------------|
| Actual                              |                          |
| - Walls                             | N, S, E, W-C/NR          |
| - Floors, Ceiling, or Roof          | Concrete                 |
| - Fixed Openings                    | None                     |
| - Penetrations                      | See area 1604 text       |
| - Doors (Fire-rated Class/Zone no.) | 2-NR/1203; 2604, Outside |

### CONSTRUCTION

The railroad airlock is constructed of nonrated reinforced concrete, including the floor and ceiling. There are large vault-type, nonrated airlock doors in both the west wall adjacent to reactor building zone 1203F and in the east wall to the outside. A double nonrated airlock door in the south wall accesses area 2604.

A personnel airlock is located along the north wall of this zone. The south wall of the personnel airlock is constructed of nonrated 8-in. concrete block. The roof is constructed of 4-in.-thick nonrated concrete. A nonrated door in the west wall of the personnel airlock accesses reactor building zone 1203F. A nonrated airlock door in the north wall (at the east end) provides access to zone 1604B and outside.

See area 1604 for penetrations.

### FIRE PROTECTION

There is no detection or automatic suppression system in this zone. Hose stations and a portable CO<sub>2</sub> fire extinguisher are available in adjacent area 2604 for manual firefighting. In addition, yard hydrants are located immediately outside near each condensate storage tank.

### CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire duration is less than 15 min, which is considered to be insufficient to cause other than localized damage. Although the walls and doors in this zone are nonrated, they are of solid, reinforced concrete and steel and of substantial thickness. The design basis fire is not considered to be capable of breaching these barriers. A fire in this zone will not affect safe shutdown capability. There is no potential for a significant release of radioactivity from a fire in this zone.

FIRE ZONE 1604B

This zone is not considered safety related.

DESCRIPTION

Unit 1 Nitrogen Storage Tank

Outside and to the north of the RB Railroad Airlock - el 130 ft

DRAWING NUMBER(S)

H-11802, H-11860

AREA

Approximately 960 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 200,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                    |
|-----------------------------------|--------------------|
| Actual                            |                    |
| - Walls                           | N/A/outside        |
| - Floors, Ceiling or Roof         | N/A/outside        |
| - Fixed Openings                  | OP/Outside         |
| - Penetrations                    | See area 1604 text |
| - Doors (Fire-rated Class/Zone #) | N/A                |



### CONSTRUCTION

This zone is an outside area. See area 1604 for penetrations.

### FIRE PROTECTION

There is no detection or suppression system in the zone. Hose stations and portable CO<sub>2</sub> fire extinguishers are available in adjacent area 2604. In addition, yard hydrants are located immediately outside this zone at the Unit 1 condensate storage tank.

### CONSEQUENCES OF DESIGN BASIS FIRE

Due to the negligible amount of combustibles, a design basis fire of significant size is not considered credible for this zone. A fire in this zone will not affect safe shutdown capability or result in a significant release of radioactivity.

FIRE AREA 1605

This area is not considered safety related.

DESCRIPTION

Unit 1 Circulating Water Pump Pit  
East of the Power Block

DRAWING NUMBER(S)

H-11802

AREA

2,555 ft<sup>2</sup>

COMBUSTIBLES

|                     |          |
|---------------------|----------|
| Oil & Grease        | Lube oil |
| Cable               | None     |
| Class A             | None     |
| Charcoal            | None     |
| Plastics            | None     |
| Miscellaneous       | Rubber   |
| Miscellaneous Gases | None     |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 46,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                                        |
|------------------------|----------------------------------------|
| Suppression (type)     | None                                   |
| Hose Stations          | None - Hydrants @ cooling towers & CST |
| Portable Extinguishers | CO <sub>2</sub>                        |
| Detectors (type)       | None                                   |

FIRE RESISTANCE RATING

|                                     |                              |
|-------------------------------------|------------------------------|
| Actual                              |                              |
| - Walls                             | N, S, E, W-C/NR              |
| - Floors, Ceiling or Roof           | Floor-concrete; ceiling-none |
| - Fixed Openings                    | OP/Outside                   |
| - Penetrations                      | See text                     |
| - Doors (Fire-rated Class/Zone no.) | None                         |

### CONSTRUCTION

The circulating water pump pits are constructed with reinforced concrete walls and floor approximately 15 ft below grade. The "roof" is at grade and is open. Since this is an open yard area, penetrations are not sealed.

### FIRE PROTECTION

This area contains portable CO<sub>2</sub> fire extinguishers. Fire hydrants are located near the condensate storage tanks and the cooling towers. No automatic detection or suppression systems are provided.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire for this area is assumed to result in the loss of both Unit 1 circulating water pumps and associated equipment. However, the pumps are not required for safe shutdown. Due to the low combustible loading, the substantial, below grade construction of the pit and the greater than 50-ft separation of the pit from any other plant areas, propagation of the design basis fire outside of this area is not considered credible.

FIRE AREA 1606

This area is not considered safety related.

DESCRIPTION

Unit 1 Transformer Yard  
West of the Unit 1 Turbine Building

DRAWING NUMBER(S)

H-11802, H-11850

AREA

Approximately 15,400 ft<sup>2</sup> enclosing all six transformers and the fire protection valve house.

COMBUSTIBLES

|                     |                 |
|---------------------|-----------------|
| Oil & Grease        | Transformer oil |
| Cable               | None            |
| Class A             | None            |
| Charcoal            | None            |
| Plastics            | None            |
| Miscellaneous       | None            |
| Miscellaneous Gases | None            |

DESIGN BASIS FIRE

|                          |                  |
|--------------------------|------------------|
| Combustible Loading      | High             |
| Max. Permissible Loading | See text         |
| Fire Duration            | Greater than 3 h |

FIRE PROTECTION (AVAILABLE)

|                        |                                    |
|------------------------|------------------------------------|
| Suppression (type)     | Water spray (PC) (see section 7.0) |
| Hose Stations          | Hydrants                           |
| Portable Extinguishers | Dry chem                           |
| Detectors (type)       | Dry pilot (PC) (see section 7.0)   |

FIRE RESISTANCE RATING

|                                     |                           |
|-------------------------------------|---------------------------|
| Actual                              |                           |
| - Walls                             | None                      |
| - Floors, Ceiling, or Roof          | Concrete pad/gravel; None |
| - Fixed Openings                    | N/A                       |
| - Penetrations                      | See text                  |
| - Doors (Fire-rated Class/Zone no.) | N/A                       |

## CONSTRUCTION

This open area contains six large oil filled transformers mounted on concrete pads surrounded by gravel which is designed to contain any oil spills to a localized area. All six transformers are located within 50 ft of the turbine building exterior wall, which forms the east boundary of the area. The transformer cases are constructed of heavy sheet steel. Since this is an open yard area, there are no penetrations.

## FIRE PROTECTION

Each transformer is equipped with a fixed automatic water spray suppression system activated by a dry pilot system above and around the transformers. The area is equipped with fire hydrants and a portable dry chemical fire extinguisher located in the valve house. In addition, the high visibility and traffic in the area would provide rapid detection of any fire and ensure prompt response by the plant fire brigade which is trained in the fighting of transformer fires.

## APPENDIX "R" EXEMPTIONS

None.

## CONSEQUENCES OF DESIGN BASIS FIRE

This area presents an exposure fire hazard to the Unit 1 turbine building. The guidance of Appendix A to BTP 9.5-I Position D.1.h indicates that oil filled transformers adjacent to safety-related structures should have any openings in the separating wall sealed to a 3-h rating. Three transformers in this area are less than 20 ft from the turbine building exterior wall and three transformers are less than 40 ft from the same wall. The turbine building contains circuits for both safe shutdown paths. This is considered acceptable since:

- (1) The only openings in the turbine building west wall are the switchgear control cable tray and the main plant bus duct penetrations;
- (2) Radiant and convected heat entering the openings will be rapidly diluted in the large volume of the turbine building;
- (3) Each transformer is provided with an automatic water spray system;
- (4) Only one safe shutdown path will be affected in the unlikely event a fire propagates to the turbine building.
- (5) The PPT transformer is separated from the main power transformer by a fire barrier.

A fire in this area will, therefore, not affect the ability to achieve safe shutdown or result in any release of radioactivity.

FIRE AREA 1608

This area is not considered safety related.

DESCRIPTION

Offgas Recombiner Building

North of the Unit 1 Turbine Building - el 130 ft and 152 ft

DRAWING NUMBER(S)

H-11857

AREA

4,767 ft<sup>2</sup>

COMBUSTIBLES

|                     |                       |
|---------------------|-----------------------|
| Oil & Grease        | Transformer oil       |
| Cable               | Cable insulation      |
| Class A             | Wood, clothing, trash |
| Charcoal            | None                  |
| Plastics            | Plastic, ladders      |
| Miscellaneous       | Rubber                |
| Miscellaneous Gases | None                  |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | H <sub>2</sub> O                 |
| Portable Extinguishers | CO <sub>2</sub>                  |
| Detectors (type)       | Smoke det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                 |
|-----------------------------------|-----------------|
| Actual                            |                 |
| - Walls                           | N, S, E, W-C/NR |
| - Floors, Ceiling or Roof         | Concrete        |
| - Fixed Openings                  | CH/Outside      |
| - Penetrations                    | See text        |
| - Doors (Fire-rated Class/Zone #) | 2-NR/Outside    |

## CONSTRUCTION

The exterior walls of this building serve as the area boundary. They are of substantial nonrated, reinforced concrete construction, approximately 3 ft thick. The floor is reinforced concrete slab; the roof is also nonrated, reinforced concrete approximately 2 ft thick containing several solid concrete hatches for equipment removal. Nonrated doors in the south and west walls are provided for access to the building. Since this area is located away from other plant areas and contains no safe shutdown circuits or components, penetrations are not sealed.

## FIRE PROTECTION

Zone 1608A of this area contains partial coverage smoke detection, hose stations, and portable CO<sub>2</sub> fire extinguishers. The other zones contain no fire protection features but also contain negligible combustible loadings.

## APPENDIX "R" EXEMPTIONS

None.

## CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire for this area involves a low combustible loading, resulting in an equivalent fire duration of less than 30 min. Although the exterior of this building is not fire rated, it is of very substantial construction (minimum 2-ft-thick concrete containing essentially no penetrations). The fire is therefore not expected to be capable of breaching the area boundaries. Activation of the detection system in zone 1608A will provide an alarm, both locally and in the main control room (MCR) to ensure prompt response by the plant fire brigade. Also, the available firefighting equipment in the area is adequate to extinguish any fire which might occur. In addition, this area contains no safe shutdown equipment or circuits and is not considered safety related. There are also no exposure fire hazards to this area. Consequently, a design basis fire in this area will not affect the ability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE ZONE 1608A

This zone is not considered safety related.

DESCRIPTION

Offgas Recombiner Working Floors  
Offgas Recombiner Building - el 130 ft and 152 ft

DRAWING NUMBER(S)

H-11857

AREA

3,215 ft<sup>2</sup>

COMBUSTIBLES

|                     |                       |
|---------------------|-----------------------|
| Oil & Grease        | Transformer oil       |
| Cable               | Cable insulation      |
| Class A             | Wood, clothing, trash |
| Charcoal            | None                  |
| Plastics            | Plastic, ladders      |
| Miscellaneous       | Rubber                |
| Miscellaneous Gases | None                  |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | H <sub>2</sub> O                 |
| Portable Extinguishers | CO <sub>2</sub>                  |
| Detectors (type)       | Smoke det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                              |
|-------------------------------------|------------------------------|
| Actual                              |                              |
| - Walls                             | N, S, E, W-C/NR              |
| - Floors, Ceiling or Roof           | Concrete                     |
| - Fixed Openings                    | None                         |
| - Penetrations                      | See area 1608 text           |
| - Doors (Fire-rated Class/Zone no.) | 2-NR/Outside; NR/1608B, C, D |



### CONSTRUCTION

All of the walls are reinforced concrete approximately 3 ft thick and nonrated. The floor and ceiling are also reinforced, nonrated concrete. There are two nonrated doors, one in the south exterior wall and one in the west exterior wall. Nonrated doors also access zones 1608B, 1608C, and 1608D on the east side of this zone. (See area 1608 for penetrations.)

### FIRE PROTECTION

This zone contains full coverage smoke detection, hose stations, and portable CO<sub>2</sub> fire extinguishers.

### CONSEQUENCES OF DESIGN BASIS FIRE

The substantial construction of the zone boundaries, the low combustible loading, and the available suppression and detection preclude the propagation of the design basis fire beyond the boundaries of the zone. The available firefighting equipment in the zone is adequate to extinguish any fire which might occur. A fire in this zone will not affect the ability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 1608B

This area is not considered safety related.

DESCRIPTION

Offgas Preheater No. 1

Offgas Recombiner Building - el 130 ft

DRAWING NUMBER(S)

H-11857

AREA

531 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N, S, E, W-C/NR    |
| - Floors, Ceiling, or Roof          | Concrete           |
| - Fixed Openings                    | CH/Outside         |
| - Penetrations                      | See area 1608 text |
| - Doors (Fire-rated Class/Zone no.) | NR/1608A           |

### CONSTRUCTION

All the walls are nonrated, reinforced concrete approximately 3 ft thick. The floor and ceiling are also nonrated, reinforced concrete. There is a nonrated door on the west side of this zone to zone 1608A. (See area 1608 for penetrations.)

### FIRE PROTECTION

This zone contains no detection or automatic suppression system; however, adjacent zone 1608A contains hose stations and portable CO<sub>2</sub> fire extinguishers.

### CONSEQUENCES OF DESIGN BASIS FIRE

Due to the negligible combustible loading, a significant fire is not considered credible for this zone. Any fire initiated due to transient combustibles would be localized and unlikely to cause damage to equipment in the zone. The substantial construction of the zone boundaries and the negligible combustible loading preclude the propagation to any adjacent zones of any insignificant fire which may occur. The available manual firefighting equipment in adjacent zone 1608A is adequate to extinguish the fire. A fire in this zone will not affect the ability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE ZONE 1608C

This zone is not considered safety related.

DESCRIPTION

Offgas Condenser

Offgas Recombiner Building - el 130 ft

DRAWING NUMBER(S)

H-11857

AREA

422 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N, S, E, W-C/NR    |
| - Floors, Ceiling, or Roof          | Concrete           |
| - Fixed Openings                    | CH/Outside         |
| - Penetrations                      | See area 1608 text |
| - Doors (Fire-rated Class/Zone no.) | NR/1608A           |

### CONSTRUCTION

All the walls are nonrated, reinforced concrete approximately 3 ft thick. The floor and ceiling are also nonrated, reinforced concrete. There is a nonrated door on the west side of this zone to zone 1608A. (See area 1608 for penetrations.)

### FIRE PROTECTION

This zone contains no detection or automatic suppression system; however, adjacent zone 1608A contains hose stations and portable CO<sub>2</sub> fire extinguishers.

### CONSEQUENCES OF DESIGN BASIS FIRE

Due to the negligible combustible loading, a significant fire is not considered credible for this zone. Any fire initiated due to transient combustibles would be localized and unlikely to cause damage to equipment in the zone. The substantial construction of the zone boundaries and the negligible combustible loading preclude the propagation to any adjacent zones of any insignificant fire which may occur. The available manual firefighting equipment in adjacent zone 1608A is adequate to extinguish the fire. A fire in this zone will not affect the ability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE ZONE 1608D

This zone is not considered safety related.

DESCRIPTION

Offgas Preheater No. 2

Offgas Recombiner Building - el 130 ft

DRAWING NUMBER(S)

H-11857

AREA

599 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N, S, E, W-C/NR    |
| - Floors, Ceiling, or Roof          | Concrete           |
| - Fixed Openings                    | CH/Outside         |
| - Penetrations                      | See area 1608 text |
| - Doors (Fire-rated Class/Zone no.) | NR/1608A           |

### CONSTRUCTION

All the walls are nonrated, reinforced concrete, approximately 3 ft thick. The floor and ceiling are also nonrated, reinforced concrete. There is a nonrated door on the west side of this zone to zone 1608A. See area 1608 for penetrations.

### FIRE PROTECTION

This zone contains no detection or automatic suppression system. However, adjacent zone 1608A contains hose stations and portable CO<sub>2</sub> fire extinguishers.

### CONSEQUENCES OF DESIGN BASIS FIRE

Due to the negligible combustible loading, a significant fire is not considered credible for this zone. Any fire initiated due to transient combustibles would be localized and unlikely to cause damage to equipment in the zone. The substantial construction of the zone boundaries and the negligible combustible loading preclude the propagation to any adjacent zones of any insignificant fire which may occur. The available manual firefighting equipment in adjacent zone 1608A is adequate to extinguish the fire. A fire in this zone will not affect the ability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 1609

This area is not considered safety related.

DESCRIPTION

Unit 1 Reactor Building 185 ft Roof

Unit 1 Reactor Building - el 185 ft

DRAWING NUMBER(S)

H-11829

AREA

4,489 ft<sup>2</sup>

COMBUSTIBLES

|                     |          |
|---------------------|----------|
| Oil & Grease        | None     |
| Cable               | None     |
| Class A             | None     |
| Charcoal            | Charcoal |
| Plastics            | None     |
| Miscellaneous       | None     |
| Miscellaneous Gases | None     |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                    |
|------------------------|------------------------------------|
| Suppression (type)     | Water spray (PC) (see section 7.0) |
| Hose Stations          | None                               |
| Portable Extinguishers | None                               |
| Detectors (type)       | Heat det (PC) (see section 7.0)    |

FIRE RESISTANCE RATING

|                                   |                              |
|-----------------------------------|------------------------------|
| Actual                            |                              |
| - Walls                           | S, E, W-C/NR; N/Open         |
| - Floors, Ceiling or Roof         | Floor-concrete; ceiling-open |
| - Fixed Openings                  | OP/Outside                   |
| - Penetrations                    | See text                     |
| - Doors (Fire-rated Class/Zone #) | NR/1203I                     |



## CONSTRUCTION

This is an open area on the reactor building roof at the 185-ft elevation. The area is bounded by reinforced concrete walls on three sides and is open on the north. The east wall is nonrated, reinforced concrete separating this area from the balance of the reactor building. The west wall is also nonrated, reinforced concrete and separates this area from the turbine building. The south wall is 3-h-rated reinforced concrete with nonrated double airlock doors to adjacent area 1203. The floor is nonrated, reinforced concrete and contains one significant penetration for the reactor building vent stack in the northeast corner of the area. This area is considered a separate fire area due to the insignificant combustible loading; the nonrated but substantial boundaries of the area at the floor and on the east, south, and west sides; and the large spatial separation of this area from other plant areas.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

## FIRE PROTECTION

The charcoal filters contained in this area are equipped with heat detectors and a water spray system. There is no other detection or automatic or manual suppression in this area. Actuation of the detection system provides an alarm locally and in the MCR. Adjacent zone 1203I provides a portable CO<sub>2</sub> fire extinguisher and adjacent zone 1205U contains a hose station able to provide an effective hose stream to this area.

## APPENDIX R EXEMPTIONS

None.

## CONSEQUENCES OF DESIGN BASIS FIRE

A fire originating in this area is considered insignificant due to the negligible combustible loading resulting in a design basis fire duration of less than 15 min. Therefore, the design basis fire is not expected to propagate beyond the boundaries of the area. In the event of a design basis fire in the zone, the detection system in the filters would provide early warning alarms in the local area and in the MCR to assure prompt response by the plant fire brigade. The fire brigade will initiate the water spray system in the filter unit to suppress the fire. A fire in zones 1205N or 1205Q below this area are not expected to propagate up to this area since the only credible propagation path is through the reactor building vent stack penetration which is approximately 30 ft from the only combustibles in this area. A fire originating in the turbine building is not expected to propagate across this area to the reactor building or vice versa since two nonrated but substantial barriers would have to be breached to establish this propagation path. This is not considered credible since once one barrier was breached, the fire would be in an open outside area. Sufficient heat could not be confined to damage the second barrier. Therefore, no exposure fire to this area is considered capable of propagating through this area to another. The design basis fire for this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 1610

This area is considered safety related.

DESCRIPTION

Diesel Fuel Oil Storage Tank 1A  
Underground - below 130 ft

DRAWING NUMBER(S)

H-11802

AREA

No area calculation is required due to tanks being located underground.

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |               |
|--------------------------|---------------|
| Combustible Loading      | Low           |
| Max. Permissible Loading | (See text)    |
| Fire Duration            | Less than 1 h |

FIRE PROTECTION (AVAILABLE)

|                        |          |
|------------------------|----------|
| Suppression (type)     | None     |
| Hose Stations          | Hydrant  |
| Portable Extinguishers | Dry chem |
| Detectors (type)       | None     |

FIRE RESISTANCE RATING

|                                   |          |
|-----------------------------------|----------|
| Actual                            |          |
| - Walls                           | See text |
| - Floors, Ceiling or Roof         | See text |
| - Fixed Openings                  | See text |
| - Penetrations                    | See text |
| - Doors (Fire-rated Class/Zone #) | See text |

### CONSTRUCTION

The diesel fuel oil storage tanks are 40,000-gal capacity underground tanks approximately 12 ft below grade. The area surrounding the tanks has been designed to drain spills and water away from the fire area.

### FIRE PROTECTION

Two hydrants, one to the southeast and one to the north of the fuel oil storage tanks, are accessible for manual firefighting. Three portable dry chemical fire extinguishers are post mounted in the vicinity of the tanks. A 150-lb dry chemical extinguisher is located near fire area 0501 approximately 300 ft away.

### APPENDIX R EXEMPTIONS

None

### CONSEQUENCES OF A DESIGN BASIS FIRE

A fire involving transient combustibles within this area will result in no unacceptable consequences since all components and the fuel oil storage tanks are located underground. A fire involving a fuel oil tank truck will not impose a threat to the storage tanks or operation of the diesel generators. The diesel generators are separated from this fire area by a noncombustible exterior structural wall since the safe shutdown components are below grade and a tank truck spill will not impose a threat. There is no effect on safe shutdown capability. This area contains no radioactive materials which could be released in the event of a fire.

FIRE AREA 1611

This area is considered safety related.

DESCRIPTION

Diesel Fuel Oil Storage Tank 1B  
Underground - below 130 ft

DRAWING NUMBER(S)

H-11802

AREA

No area calculation is required due to tanks being located underground.

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |               |
|--------------------------|---------------|
| Combustible Loading      | Low           |
| Max. Permissible Loading | (See text)    |
| Fire Duration            | Less than 1 h |

FIRE PROTECTION (AVAILABLE)

|                        |          |
|------------------------|----------|
| Suppression (type)     | None     |
| Hose Stations          | Hydrant  |
| Portable Extinguishers | Dry chem |
| Detectors (type)       | None     |

FIRE RESISTANCE RATING

|                                   |          |
|-----------------------------------|----------|
| Actual                            |          |
| - Walls                           | See text |
| - Floors, Ceiling or Roof         | See text |
| - Fixed Openings                  | See text |
| - Penetrations                    | See text |
| - Doors (Fire-rated Class/Zone #) | See text |

### CONSTRUCTION

The diesel fuel oil storage tanks are 40,000-gal capacity underground tanks approximately 12 ft below grade. The area surrounding the tanks has been designed to drain spills and water away from the fire area.

### FIRE PROTECTION

Two hydrants, one to the southeast and one to the north of the fuel oil storage tanks, are accessible for manual firefighting. Three portable dry chemical fire extinguishers are post mounted in the vicinity of the tanks. A 150-lb dry chemical extinguisher is located near fire area 0501 approximately 300 ft away.

### APPENDIX R EXEMPTIONS

None

### CONSEQUENCES OF A DESIGN BASIS FIRE

A fire involving transient combustibles within this area will result in no unacceptable consequences since all components and the fuel oil storage tanks are located underground. A fire involving a fuel oil tank truck will not impose a threat to the storage tanks or operation of the diesel generators. The diesel generators are separated from this fire area by a noncombustible exterior structural wall. Since the safe shutdown components are below grade and a tank truck spill will not impose a threat, there is no effect on safe shutdown capability. This area contains no radioactive materials which could be released in the event of a fire.

FIRE AREA 1612

This area is considered safety related.

DESCRIPTION

Diesel Fuel Oil Storage Tank 1C  
Underground - below 130 ft

DRAWING NUMBER(S)

H-11802

AREA

No area calculation is required due to tanks being located underground.

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |               |
|--------------------------|---------------|
| Combustible Loading      | Low           |
| Max. Permissible Loading | (See text)    |
| Fire Duration            | Less than 1 h |

FIRE PROTECTION (AVAILABLE)

|                        |          |
|------------------------|----------|
| Suppression (type)     | None     |
| Hose Stations          | Hydrant  |
| Portable Extinguishers | Dry chem |
| Detectors (type)       | None     |

FIRE RESISTANCE RATING

|                                   |          |
|-----------------------------------|----------|
| Actual                            |          |
| - Walls                           | See text |
| - Floors, Ceiling or Roof         | See text |
| - Fixed Openings                  | See text |
| - Penetrations                    | See text |
| - Doors (Fire-rated Class/Zone #) | See text |

### CONSTRUCTION

The diesel fuel oil storage tanks are 40,000-gal capacity underground tanks approximately 12 ft below grade. The area surrounding the tanks has been designed to drain spills and water away from the fire area.

### FIRE PROTECTION

Two hydrants, one to the southeast and one to the north of the fuel oil storage tanks, are accessible for manual firefighting. Three portable dry chemical fire extinguishers are post mounted in the vicinity of the tanks. A 150-lb dry chemical extinguisher is located near fire area 0501 approximately 300 ft away.

### APPENDIX R EXEMPTIONS

None

### CONSEQUENCES OF A DESIGN BASIS FIRE

A fire involving transient combustibles within this area will result in no unacceptable consequences since all components and the fuel oil storage tanks are located underground. A fire involving a fuel oil tank truck will not impose a threat to the storage tanks or operation of the diesel generators. The diesel generators are separated from this fire area by a noncombustible exterior structural wall. Since the safe shutdown components are below grade and a tank truck spill will not impose a threat, there is no effect on safe shutdown capability. This area contains no radioactive materials which could be released in the event of a fire.

FIRE AREA 1801

This area is not considered safety related.

DESCRIPTION

Unit 1 "A" Cooling Tower Switchgear Building  
East of the Unit 1 Power Block - el 118 ft

DRAWING NUMBER(S)

H-11802, H-11851, H-11854

AREA

35,000 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                                              |
|------------------------|--------------------------------------------------------------|
| Suppression (type)     | None                                                         |
| Hose Stations          | None - hydrants in area                                      |
| Portable Extinguishers | CO <sub>2</sub> ; Dry chem                                   |
| Detectors (type)       | Switchgear building smoke detector (IS)<br>(see section 7.0) |

FIRE RESISTANCE RATING

|                                     |          |
|-------------------------------------|----------|
| Actual                              |          |
| - Walls                             | See text |
| - Floors, Ceiling or Roof           | See text |
| - Fixed Openings                    | See text |
| - Penetrations                      | See text |
| - Doors (Fire-rated Class/Zone No.) | See text |



### CONSTRUCTION

The cooling towers are mechanical draft counterflow towers constructed completely of fiberglass with a flame spread rating  $\leq 25$  per ASTM E84. The end walls, dividing walls, spray diffusers, water distribution piping, drift eliminators, and fan decks are constructed with fiberglass material with flame spread rating  $\leq 25$  per ASTM E84. The switchgear house is constructed of sheet metal on a wood frame over a concrete slab. Since this is an open yard area not important to safe shutdown and located away from other plant areas, penetrations are not sealed.

### FIRE PROTECTION

There is no automatic fire detection or suppression for the cooling tower. Yard hydrants are located throughout the area for manual firefighting. The switchgear house is equipped with smoke detectors, a portable CO<sub>2</sub> fire extinguisher, and a portable dry chemical fire extinguisher. Both local and main control room (MCR) alarms are provided to indicate detection system actuation. In addition, hydrants are provided near this area for manual firefighting.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

This area contains no safe shutdown equipment and does not present an exposure fire hazard to any other plant areas. There are no radioactive materials in the area which could be released in the event of a fire. The switchgear building detection system is expected to alarm both locally and in the MCR for prompt action to extinguish any fires which might occur. The open area around the towers and the numerous hydrants enhance the ability of the plant fire brigade to manually fight any fires. A fire in this area is not expected to impair the ability to safely shut down the plant or to result in any radioactive release.

FIRE AREA 1802

This area is not considered safety related.

DESCRIPTION

Unit 1 "B" Cooling Tower Switchgear Building  
East of the Unit 1 Power Block - el 118 ft

DRAWING NUMBER(S)

H-11802, H-11851, H-11854

AREA

35,000 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than -1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                                                              |
|------------------------|--------------------------------------------------------------|
| Suppression (type)     | None                                                         |
| Hose Stations          | None - hydrants in area                                      |
| Portable Extinguishers | CO <sub>2</sub> ; Dry chem                                   |
| Detectors (type)       | Switchgear Building Smoke Detector (IS)<br>(see section 7.0) |

FIRE RESISTANCE RATING

|                                     |          |
|-------------------------------------|----------|
| Actual                              |          |
| - Walls                             | See text |
| - Floors, Ceiling or Roof           | See text |
| - Fixed Openings                    | See text |
| - Penetrations                      | See text |
| - Doors (Fire-rated Class/Zone No.) | See text |

### CONSTRUCTION

The cooling towers are mechanical draft counterflow towers constructed completely of fiberglass with flame spread rating  $\leq 25$  per ASTM E84. The end walls, dividing walls, spray diffusers, water distribution piping, drift eliminators, and fan decks are constructed with fiberglass material with flame spread rating  $\leq 25$  per ASTM E84. Frames are wood and the diffuser fill material is plastic in metal frames. The two fire protection valve houses and the switchgear house are constructed of sheet metal on a wood frame over a concrete slab. Since this is an open yard not important to safe shutdown and located away from other plant areas, penetrations are not sealed.

### FIRE PROTECTION

There is no automatic fire detection or suppression for the cooling tower. Yard hydrants are located throughout the area for manual firefighting. The switchgear house is equipped with smoke detectors, a portable CO<sub>2</sub> fire extinguisher, and a portable dry chemical fire extinguisher. Both local and MCR alarms are provided to indicate smoke detection system actuation. In addition, four hydrants are provided near this area for manual firefighting.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

This area contains no safe shutdown equipment and does not present an exposure fire hazard to any other plant areas. There are no radioactive materials in the area which could be released in the event of a fire. The switchgear building detection system is expected to alarm both locally and in the MCR for prompt action to extinguish any fires which might occur. The open area around the towers and the numerous hydrants enhance the ability of the plant fire brigade to manually fight any fires if it should be necessary. A fire in this area is not expected to impair the ability to safely shut down the plant or to result in any radioactive release.

FIRE AREA 1803

This area is not considered safety related.

DESCRIPTION

Unit 1 "C" Cooling Tower Switchgear Building  
East of the Unit 1 Power Block - el 118 ft

DRAWING NUMBER(S)

H-11802, H-11851, H-11854

AREA

35,000 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than -1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                                                              |
|------------------------|--------------------------------------------------------------|
| Suppression (type)     | None                                                         |
| Hose Stations          | None - hydrants in area                                      |
| Portable Extinguishers | CO <sub>2</sub> ; Dry chem                                   |
| Detectors (type)       | Switchgear Building Smoke Detector (IS)<br>(see section 7.0) |

FIRE RESISTANCE RATING

|                                     |          |
|-------------------------------------|----------|
| Actual                              |          |
| - Walls                             | See text |
| - Floors, Ceiling or Roof           | See text |
| - Fixed Openings                    | See text |
| - Penetrations                      | See text |
| - Doors (Fire-rated Class/Zone No.) | See text |

### CONSTRUCTION

The cooling towers are mechanical draft counterflow towers constructed completely of fiberglass with flame spread rating  $\leq 25$  ASTM E84. The end walls, dividing walls, spray diffusers, water distribution piping, drift eliminators, and fan decks are constructed with fiberglass material with flame spread rating  $\leq 25$  ASTM E84. The switchgear house is constructed of sheet metal on a wood frame over a concrete slab. Since this is an open yard not important to safe shutdown and located away from other plant areas, penetrations are not sealed.

### FIRE PROTECTION

There is no automatic fire detection or suppression for the cooling tower. Yard hydrants are located throughout the area for manual firefighting. The switchgear house is equipped with smoke detectors, a portable CO<sub>2</sub> fire extinguisher, and a portable dry chemical fire extinguisher. Both local and MCR alarms are provided to indicate smoke detection system actuation. In addition, hydrants are provided near this area for manual firefighting.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

This area contains no safe shutdown equipment and does not present an exposure fire hazard to any other plant areas. There are no radioactive materials in the area which could be released in the event of a fire. The switchgear building detection system is expected to alarm both locally and in the MCR for prompt action to extinguish any fires which might occur. The open area around the towers and the numerous hydrants enhance the ability of the plant fire brigade to manually fight any fires if it should be necessary. A fire in this area is not expected to impair the ability to safely shut down the plant or to result in any radioactive release.

FIRE AREA 1804

This area is not considered safety related.

DESCRIPTION

Unit 1 Turbine Building Back Entrance (Frisker Building)  
Outside the Unit 1 Turbine Building - el 130 ft - at Column Line T3

DRAWING NUMBER(S)

H-11802

AREA

615 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | Wood |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                                                                |
|------------------------|----------------------------------------------------------------|
| Suppression (type)     | None                                                           |
| Hose Stations          | None - hydrants nearby                                         |
| Portable Extinguishers | CO <sub>2</sub> - nearby, dry chem located on inside East wall |
| Detectors (type)       | None                                                           |

FIRE RESISTANCE RATING

|                                     |          |
|-------------------------------------|----------|
| Actual                              |          |
| - Walls                             | See text |
| - Floors, Ceiling or Roof           | See text |
| - Fixed Openings                    | See text |
| - Penetrations                      | See text |
| - Doors (Fire-rated Class/Zone no.) | See text |

### CONSTRUCTION

The fire area consists of a precast, nonrated, concrete modular structure with a concrete slab foundation. The structure is located outside but adjacent to the Unit 1 turbine building east wall, north end. Since this is an outside yard not important to safe shutdown and located away from other plant areas, penetrations are not required to be sealed.

### FIRE PROTECTION

A fire extinguisher is located nearby on the outside north wall of the respirator decontamination room and locally. There is no detection or automatic suppression in this building. Yard hydrants and hose houses are located to provide an effective hose stream to this area.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

This area does not represent an exposure fire hazard to the turbine building due to the low combustible presence. Any credible propagation path is through the nonrated openings. A rollup door and a single personnel access door are the only openings on the east side of the turbine building. There are no fixed combustibles subject to radiant heat exposure in the immediate vicinity of either door. The nearest safe shutdown circuits or components are located greater than 30 ft from the doors. Convected heat will be diluted by the large volume of the turbine building; thus, a fire in this area will not affect safe shutdown or result in a release of radioactivity.

FIRE AREA 1805

This area is not considered safety related.

DESCRIPTION

Instrument Calibration/Respirator Decontamination Building  
North of the Unit 1 Radwaste Building - el 130 ft

DRAWING NUMBER(S)

H-11802

AREA

726 ft<sup>2</sup>

COMBUSTIBLES

|                     |                              |
|---------------------|------------------------------|
| Oil & Grease        | None                         |
| Cable               | Cable insulation             |
| Class A             | Wood, cardboard, trash, rags |
| Charcoal            | None                         |
| Plastics            | Plastic                      |
| Miscellaneous       | Rubber                       |
| Miscellaneous Gases | None                         |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 52,667 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                                         |
|------------------------|-----------------------------------------|
| Suppression (type)     | None                                    |
| Hose Stations          | None - hydrants nearby                  |
| Portable Extinguishers | CO <sub>2</sub> - on north wall of bldg |
| Detectors (type)       | None                                    |

FIRE RESISTANCE RATING

|                                     |          |
|-------------------------------------|----------|
| Actual                              |          |
| - Walls                             | See text |
| - Floors, Ceiling or Roof           | See text |
| - Fixed Openings                    | See text |
| - Penetrations                      | See text |
| - Doors (Fire-rated Class/Zone no.) | See text |



### CONSTRUCTION

The fire area consists of a building adjacent to the Unit 1 radwaste building on the south and the Unit 1 turbine building on the west. This building is constructed entirely of nonrated reinforced concrete and contains two rooms separated by a nonrated concrete wall. Since this building is outside the power block and not important to safe shutdown, penetrations are not required to be sealed.

### FIRE PROTECTION

There is no automatic detection or suppression system in this building. A CO<sub>2</sub> extinguisher is located on the outside north wall. Yard hydrants and hose houses are located nearby and can provide an effective hose stream to this area.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

This area represents an exposure fire hazard to the turbine and radwaste buildings. Both buildings are of substantial construction and can withstand the exposure of a design basis fire in this area. The only credible propagation paths are through nonrated openings. The loading dock double door on the north side of the radwaste building is the only opening in the area through which a fire might propagate. There are no fixed combustibles subject to radiant heat exposure in the vicinity of this door. There are no safe shutdown circuits or components in the radwaste building. Therefore, a fire in this area will not affect safe shutdown or result in a release of radioactivity.

FIRE ZONE 1805A

This zone is not considered safety related.

DESCRIPTION

Instrument Calibration Room

North of the Unit 1 Radwaste Building - el 130 ft

DRAWING NUMBER(S)

H-11802

AREA

264 ft<sup>2</sup>

COMBUSTIBLES

|                     |                   |
|---------------------|-------------------|
| Oil & Grease        | None              |
| Cable               | Cable insulation  |
| Class A             | Wood, trash, rags |
| Charcoal            | None              |
| Plastics            | Plastic           |
| Miscellaneous       | None              |
| Miscellaneous Gases | None              |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 45,742 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                                         |
|------------------------|-----------------------------------------|
| Suppression (type)     | None                                    |
| Hose Stations          | None - hydrants nearby                  |
| Portable Extinguishers | CO <sub>2</sub> - on outside north wall |
| Detectors (type)       | None                                    |

FIRE RESISTANCE RATING

|                                     |                      |
|-------------------------------------|----------------------|
| Actual                              | See text             |
| - Walls                             | N, S, E, W-C/NR      |
| - Floors, Ceiling or Roof           | Concrete             |
| - Fixed Openings                    | None                 |
| - Penetrations                      | See text             |
| - Doors (Fire-rated Class/Zone no.) | 1 Fire-rated Class A |

### CONSTRUCTION

The instrument calibration room is constructed of nonrated, reinforced concrete walls with concrete floor and nonrated, reinforced concrete ceiling. The main entry door is a fire-rated Class A door. See area 1805 for penetrations.

### FIRE PROTECTION

There is no automatic detection or suppression in this zone. A CO<sub>2</sub> extinguisher is located near the main entry door on the outside north wall of the room. Yard hydrants and hose houses are located nearby to provide effective hose stream coverage.

### CONSEQUENCES OF DESIGN BASIS FIRE

A design basis fire, which assumes total combustion of all combustibles, represents an exposure hazard to plant structures (i.e., the radwaste and turbine buildings). The radwaste building wall is reinforced solid concrete with no openings within approximately 35 ft of the hazard. The turbine building wall consists of concrete "T" panels of minimum 4-in. thickness. The only openings in the turbine building wall are a normally closed rollup door and a personnel access door protected by the frisker building. There are no fixed combustibles in the immediate vicinity of these doors subject to radiant heat exposure. Convected heat will be rapidly diluted by the large volume of the turbine building. The nearest required safe shutdown circuits or components are greater than 30 ft from these doors. Based on the substantial construction of the nearby building walls, the absence of significant, intervening combustibles and a large distance between the hazard and important plant components, a design basis fire does not affect safe shutdown or result in an unacceptable exposure to the plant.

FIRE ZONE 1805B

This zone is not considered safety related.

DESCRIPTION

Respirator Decontamination Room  
North of the Unit 1 Radwaste Building -el 130 ft

DRAWING NUMBER(S)

H-11802

AREA

462 ft<sup>2</sup>

COMBUSTIBLES

|                     |                 |
|---------------------|-----------------|
| Oil & Grease        | None            |
| Cable               | None            |
| Class A             | Wood, cardboard |
| Charcoal            | None            |
| Plastics            | Plastic         |
| Miscellaneous       | Rubber          |
| Miscellaneous Gases | None            |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 56,623 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                                                          |
|------------------------|----------------------------------------------------------|
| Suppression (type)     | None                                                     |
| Hose Stations          | None - hydrants nearby                                   |
| Portable Extinguishers | CO <sub>2</sub> - on outside north wall near access door |
| Detectors (type)       | None                                                     |

FIRE RESISTANCE RATING

|                                     |                 |
|-------------------------------------|-----------------|
| Actual                              | See text        |
| - Walls                             | N, S, E, W-C/NR |
| - Floors, Ceiling or Roof           | Concrete        |
| - Fixed Openings                    | None            |
| - Penetrations                      | See text        |
| - Doors (Fire-rated Class/Zone no.) | 2-NR/outside    |

### CONSTRUCTION

This zone is constructed of nonrated, reinforced concrete walls with concrete floor and nonrated, reinforced concrete ceiling. The main entry door is a fire-rated Class A door. The north wall also contains a large nonrated rollup door. See area 1805 for penetrations.

### FIRE PROTECTION

There is no automatic detection or suppression in this zone. This zone is provided with a CO<sub>2</sub> fire extinguisher located outside the room on the north wall of the building. Yard hydrants and hose houses are located to provide effective hose stream coverage.

### CONSEQUENCES OF DESIGN BASIS FIRE

A design basis fire, which assumes total combustion of all combustibles, represents an exposure hazard to the radwaste and turbine buildings. The turbine building wall consists of concrete "T" panels of minimum 4-in. thickness. There are no openings in the wall within approximately 25 ft of the hazard. The radwaste building wall, adjacent to the hazard, is reinforced, solid concrete with no openings within approximately 5 ft of the hazard. The radwaste building contains no Unit 1 or Unit 2 safe shutdown circuits or components. The east wall of this zone, constructed of reinforced concrete with essentially no openings, provides an effective radiant and convective heat shield between this zone and the radwaste building wall opening. There are no fixed combustibles in the immediate vicinity of this opening subject to radiant heat exposure. Based on the substantial construction of the adjacent building walls, the absence of significant, intervening combustibles and a separation distance between the hazard and unprotected openings, the design basis fire does not present an unacceptable exposure to plant structures.

FIRE AREA 1806

This area is not considered safety related.

DESCRIPTION

Unit 1 HVAC Chiller Building

Between Unit 1 Reactor and Radwaste Buildings (above HPCI)

DRAWING NUMBER(S)

H-11802

AREA

756 ft<sup>2</sup>

COMBUSTIBLES

|                     |        |
|---------------------|--------|
| Oil & Grease        | Grease |
| Cable               | None   |
| Class A             | None   |
| Charcoal            | None   |
| Plastics            | None   |
| Miscellaneous       | None   |
| Miscellaneous Gases | None   |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                                           |
|------------------------|-------------------------------------------|
| Suppression (type)     | None                                      |
| Hose Stations          | None - hydrant at Condensate Storage Tank |
| Portable Extinguishers | CO <sub>2</sub> ; dry chemical            |
| Detectors (type)       | None                                      |

FIRE RESISTANCE RATING

|                                     |                                    |
|-------------------------------------|------------------------------------|
| Actual                              |                                    |
| - Walls                             | E,S,W-S/NR;N-C/NR                  |
| - Floors, Ceiling or Roof           | Floor-concrete slab; ceiling-steel |
| - Fixed Openings                    | N/A                                |
| - Penetrations                      | See text                           |
| - Doors (Fire-rated Class/Zone no.) | 2-NR/outside                       |

### CONSTRUCTION

The roof as well as the east, south, and west walls of this area are constructed of nonrated sheet metal. The north wall of this area is also the south exterior wall of the Unit 1 radwaste building addition which is constructed of nonrated concrete. The floor, which is nonrated and constructed of reinforced concrete, is also the roof of the HPCI pump room. There is a double door on the east side of the building and a single door on the west side, neither of which are fire rated. Penetrations through walls or floors in this area are not required to be fire rated.

### FIRE PROTECTION

There is no automatic fire detection or suppression at this building. A hydrant house is located on the east side of the Unit 1 condensate storage tank approximately 150 ft away. A portable CO<sub>2</sub> extinguisher is mounted inside the SE door, and a portable dry chemical extinguisher is mounted inside the NW door of this structure.

### CONSEQUENCES OF DESIGN BASIS FIRE

This area contains no safe shutdown or safety-related equipment and presents no exposure fire hazard to any safe shutdown or safety-related equipment. A fire in this area is not expected to propagate toward any other plant structures since only noncombustible concrete and gravel are in the immediate vicinity. Since the combustible loading of this area is low and no safety-related components are resident, a design basis fire is not expected to have any adverse effect on the ability to achieve and maintain safe shutdown.

FIRE AREA 1807

This area is not considered safety related.

DESCRIPTION

Unit 1 helper cooling tower

South of Unit 1 cooling tower no. 1B

DRAWING NUMBER(S)

H-11802

AREA

31,000 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | PVC              |
| Miscellaneous       | None             |
| Miscellaneous gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible loading      | Low                         |
| Max. permissible loading | 100,000 Btu/ft <sup>2</sup> |
| Fire duration            | Less than 1 h               |

FIRE PROTECTION AVAILABLE

|                        |                        |
|------------------------|------------------------|
| Suppression (type)     | None                   |
| Hose stations          | None - hydrants nearby |
| Portable extinguishers | None                   |
| Detectors (type)       | None                   |

FIRE RESISTANCE RATING

|                                     |           |
|-------------------------------------|-----------|
| Actual                              |           |
| - Walls                             | See text. |
| - Floors, ceiling or roof           | See text. |
| - Fixed openings                    | See text. |
| - Penetrations                      | See text. |
| - Doors (Fire-rated Class/Zone no.) | See text. |



## CONSTRUCTION

The Unit 1 helper cooling tower is a concrete structure assembled from precast or prestressed concrete components. The structural framing is precast reinforced concrete. The fan deck consists of concrete panels. The tower wall is constructed of concrete panels extending down from the fan deck to the top of the air inlet. The cooling tower is divided into 12 cells separated by concrete panels with concrete windscreens on the end cells.

The heat exchanger consists of formed plastic sheets in modules supported from below by structural members and covering the entire interior plan area of the tower. The water distribution piping is PVC. The fan stacks are constructed of heavy, ribbed fire-retardant fiberglass panels bolted together.

The electrical equipment building is a small structure housing the cooling tower MCCs and is a separate building from the cooling tower. The electrical equipment building has a metal structural frame, as well as metal siding and roof. The floor is concrete.

## FIRE PROTECTION

There is no automatic fire detection or suppression at this building. A hydrant is located approximately 100 ft to the south. Other hydrants are in the area nearby.

## CONSEQUENCES OF DESIGN BASIS FIRE

This area contains no safe-shutdown or safety-related equipment, and presents no exposure fire hazard to any safe-shutdown or safety-related equipment. A fire in this area is not expected to propagate toward any other plant structures due to its noncombustible concrete construction. Since the combustible loading of this area is low and no safety-related components are resident, a design basis fire is not expected to have any adverse effect on the ability to achieve and maintain safe shutdown.

## **12.0 Unit 2 Areas Fire Hazard Analysis**

FIRE AREA 2003

This area is not considered safety related.

DESCRIPTION

Oil Storage Tank Room  
Control Building - el 112 ft

DRAWING NUMBER(S)

H-11812

AREA

698 ft<sup>2</sup>

COMBUSTIBLES

|                     |          |
|---------------------|----------|
| Oil & Grease        | Lube oil |
| Cable               | None     |
| Class A             | None     |
| Charcoal            | None     |
| Plastics            | None     |
| Miscellaneous       | None     |
| Miscellaneous Gases | None     |

DESIGN BASIS FIRE

|                          |                               |
|--------------------------|-------------------------------|
| Combustible Loading      | High                          |
| Max. Permissible Loading | 4,776,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Greater than 3 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | Deluge (FC) (see section 7.0)    |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Dry pilot (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N, S, W-C/3; E-B/3 |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | None               |
| - Penetrations                      | See text           |
| - Doors (Fire-rated Class/Zone No.) | A/0001             |

### CONSTRUCTION

The north, south, and west walls are 3-h-rated reinforced concrete. The east wall is block and is 3-h rated. The ceiling is concrete and 3-h rated. The floor is nonrated, concrete base slab. There are fire-rated Class A sliding double doors on both the inside and outside of the doorway in the east wall which access area 0001. The doorway is located approximately 5 ft above floor level to accommodate the volume of the oil in the tanks.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

The area is equipped with a full coverage dry pilot activated, auto deluge system. Activation of the deluge system results in an alarm, both locally and in the main control room (MCR). The sliding fire doors automatically close under fire conditions. No manual firefighting equipment is located in this zone. However, manual firefighting equipment is available in area 0001, including a portable foam unit, portable CO<sub>2</sub> and dry chemical fire extinguishers, and hose stations.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

The only significant fire which can be postulated for this area would be as a result of the rupture of the oil storage tank or piping. Such a fire would not have an incipient stage, thus, an early warning detection system is not provided. The full coverage deluge system provides for rapid extinguishment of any fire which does occur. The fire would be oxygen limited which would retard the rate of combustion until extinguishment. Rapid response of the plant fire brigade would be expected to protect sensitive equipment outside the fire area. These rated walls will contain the fire until the fire can be extinguished. A fire in this area will not affect the capability to achieve and maintain a safe shutdown or result in a significant release of radiation.

FIRE AREA 2004

This area is considered safety related.

DESCRIPTION

Station Battery Room 2A  
Control Building - el 112 ft

DRAWING NUMBER(S)

H-11811, H-11812

AREA

844 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | Battery cases    |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N, S-C/3; E, W-B/3 |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | None               |
| - Penetrations                      | See text           |
| - Doors (Fire-rated Class/Zone No.) | WX/0001            |

### CONSTRUCTION

The north and south walls are reinforced concrete and are 3-h rated. The east and west walls are block and are 3-h rated. The floor is nonrated, reinforced concrete slab and the ceiling is reinforced concrete and 3-h rated. There is a nonrated watertight door in the north wall to area 0001 (see exemptions).

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full smoke detector coverage that alarms both locally and in the MCR to ensure prompt response by the plant fire brigade. There is no automatic suppression system or manual firefighting equipment in this area. There are, however, hose stations, a portable foam unit and portable CO<sub>2</sub>, and dry chemical fire extinguishers in adjacent area 0001.

### APPENDIX R EXEMPTIONS

An exemption from the Section III.G.2 requirements for complete 3-h-rated barriers has been granted for the nonrated, watertight door to this area by the April 1984 NRC Safety Evaluation Report.

### CONSEQUENCES OF DESIGN BASIS FIRE

A design basis fire in this area would consist mainly of cable insulation and plastic battery cases. Hydrogen generated by the batteries is maintained at insignificant concentrations by the room ventilation. See calculation 1380-027-C009 in appendix L of this calculation for further details. The available detection would alert the MCR of an incipient fire to ensure prompt response by the plant fire brigade. The low fire loading, substantial or rated wall and door construction, and the available firefighting equipment in area 0001 will preclude propagation of a fire outside area 2004.

A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 2005

This area is considered safety related.

DESCRIPTION

Station Battery Room 2B  
Control Building - el 112 ft

DRAWING NUMBER(S)

H-11811

AREA

869 ft<sup>2</sup>

COMBUSTIBLES

|                     |               |
|---------------------|---------------|
| Oil & Grease        | None          |
| Cable               | None          |
| Class A             | None          |
| Charcoal            | None          |
| Plastics            | Battery cases |
| Miscellaneous       | None          |
| Miscellaneous Gases | None          |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N, S-C/3; E, W-B/3 |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | None               |
| - Penetrations                      | See text           |
| - Doors (Fire-rated Class/Zone No.) | WX/0001            |

### CONSTRUCTION

The north and south walls are reinforced concrete and are 3-h rated. The east and west walls are block and are 3-h rated. The floor is nonrated, reinforced concrete slab and the ceiling is reinforced concrete and is 3-h rated. There is a nonrated watertight door in the north wall to zone 0001 (see exemptions).

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full smoke detector coverage that alarms both locally and in the MCR to ensure prompt response by the plant fire brigade. There is neither automatic suppression nor any manual firefighting equipment in this area. There are, however, hose stations, a portable foam unit and portable CO<sub>2</sub>, and dry chemical fire extinguishers in adjacent area 0001.

### APPENDIX R EXEMPTIONS

An exemption from the Section III.G.2 requirements for complete 3-h-rated barriers has been granted for the nonrated, watertight door to this area by the April 1984 NRC Safety Evaluation Report.

### CONSEQUENCES OF DESIGN BASIS FIRE

A design basis fire in this area would involve primarily plastic battery cases and cable insulation. Hydrogen generated by the batteries is maintained at insignificant concentrations by the dedicated ventilation system. See calculation 1380-027-C009 in appendix L of this document for further details. The installed smoke detectors are expected to provide early fire warning both to the MCR and locally to ensure prompt response by the plant fire brigade. The rated walls and substantial door construction, along with the available firefighting equipment from the adjacent area preclude propagation of a fire beyond the area boundaries. A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.



FIRE AREA 2006

This area is considered safety related.

DESCRIPTION

Unit 2 Water Analysis Room  
Control Building - el 112 ft

DRAWING NUMBER(S)

H-11811

AREA

666 ft<sup>2</sup>

COMBUSTIBLES

|                     |                       |
|---------------------|-----------------------|
| Oil & Grease        | None                  |
| Cable               | Cable insulation      |
| Class A             | None                  |
| Charcoal            | None                  |
| Plastics            | Plastic, PVC, ladders |
| Miscellaneous       | Rubber                |
| Miscellaneous Gases | Dimethylamine         |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 40,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N, S-C/3; E, W-B/3 |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | None               |
| - Penetrations                      | See text           |
| - Doors (Fire-rated Class/Zone No.) | A/0007             |

### CONSTRUCTION

The north and south walls are reinforced concrete and are 3-h rated. The east and west walls are block and are 3-h rated. The floor is nonrated, reinforced concrete and the ceiling is 3-h-rated, reinforced concrete. There is a 3-h-rated, fire-rated Class A double door in the east wall to area 0007.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is not equipped with any detection or suppression system. However, portable CO<sub>2</sub> fire extinguishers and a hose station are provided in adjacent areas 0007 and 2101.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

Since there is no installed detection and the area is, at times, unoccupied, a fire in this area may go undetected until it is fully developed. The door to area 0007 is a 3-h-rated, fire-rated Class A double door and will restrict the propagation of heat and gases from a design basis fire. The low combustible loading and the rated construction preclude the propagation of a fire outside the area. A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 2008

This area is considered safety related.

DESCRIPTION

Unit 2 AC Inverter Room  
Control Building - el 112 ft

DRAWING NUMBER(S)

H-11811

AREA

406 ft<sup>2</sup>

COMBUSTIBLES

|                     |                        |
|---------------------|------------------------|
| Oil & Grease        | None                   |
| Cable               | None                   |
| Class A             | None                   |
| Charcoal            | None                   |
| Plastics            | Plastic, battery cases |
| Miscellaneous       | None                   |
| Miscellaneous Gases | None                   |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                |
|-------------------------------------|----------------|
| Actual                              |                |
| - Walls                             | N, S, E, W-B/3 |
| - Floors, Ceiling or Roof           | Concrete       |
| - Fixed Openings                    | None           |
| - Penetrations                      | See text       |
| - Doors (Fire-rated Class/Zone No.) | A/0001         |

### CONSTRUCTION

All walls are block and are 3-h rated. The floor is nonrated, concrete base slab. The ceiling is 3-h-rated reinforced concrete. There is a fire-rated Class A door in the south wall to area 0001.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full coverage smoke detectors which alarm both locally and in the MCR. There is no automatic suppression coverage or manual firefighting equipment. However, hose stations, a portable foam unit, and portable CO<sub>2</sub> and dry chemical fire extinguishers are available in adjacent area 0001 for manual firefighting.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

The only combustibles in this area are plastic battery cases. Hydrogen generated by the batteries is maintained at insignificant levels by the ventilation system. See calculation 1380-027-C009 in appendix L of this document for further details. Due to the low combustible loading and substantial construction, a fire will not propagate outside the area. The smoke detection will provide an early warning alarm both locally and in the MCR ensuring a prompt response by the plant fire brigade. The available manual firefighting equipment in the adjacent area is adequate to extinguish the fire. A fire in the area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 2009

This area is considered safety related.

DESCRIPTION

RPS Battery North Room  
Control Building - el 112 ft

DRAWING NUMBER(S)

H-11811

AREA

129 ft<sup>2</sup>

COMBUSTIBLES

|                     |               |
|---------------------|---------------|
| Oil & Grease        | None          |
| Cable               | None          |
| Class A             | None          |
| Charcoal            | None          |
| Plastics            | Battery cases |
| Miscellaneous       | None          |
| Miscellaneous Gases | None          |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                |
|-------------------------------------|----------------|
| Actual                              |                |
| - Walls                             | N, S, E, W-B/3 |
| - Floors, Ceiling or Roof           | Concrete       |
| - Fixed Openings                    | None           |
| - Penetrations                      | See text       |
| - Doors (Fire-rated Class/Zone No.) | A/0001         |

### CONSTRUCTION

All area walls are block and are 3-h rated. The floor is nonrated, reinforced concrete slab and the ceiling is 3-h-rated reinforced concrete. There is a fire-rated Class A door in the west wall to area 0001.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

The area is equipped with full smoke detector coverage which alarms both locally and in the main control room. This area has no automatic suppression or manual firefighting equipment. There are, however, hose stations, a portable foam unit, and portable CO<sub>2</sub> and dry chemical fire extinguishers available in adjacent area 0001.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

The only combustibles in this area are plastic battery cases. Hydrogen generated by the batteries is maintained at insignificant levels by the area ventilation system. See calculation 1380-027-C009 in appendix L of this document for further details. Due to the low combustible loading and rated construction, a fire will not propagate outside the area. The smoke detection provides an early warning alarm both locally and in the MCR ensuring prompt response to and extinguishment of the fire by the plant fire brigade using the available manual firefighting equipment in the adjacent area.

A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 2010

This area is considered safety related.

DESCRIPTION

RPS Battery South Room  
Control Building - el 112 ft

DRAWING NUMBER(S)

H-11811

AREA

129 ft<sup>2</sup>

COMBUSTIBLES

|                     |               |
|---------------------|---------------|
| Oil & Grease        | None          |
| Cable               | None          |
| Class A             | None          |
| Charcoal            | None          |
| Plastics            | Battery cases |
| Miscellaneous       | None          |
| Miscellaneous Gases | None          |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                |
|-------------------------------------|----------------|
| Actual                              |                |
| - Walls                             | N, S, E, W-B/3 |
| - Floors, Ceiling or Roof           | Concrete       |
| - Fixed Openings                    | None           |
| - Penetrations                      | See text       |
| - Doors (Fire-rated Class/Zone No.) | A/0001         |

### CONSTRUCTION

All area walls are block and are 3-h rated. The floor is nonrated, reinforced concrete slab and the ceiling is 3-h-rated reinforced concrete. There is a fire-rated Class A door in the west wall to area 0001.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full smoke detector coverage which provides alarms both locally and in the MCR to ensure prompt response by the plant fire brigade. There is no automatic suppression or manual firefighting equipment in this area. However, hose stations, a portable foam unit, and portable CO<sub>2</sub> and dry chemical fire extinguishers are available in adjacent area 0001.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

The only combustibles in this area are plastic battery cases. Hydrogen generated by the batteries is maintained at insignificant levels by the area ventilation system. See calculation 1380-027-C009 in appendix L of this document for further details. Due to the low combustible loading and rated construction, a fire will not propagate outside the area. The smoke detection provides an early warning alarm in the MCR ensuring prompt response to and extinguishment of the fire by the plant fire brigade using the available manual firefighting equipment in the adjacent area. A fire in the area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.



FIRE AREA 2013

This area is considered safety related.

DESCRIPTION

RPS MG Set Room

Control Building - el 130 ft

DRAWING NUMBER(S)

H-11815

AREA

259 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | Grease           |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                |
|-------------------------------------|----------------|
| Actual                              |                |
| - Walls                             | N, S, E, W-B/3 |
| - Floors, Ceiling or Roof           | Concrete       |
| - Fixed Openings                    | None           |
| - Penetrations                      | See text       |
| - Doors (Fire-rated Class/Zone No.) | A/0014, 0040   |

### CONSTRUCTION

All walls are block and 3-h rated. The floor and ceiling are 3-h-rated, reinforced concrete. There are two fire-rated Class A doors, one in the east wall to zone 0040 and the other in the west wall to area 0014.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full smoke detector coverage which alarms both locally and in the MCR to ensure prompt response by the plant fire brigade. Hose stations and portable CO<sub>2</sub> and dry chemical fire extinguishers are located in adjacent area 0014 for manual firefighting.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

The smoke detectors located in this area are expected to detect the combustion products from an incipient fire and provide an alarm both locally and in the MCR to ensure prompt response by the plant fire brigade. Moreover, the low fire loading and rated construction preclude the propagation of a design basis fire beyond the boundaries of this area. The presence of health physics and security personnel in the close vicinity of this area and the available manual firefighting equipment in adjacent area 0014 ensure prompt detection and suppression of the fire. A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 2014

This area is considered safety related.

DESCRIPTION

Unit 2 Switchgear Access Hallway  
Control Building - el 130 ft

DRAWING NUMBER(S)

H-11814

AREA

544 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                      |
|------------------------|--------------------------------------|
| Suppression (type)     | None                                 |
| Hose Stations          | None                                 |
| Portable Extinguishers | CO <sub>2</sub>                      |
| Detectors (type)       | Lin therm det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                                          |
|-------------------------------------|------------------------------------------|
| Actual                              |                                          |
| - Walls                             | N-C/3; S, E, W-B/2                       |
| - Floors, Ceiling or Roof           | Concrete                                 |
| - Fixed Openings                    | OD/0014; 2-OP/2021                       |
| - Penetrations                      | See text                                 |
| - Doors (Fire-rated Class/Zone No.) | A/2016, 2017, 2018, 2019, 2020; 2-A/2021 |

### CONSTRUCTION

The north wall is reinforced concrete and 12-in. block and is 3-h rated. The south, east, and west walls are block and are 2-h rated (see exemptions). The floor and ceiling are reinforced concrete and 3-h rated. There are five fire-rated Class A sliding doors; one in the east wall to area 2020, three in the south wall to areas 2016, 2019, and 2017 and one in the west wall to area 2018. There is an open passageway in the north wall to area 0014 (see exemptions), and two fire-rated Class A swinging fire doors to area 2021.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full coverage linear thermal heat detection which alarm both locally and in the MCR. The area is not equipped with any automatic suppression system. A portable CO<sub>2</sub> fire extinguisher is in the area. A hose station is also located in adjacent area 0014 for manual firefighting.

### APPENDIX R EXEMPTIONS

An exemption has been granted from the separation requirements of Section III.G.2 of Appendix R for the 2-h walls (south, east, and west) and the open passageway to area 0014 by the April 1984 NRC Safety Evaluation Report.

### CONSEQUENCES OF DESIGN BASIS FIRE

A design basis fire in this area will involve primarily cable insulation. The cable used at E. I. Hatch Nuclear Plant is predominately IEEE-383 qualified which will ensure that the fire develops slowly. Available linear thermal detectors will detect the fire and provide an early warning alarm both locally and in the MCR to ensure prompt response by the plant fire brigade. Manual firefighting equipment, substantial construction, and low fire loading preclude the propagation of a design basis fire outside area 2014. Fire propagation through the open passageway is precluded by the wet pipe sprinklers in area 0014 adjacent to the opening. A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 2015

This area is considered safety related.

DESCRIPTION

Unit 2 Annunciator Room  
Control Building - el 130 ft

DRAWING NUMBER(S)

H-11815

AREA

200 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                |
|-------------------------------------|----------------|
| Actual                              |                |
| - Walls                             | N, S, E, W-B/3 |
| - Floors, Ceiling or Roof           | Concrete       |
| - Fixed Openings                    | None           |
| - Penetrations                      | See text       |
| - Doors (Fire-rated Class/Zone No.) | A/0014         |
| - Fire Wraps                        | See Text       |

### CONSTRUCTION

All walls are block and are 3-h rated. The floor and the ceiling are 3-h-rated, reinforced concrete. There is a fire-rated Class A sliding door in the south wall to area 0014.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document. A 3 HR fire wrap is installed on conduit 2E22154 while routed through this fire zone. This fire wrap is required to maintain a 3 HR barrier between redundant power trains of the 120VAC Critical Instrument Cabinets as required by Section III.G.2 of Appendix R.

### FIRE PROTECTION

This area is equipped with full smoke detector coverage which alarms both locally and in the MCR to ensure prompt response by the plant fire brigade. There is no automatic suppression or manual firefighting equipment in this area. There are hose stations and CO<sub>2</sub> and dry chemical portable fire extinguishers in adjacent area 0014.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

The detection system in this area will provide an alarm both locally and in the MCR to ensure prompt response by the plant fire brigade to extinguish the fire using the manual firefighting equipment provided in the adjacent area. The low fire loading and rated construction preclude the propagation of fire beyond the boundaries of the area. A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 2016

This area is considered safety related.

DESCRIPTION

West 600V Switchgear Room  
Control Building - el 130 ft

DRAWING NUMBER(S)

H-11814

AREA

376 ft<sup>2</sup>

COMBUSTIBLES

|                     |                          |
|---------------------|--------------------------|
| Oil & Grease        | Transformer silicone oil |
| Cable               | Cable insulation         |
| Class A             | None                     |
| Charcoal            | None                     |
| Plastics            | Plastic, ladders         |
| Miscellaneous       | None                     |
| Miscellaneous Gases | None                     |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 115,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                           |
|-------------------------------------|---------------------------|
| Actual                              |                           |
| - Walls                             | N, E-B/2; S-C/3; W-B, H/3 |
| - Floors, Ceiling or Roof           | Concrete                  |
| - Fixed Openings                    | None                      |
| - Penetrations                      | See text                  |
| - Doors (Fire-rated Class/Zone No.) | A/2014                    |

### CONSTRUCTION

The south wall is reinforced concrete and is 3-h rated. The west wall is a block and fire retardant material composite and is 3-h rated. The north and east walls are block and are 2-h rated (see exemptions). The floor and ceiling are reinforced concrete and are 3-h rated. There is a fire-rated Class A sliding door in the north wall to area 2014. Also, there is a 1.5-in.-high oil retaining curb in the doorway of fire door 2L48-2C09.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full smoke detector coverage which alarms both locally and in the MCR to ensure prompt response by the plant fire brigade. There is no automatic suppression or manual firefighting equipment in this area. There is a portable CO<sub>2</sub> fire extinguisher available in adjacent area 2014. A hose station is also available in area 0014.

### APPENDIX R EXEMPTIONS

The north and east 2-h-rated walls have an approved exemption from Section III.G.2 requirements of Appendix R per the April 1984 NRC Safety Evaluation Report.

### CONSEQUENCES OF DESIGN BASIS FIRE

In the event of a design basis fire in this area, the available smoke detectors will alarm both locally and in the MCR to ensure prompt response by the plant fire brigade. The rated wall and door construction along with the available manual firefighting equipment in area 2014 preclude propagation of a fire outside this area. A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.



FIRE AREA 2017

This area is considered safety related.

DESCRIPTION

East 600-V Switchgear Room  
Control Building - el 130 ft

DRAWING NUMBER(S)

H-11814

AREA

376 ft<sup>2</sup>

COMBUSTIBLES

|                     |                          |
|---------------------|--------------------------|
| Oil & Grease        | Transformer silicone oil |
| Cable               | Cable insulation         |
| Class A             | None                     |
| Charcoal            | None                     |
| Plastics            | Plastic, ladders         |
| Miscellaneous       | None                     |
| Miscellaneous Gases | None                     |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Moderate                    |
| Max. Permissible Loading | 132,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                         |
|-------------------------------------|-------------------------|
| Actual                              |                         |
| - Walls                             | N, W,-B/2; S-C/3; E-B/3 |
| - Floors, Ceiling or Roof           | Concrete                |
| - Fixed Openings                    | None                    |
| - Penetrations                      | See text                |
| - Doors (Fire-rated Class/Zone No.) | A/2014                  |

### CONSTRUCTION

The south wall is reinforced concrete and is 3-h rated. The east wall is block and is 3-h rated. The north and west walls are block and are 2-h rated (see exemptions). The floor and ceiling are reinforced concrete and are 3-h rated. There is a fire-rated Class A sliding door in the north wall to area 2014.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full smoke detector coverage that alarms both locally and in the MCR to ensure prompt response by the plant fire brigade. There is no automatic suppression or manual firefighting equipment in this area. There is a portable CO<sub>2</sub> fire extinguisher located in adjacent area 2014 and a hose station located in nearby area 0014.

### APPENDIX R EXEMPTIONS

An exemption from the Section III.G.2 requirement for complete 3-h fire barriers has been granted for the 2-h-rated walls in this area per the April 1984 NRC Safety Evaluation Report.

### CONSEQUENCES OF DESIGN BASIS FIRE

In the event of a design basis fire in this area, the available smoke detectors will alarm both locally and in the MCR to ensure prompt response by the plant fire brigade. The rated wall and door construction, available manual firefighting equipment in area 2014, and moderate combustible loadings preclude the propagation of a fire beyond the boundaries of this area. A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 2018

This area is considered safety related.

DESCRIPTION

West DC Switchgear Room  
Control Building -el 130 ft

DRAWING NUMBER(S)

H-11814

AREA

249 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                           |
|-------------------------------------|---------------------------|
| Actual                              |                           |
| - Walls                             | N-C/3; E, S-B/2; W-B, H/3 |
| - Floors, Ceiling or Roof           | Concrete                  |
| - Fixed Openings                    | None                      |
| - Penetrations                      | See text                  |
| - Doors (Fire-rated Class/Zone No.) | A/2014                    |

### CONSTRUCTION

The north wall is 3-h-rated, reinforced concrete. The south and east walls are 2-h-rated block (see exemptions). The west wall is a concrete block and Promat board composite and is 3-h rated. There is one fire-rated Class A sliding door in the east wall to area 2014. The floor and ceiling are 3-h-rated, reinforced concrete.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full coverage smoke detection which alarms both locally and in the MCR to ensure prompt response by the plant fire brigade. There is no automatic suppression system or manual firefighting equipment in this area. There is a portable CO<sub>2</sub> fire extinguisher in adjacent area 2014 and a hose station is available in nearby area 0014.

### APPENDIX R EXEMPTIONS

An exemption from the Section III.G.2 requirement for complete 3-h fire barriers has been granted for the 2-h-rated walls in this area per the April 1984 NRC SER.

### CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire for this area would involve primarily cable which is predominately IEEE-383 qualified, therefore ensuring slow fire development. The low fire loading, rated construction, and lack of intervening combustibles in the vicinity of the door preclude propagation of the design basis fire beyond the boundaries of this area. The available firefighting equipment in adjacent area 2014 is adequate to extinguish the fire. A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 2019

This area is considered safety related.

DESCRIPTION

Transformer Room  
Control Building - el 130 ft

DRAWING NUMBER(S)

H-11814

AREA

172 ft<sup>2</sup>

COMBUSTIBLES

|                     |                          |
|---------------------|--------------------------|
| Oil & Grease        | Transformer silicone oil |
| Cable               | None                     |
| Class A             | None                     |
| Charcoal            | None                     |
| Plastics            | None                     |
| Miscellaneous       | None                     |
| Miscellaneous Gases | None                     |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Moderate                    |
| Max. Permissible Loading | 178,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N, E, W-B/2; S-C/3 |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | None               |
| - Penetrations                      | See text           |
| - Doors (Fire-rated Class/Zone No.) | A/2014             |

### CONSTRUCTION

The south wall is reinforced concrete and is 3-h rated. The north, east, and west walls are block and are 2-h rated (see exemptions). The floor and ceiling are reinforced concrete and are 3-h rated. There is a fire-rated Class A door in the north wall to area 2014.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full smoke detector coverage that alarms both locally and in the MCR to ensure prompt response by the plant fire brigade. There is no automatic suppression or manual firefighting equipment in this area. There is a portable CO<sub>2</sub> fire extinguisher in adjacent area 2014 and a hose station is available in nearby area 0014.

### APPENDIX R EXEMPTIONS

An exemption from the Section III.G.2 requirement for complete 3-h fire barriers has been granted for the 2-h-rated walls in this area per the April 1984 NRC SER.

### CONSEQUENCES OF DESIGN BASIS FIRE

In the event of a design basis fire in this area, the available smoke detectors will alarm both locally and in the MCR to ensure prompt response by the plant fire brigade. The rated wall and door construction along with the available manual firefighting equipment from area 2014 preclude the propagation of a fire outside this area. A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 2020

This area is considered safety related.

DESCRIPTION

East DC Switchgear Room  
Control Building - el 130 ft

DRAWING NUMBER(S)

H-11814

AREA

263 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                        |
|-------------------------------------|------------------------|
| Actual                              |                        |
| - Walls                             | N-C/3; S, W-B/2; E-B/3 |
| - Floors, Ceiling or Roof           | Concrete               |
| - Fixed Openings                    | None                   |
| - Penetrations                      | See text               |
| - Doors (Fire-rated Class/Zone No.) | A/2014                 |

### CONSTRUCTION

The south and west walls are 2-h-rated block (see exemptions). The north and east walls are 3-h rated and are reinforced concrete and block, respectively. The floor and ceiling are reinforced concrete and are 3-h rated. There is a fire-rated Class A sliding door in the west wall to area 2014.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full smoke detector coverage which alarms both locally and in the MCR to ensure prompt response by the plant fire brigade. There is no automatic suppression or manual firefighting equipment in the area. There is a portable CO<sub>2</sub> fire extinguisher in adjacent area 2014 and a hose station in nearby area 0014.

### APPENDIX R EXEMPTIONS

An exemption from the Section III.G.2 requirement for complete 3-h barriers has been granted for the 2-h walls in this area per the April 1984 NRC SER.

### CONSEQUENCES OF DESIGN BASIS FIRE

The smoke detection in this area is expected to provide both local and MCR alarms to ensure prompt response by the plant fire brigade. The low fire loading, rated construction and lack of intervening combustibles in the vicinity of the door, preclude propagation of the design basis fire beyond the boundaries of this area. The available firefighting equipment in adjacent area 2014 is adequate to extinguish the fire. A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.



FIRE AREA 2021

This area is considered safety related.

DESCRIPTION

Unit 2 Switchgear Hallway Enclosure  
Control Building - el 130 ft

DRAWING NUMBER(S)

H-11814

AREA

60 ft<sup>2</sup>

COMBUSTIBLES

|                     |         |
|---------------------|---------|
| Oil & Grease        | None    |
| Cable               | None    |
| Class A             | None    |
| Charcoal            | None    |
| Plastics            | Plastic |
| Miscellaneous       | None    |
| Miscellaneous Gases | None    |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 10,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | S, E, W-B/3; N-C/3 |
| - Floors, Ceiling or Roof           | Concrete block     |
| - Fixed Openings                    | 2-OP/2014          |
| - Penetrations                      | See text           |
| - Doors (Fire-rated Class/Zone No.) | 2-A/2014           |

### CONSTRUCTION

The north wall is reinforced concrete and is 3-h rated. The south, east, and west walls are 12-in. block and are 3-h rated. There are two fire-rated Class A swinging fire doors in the south wall to area 2014. The floor and ceiling are reinforced concrete and are 3-h rated.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is not equipped with any automatic suppression system. There are portable CO<sub>2</sub> fire extinguishers located in adjacent area 2014. A water hose station is located in accessible area 0014K for manual firefighting.

Automatic fire detection will be extended into this area.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

A credible design basis fire does not exist for this area due to low combustible loading. However, manual firefighting equipment, substantial construction, and the low fire loading preclude the propagation of a design basis fire to outside of area 2021. A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 2023

This area is not considered safety related.

DESCRIPTION

Oil Conditioner Room  
Control Building - el 130 ft

DRAWING NUMBER(S)

H-11815

AREA

2,043 ft<sup>2</sup>

COMBUSTIBLES

|                     |              |
|---------------------|--------------|
| Oil & Grease        | Lube oil     |
| Cable               | None         |
| Class A             | Paper, trash |
| Charcoal            | None         |
| Plastics            | Plastic      |
| Miscellaneous       | Rubber       |
| Miscellaneous Gases | Hydrogen     |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | High                        |
| Max. Permissible Loading | 642,500 Btu/ft <sup>2</sup> |
| Fire Duration            | Greater than 3 h            |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | Deluge (FC) (see section 7.0)    |
| Hose Stations          | None                             |
| Portable Extinguishers | None                             |
| Detectors (type)       | Dry pilot (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                       |
|-------------------------------------|-----------------------|
| Actual                              |                       |
| - Walls                             | N, S, W-C/3; E-B, H/3 |
| - Floors, Ceiling, or Roof          | Concrete              |
| - Fixed Openings                    | MH/0101               |
| - Penetrations                      | See text              |
| - Doors (Fire-rated Class/Zone no.) | A/0014                |

### CONSTRUCTION

The north, south, and west walls are concrete and 3-h rated. The east wall is a 3-h-rated composite of concrete block and Promat board. There is a fire-rated Class A door in the north wall accessing area 0014. The entry is provided with a high curb designed to contain the maximum postulated oil spill to the area. The floor and ceiling are reinforced 3-h-rated concrete. The ceiling contains a shaft that extends up to el 164 ft. The walls of this shaft are 3-h-rated reinforced concrete. The top of the shaft is covered by a nonrated metal and concrete hatch cover (see exemptions).

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full deluge suppression system coverage, which is dry pilot actuated. Portable CO<sub>2</sub> and dry chemical fire extinguishers and a hose station are located outside this area in area 0014 for manual firefighting. Since the only credible fire for this area is an oil fire with no incipient stage, an early warning detection system is not provided. Activation of the suppression system results in an alarm, both locally and in the MCR.

### APPENDIX R EXEMPTION

An exemption has been requested from the Section III.G.2 requirement for complete 3-h-rated barriers for the nonrated hatch in the ceiling of this area as is documented in appendix C of this document. However, per the January 1987 NRC SER, no exemption is required, based on part 4 of NRC Generic Letter 86-10.

### CONSEQUENCES OF DESIGN BASIS FIRE

The only significant fire that can be postulated for this area would be as a result of the ignition of the turbine lube oil or EHC fluid. The full-coverage deluge sprinklers provide for rapid extinguishment of this type of fire. The rated or substantial construction of the area boundaries will contain the fire until it can be extinguished. Activation of the suppression system results in an alarm, both locally and in the MCR, to ensure prompt response by the plant fire brigade. In the event of a failure of the suppression system, the fire brigade can extinguish the fire using the available manual suppression located in adjacent area 0014. A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 2101

This area is not considered safety related.

DESCRIPTION

Unit 2 Turbine Building

Unit 2 Turbine Building el 112 ft, 130 ft, and 147 ft

DRAWING NUMBERS

H-11812, H-11816, H-11820, H-11821, H-11822

AREA

79,815 ft<sup>2</sup>

COMBUSTIBLES

Oil & Grease

Cable

Class A

Charcoal

Plastics

Miscellaneous

Miscellaneous Gases

Lube oil, grease, transformer oil,  
gasoline

Cable insulation

Paper, clothing, trash, desks, files,  
rags, wood, plank, tape (cloth)

Charcoal

Plastic, ladders, PVC

Rubber, solvent, resin

Hydrogen

DESIGN BASIS FIRE

Combustible Loading

Max. Permissible Loading

Fire Duration

Low

102,000 Btu/ft<sup>2</sup>

Less than 1 h

FIRE PROTECTION (AVAILABLE)

Suppression (type)

Hose Stations

Portable Extinguishers

Detectors (type)

Preaction; wet pipe; Water spray (PC)  
(see section 7.0)

H<sub>2</sub>O

CO<sub>2</sub>; Dry chem

Smoke det (PC) (see section 7.0)

FIRE RESISTANCE RATING

Actual

- Walls

- Floors, Ceiling, or Roof

- Fixed Openings

- Penetrations

- Doors (Fire-rated Class/Zone no.)

N-C/3,Open; S-C,B/NR; E-C/2,NR; W-C/NR

Concrete

OS,OH,CH/0101;0P/0007,1101,2104

See text

2-NR/Outside;NR/3104

## CONSTRUCTION

This area is bounded by the control building, east corridor and cableway, and Unit 1 west cableway on the north. The control building boundary is constructed of reinforced concrete and is 3-h rated. The boundary at the east corridor, el 112 ft, is an area boundary established only for the purpose of separating a common control building numbered area (0007) from this Unit 2 numbered area. No rated barrier is required since path 2 is used for safe shutdown for both units in both areas. Similarly, the boundary between the west cableway portion of this area and the Unit 1 west cableway is established only for the purpose of separating a Unit 1 numbered area (1101) from this Unit 2 numbered area. The boundary at the east cableway, el 130 ft, is established by the cableway (area 2104) suppression system (see exemptions). The east boundary is the nonrated reinforced concrete turbine building exterior wall adjacent to the 3-h-rated reactor and radwaste building walls, except for the walls (including the floor and ceiling) around area 2104. These nonrated reinforced concrete walls are exempted barriers (see exemptions). The west boundary is established by the nonrated reinforced concrete turbine building and west cableway exterior walls. The south boundary is also established by the nonrated reinforced concrete turbine building exterior walls. Areas 2102 and 2103 (stairwells) are contained within this area and are surrounded with 2-h-rated block walls. The floor and ceiling are nonrated reinforced concrete, except for the portion of floor over the control building switchgear and transformer rooms, which is 3-h rated. The ceiling is evaluated as an area boundary in the area 0101 text.

This area has three nonrated doors; one to area 2104 and two to the outside. There are five fire-rated Class B doors, two to area 2103 and three to area 2102. There are two fire-rated Class A doors, one to area 2301 and the other to area 0001.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

## FIRE PROTECTION

This area is equipped with dry pilot actuated, preaction sprinklers over the oil spill sections of the area at el 112 and 130 ft, an automatic water spray system over the H<sub>2</sub> seal oil unit activated by a dry pilot system, and wet pipe sprinklers throughout the west cableway. Smoke detectors are provided in the switchgear mezzanines and under the southwest (2101N) mezzanine. The area is equipped with H<sub>2</sub>O hose stations and portable CO<sub>2</sub> and dry chemical fire extinguishers.

## APPENDIX R EXEMPTIONS

The barrier between this area and the 130-ft elevation east cableway (area 2104) is established by the cableway sprinkler system at the south end of area 2104 and by the west wall, floor, and ceiling of the cableway. These area boundaries are exempted from the complete 3-h barrier requirements of Section III.G.2 of Appendix R, per the April 1984 NRC Safety Evaluation Report (SER).

### CONSEQUENCES OF DESIGN BASIS FIRE

Because of the smoke detection provided at locations of significant hazards in this area, early detection of a fire is expected. Suppression has also been provided at locations which represent significant hazards (i.e., the oil spill zones). Other hazards are cable insulation or widely separated concentrations of ordinary combustibles (wood, paper, plastics, etc.). The cable used at E. I. Hatch Nuclear Plant is predominately IEEE-383 qualified which will ensure that any cable fires which occur are slow developing. The available manual firefighting equipment is adequate to extinguish these fires. Due to the suppression and detection provided and the substantial construction of the area boundaries, it is unlikely that a fire will propagate outside the area.

Because of the large dilution volume of the turbine building, flashover is not expected to occur and fires will remain localized even with a failure of the primary suppression system. In the unlikely event that propagation occurs through the openings to areas 1101 and/or 0101, only safe shutdown path 1 circuits and components will be affected, since all path 2 equipment throughout all three areas is protected as necessary. A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE ZONE 2101A

This zone is not considered safety related.

DESCRIPTION

Area Under Main Condenser  
Unit 2 Turbine Building - el 112 ft

DRAWING NUMBER(S)

H-11820

AREA

18,850 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                      |
|---------------------|--------------------------------------|
| Oil & Grease        | Lube oil                             |
| Cable               | Cable insulation                     |
| Class A             | Paper, clothing, trash, desks, files |
| Charcoal            | Charcoal                             |
| Plastics            | Plastic, ladders                     |
| Miscellaneous       | Rubber                               |
| Miscellaneous Gases | None                                 |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | Preaction (PC) (see section 7.0) |
| Hose Stations          | H <sub>2</sub> O                 |
| Portable Extinguishers | CO <sub>2</sub> ; Dry chem       |
| Detectors (type)       | Dry pilot (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                                        |
|-------------------------------------|----------------------------------------|
| Actual                              |                                        |
| - Walls                             | N-C,B/3,NR; S-C,B/NR; E-C/2,NR; W-C/NR |
| - Floors, Ceiling, or Roof          | Concrete                               |
| - Fixed Openings                    | OS,OH,CH/2101K                         |
| - Penetrations                      | See area 2101 text                     |
| - Doors (Fire-rated Class/Zone no.) | 2-NR/2101H                             |



### CONSTRUCTION

All the walls are reinforced concrete and nonrated, except the north wall from column line TG to TI which is 3-h rated and the portion of the east wall adjacent to area 2103 which is 2-h rated. The floor is nonrated reinforced concrete base slab. The ceiling is concrete and open grate and is nonrated. There are two nonrated doors, one in the north wall to zone 2101H and one in the south wall, also to zone 2101H. See area 2101 for penetrations.

### FIRE PROTECTION

This zone contains partial coverage preaction sprinklers actuated by a dry pilot system over the oil spill sections (see figures for specific coverage). Actuation of the suppression system results in an alarm, both locally and in the main control room (MCR). Manual firefighting equipment consists of hose stations, a CO<sub>2</sub> portable fire extinguisher, and a portable dry chemical fire extinguisher.

### CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire for this zone is considered to be a fast burning fire due to the potential for oil and grease spills/leakage from higher elevations along the west wall. This zone has been provided with an automatic dry pilot detection and sprinkler system which provides both local and MCR alarms to ensure prompt response by the plant fire brigade. Manual firefighting equipment located throughout the zone is adequate to extinguish the fire. The substantial concrete wall construction is expected to preclude lateral propagation of the fire outside of this zone. Propagation to the zones above, through the grating, is of no consequence since all redundant safe shutdown circuits and components throughout area 2101 are protected as necessary.

FIRE ZONE 2101C

This zone is not considered safety related.

DESCRIPTION

Condensate Pump Area  
Unit 2 Turbine Building - el 112 ft

DRAWING NUMBER(S)

H-11820

AREA

4659 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | Lube oil         |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | Charcoal         |
| Plastics            | None             |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 60,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                  |
|------------------------|------------------|
| Suppression (type)     | None             |
| Hose Stations          | H <sub>2</sub> O |
| Portable Extinguishers | CO <sub>2</sub>  |
| Detectors (type)       | None             |

FIRE RESISTANCE RATING

|                                     |                                                 |
|-------------------------------------|-------------------------------------------------|
| Actual                              |                                                 |
| - Walls                             | S, N, E-C,B/NR; W-C/NR,B/2 @ 2102               |
| - Floors, Ceiling, or Roof          | Concrete                                        |
| - Fixed Openings                    | OH,CH/2101J; OD/2101H; OP/2101E,D,G             |
| - Penetrations                      | See area 2101 text                              |
| - Doors (Fire-rated Class/Zone no.) | B/2102; 3-NR/2101G; 2-NR/2101D; NR/2101E, 2101I |

### CONSTRUCTION

The wall adjacent to zones 2101D and 2101G is block and is nonrated. The walls around area 2102 (southwest stairwell) are block and are 2-h rated. All other walls are nonrated, reinforced concrete. The floor is reinforced concrete base slab. The ceiling is nonrated reinforced concrete, containing several concrete covered and open hatches to zone 2101J above this zone. There is a fire-rated Class B door to area 2102, two nonrated doors to zone 2101D, one nonrated door to zone 2101E, one nonrated door to zone 2101I, and three nonrated doors to zone 2101G. There is an open doorway to zone 2101H. See area 2101 for penetrations.

### FIRE PROTECTION

This zone is not equipped with an automatic suppression or detection system. Manual firefighting equipment consists of a hose station and CO<sub>2</sub> portable fire extinguishers.

### CONSEQUENCES OF DESIGN BASIS FIRE

The open passageways to zone 2101H, the hatch to zone 2101J, and the nonrated doors to zones 2101D, 2101E, and 2101G create a fire propagation possibility. However, the substantial construction, low combustible loading, and absence of intervening combustibles between localized concentrations of combustible materials preclude the propagation of a fire to adjacent zones. The available firefighting equipment in this zone is adequate to extinguish the fire. Propagation of a fire to other zones in this area, if it did occur, would not affect the ability to achieve safe shutdown.

FIRE ZONE 2101D

This zone is not considered safety related.

DESCRIPTION

Steam Jet Air Ejector Rooms  
Turbine Building - el 112 ft

DRAWING NUMBER(S)

H-11820

AREA

1383 ft<sup>2</sup>

COMBUSTIBLES

|                     |                              |
|---------------------|------------------------------|
| Oil & Grease        | None                         |
| Cable               | None                         |
| Class A             | Paper, clothing, trash, rags |
| Charcoal            | None                         |
| Plastics            | Plastic                      |
| Miscellaneous       | Rubber                       |
| Miscellaneous Gases | None                         |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                      |
|-------------------------------------|----------------------|
| Actual                              |                      |
| - Walls                             | S-C,B/NR; N,E,W-C/NR |
| - Floors, Ceiling or Roof           | Concrete             |
| - Fixed Openings                    | None                 |
| - Penetrations                      | See area 2101 text   |
| - Doors (Fire-rated Class/Zone No.) | 2-NR/2101C           |

### CONSTRUCTION

All the walls are reinforced concrete and are nonrated except a portion of the south wall which is nonrated block. The floor and ceiling are nonrated, reinforced concrete. There are two nonrated doors in the south wall accessing zone 2101C. See area 2101 for penetrations.

### FIRE PROTECTION

This zone is not equipped with any detection or suppression system. There are, however, portable CO<sub>2</sub> fire extinguishers and a hose station in adjacent zone 2101C for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire creates a fire propagation threat to the adjacent zone; however, the absence of any intervening combustibles between this zone and the adjacent zone, the low combustible loading, and substantial construction preclude propagation of the fire to the adjacent zone. The available firefighting equipment in adjacent zone 2101C is adequate to extinguish the fire in this zone. Propagation of a fire to other zones in this area will not affect the ability to achieve safe shutdown.

FIRE ZONE 2101E

This zone is not considered safety related.

DESCRIPTION

Vacuum Pump Room  
Unit 2 Turbine Building - el 112 ft

DRAWING NUMBER(S)

H-11820

AREA

455 ft<sup>2</sup>

COMBUSTIBLES

|                     |        |
|---------------------|--------|
| Oil & Grease        | Grease |
| Cable               | None   |
| Class A             | None   |
| Charcoal            | None   |
| Plastics            | PVC    |
| Miscellaneous       | None   |
| Miscellaneous Gases | None   |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                      |
|-------------------------------------|----------------------|
| Actual                              |                      |
| - Walls                             | S,W,N-C/NR; E-C,B/NR |
| - Floors, Ceiling or Roof           | Concrete             |
| - Fixed Openings                    | OP/2101C             |
| - Penetrations                      | See area 2101 text   |
| - Doors (Fire-rated Class/Zone No.) | NR/2101C             |

### CONSTRUCTION

All walls are nonrated, reinforced concrete with the exception of the east wall which is nonrated block and nonrated, reinforced concrete. The ceiling is nonrated, reinforced concrete and the floor is nonrated concrete base slab. There is a nonrated door in the south wall to zone 2101C. See area 2101 for penetrations.

### FIRE PROTECTION

There is no detection or suppression in this zone; however, there are portable CO<sub>2</sub> fire extinguishers and a hose station in adjacent zone 2101C for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible material. The negligible fire loading, substantial construction, and absence of intervening combustibles near the boundaries between this and adjacent zones preclude propagation of the design basis fire beyond the boundaries of this zone. The available firefighting equipment in adjacent zone 2101C is adequate to extinguish the fire.

FIRE ZONE 2101F

This zone is not considered safety related.

DESCRIPTION

Condensate Polishing Room  
Unit 2 Turbine Building - el 112 ft

DRAWING NUMBER(S)

H-11820

AREA

1,407 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | Grease, lube oil |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | Plastic, ladders |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 26,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                      |
|-------------------------------------|----------------------|
| Actual                              |                      |
| - Walls                             | N,S,E-C/NR; W-C,B/NR |
| - Floors, Ceiling or Roof           | Concrete             |
| - Fixed Openings                    | CH/2101J; OD/2101H   |
| - Penetrations                      | See area 2101 text   |
| - Doors (Fire-rated Class/Zone No.) | None                 |



### CONSTRUCTION

All walls are nonrated, reinforced concrete with the exception of the west wall which is nonrated block and nonrated, reinforced concrete. The floor is nonrated base slab and the ceiling is nonrated, reinforced concrete with covered equipment hatches to zone 2101J above. There is an open doorway to zone 2101H. See area 2101 for penetrations.

### FIRE PROTECTION

There are no detection or suppression systems in this zone. However, a hose station, a portable dry chemical fire extinguisher, and portable CO<sub>2</sub> fire extinguishers are available in adjacent zone 2101H.

### CONSEQUENCES OF DESIGN BASIS FIRE

The open passageway with intervening combustibles consisting of trash, clothing, rubber, and plastic near the doorway create a fire propagation hazard to adjacent zone 2101H. The lack of detection or suppression in either zones 2101F or 2101H also contribute to the fire hazard. The substantial wall construction and low combustible loading, combined with the absence of any other localized concentrations of combustibles within a significant distance from the doorway, make propagation of the design basis fire unlikely. The available firefighting equipment in adjacent zone 2101H is sufficient to extinguish the fire. Propagation of a fire to other zones in this area will not affect the ability to achieve safe shutdown.

FIRE ZONE 2101G

This zone is not considered safety related.

DESCRIPTION

Offgas Recombiner

Unit 2 Turbine Building - el 112 ft

DRAWING NUMBER(S)

H-11820

AREA

1,333 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                      |
|-------------------------------------|----------------------|
| Actual                              |                      |
| - Walls                             | N-C,B/NR; S,E,W-C/NR |
| - Floors, Ceiling or Roof           | Concrete             |
| - Fixed Openings                    | CH/Outside           |
| - Penetrations                      | See area 2101 text   |
| - Doors (Fire-rated Class/Zone No.) | 3-NR/2101C           |

### CONSTRUCTION

All walls are nonrated reinforced concrete with the exception of the north wall which is nonrated block and nonrated reinforced concrete. The floor and ceiling are nonrated reinforced concrete. The ceiling contains two large hatches to the outside with substantial concrete covers. There are three nonrated doors in the north wall to zone 2101C. See area 2101 for penetrations.

### FIRE PROTECTION

This zone is not equipped with a detection or suppression system. There are, however, CO<sub>2</sub> portable fire extinguishers and a hose station available in adjacent zone 2101C for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible materials. The only fire postulated for this zone would involve controlled amounts of transient combustibles. The negligible fire loading, substantial construction, and lack of intervening combustibles in the vicinity of the doors preclude propagation of the design basis fire beyond the boundaries of this zone. The available firefighting equipment in adjacent zone 2101C is adequate to extinguish a fire, which may result from the introduction of transient combustibles to this zone.

FIRE ZONE 2101H

This zone is not considered safety related.

DESCRIPTION

East Corridor

Unit 2 Turbine Building - el 112 ft

DRAWING NUMBER(S)

H-11820

AREA

6,302 ft<sup>2</sup>

COMBUSTIBLES

Oil & Grease

Cable

Class A

Charcoal

Plastics

Miscellaneous

Miscellaneous Gases

Lube oil

Cable insulation

Wood, plank, paper, clothing, trash

None

Plastic, ladders

Rubber

None

DESIGN BASIS FIRE

Combustible Loading

Max. Permissible Loading

Fire Duration

Low

45,000 Btu/ft<sup>2</sup>

Less than 1 h

FIRE PROTECTION (AVAILABLE)

Suppression (type)

Hose Stations

Portable Extinguishers

Detectors (type)

None

H<sub>2</sub>O

CO<sub>2</sub>; Dry chem

None

FIRE RESISTANCE RATING

Actual

- Walls

- Floors, Ceiling, or Roof

- Fixed Openings

- Penetrations

- Doors (Fire-rated Class/Zone no.)

N-C/3,Open; S,E-C/NR; W-B,C/NR,2

Concrete

OD/2101C,2101F,OP/0007

See area 2101 text

A/2301; B/2103; 2-NR/2101A

### CONSTRUCTION

The south and east walls are reinforced concrete and nonrated. The east wall is adjacent to the 3-h-rated, rated, below grade reactor and radwaste building exterior walls. The west wall is nonrated, reinforced concrete with the exception of the walls around the stairwell (area 2103) which are block and 2-h rated. The north wall is 3-h-rated, reinforced concrete from column lines TB to TG. The balance of the north wall is open to area 0007 (see area 2101 text). The ceiling and floor are nonrated, reinforced concrete. There are two nonrated doors in the west wall to zone 2101A, an open doorway in the south wall to zone 2101F, and a open doorway to zone 2101C in the south portion of the zone. There is a fire-rated Class A fire door in the east wall to area 2301 and a fire-rated Class B door to area 2103 in the west wall. See 2101 for penetrations.

### FIRE PROTECTION

There is no detection or automatic suppression in this zone. However, there are hose stations and portable CO<sub>2</sub> fire extinguishers in the zone for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

The lack of automatic detection and suppression systems, the open passageways in the south wall to zone 2101F and in the west wall to zone 2101C, and the opening to area 0007 in the north wall create a fire propagation hazard to these adjacent zones and areas. However, the low combustible loading and substantial wall construction reduce the potential for propagation beyond this zone. In addition, combustibles consist predominately of IEEE-383 qualified, fire retardant cable which ensures slow fire development, allowing the plant fire brigade ample time to respond. The available firefighting equipment in this zone is adequate to extinguish a fire. Propagation of a fire to other zones in this area or to area 0007 (as discussed under Construction in the area 2101 text), will not affect the ability to achieve safe shutdown.

FIRE ZONE 2101I

This zone is not considered safety related.

DESCRIPTION

West Cableway

Unit 2 Turbine Building - el 112 ft

DRAWING NUMBER(S)

H-11812, H-11820

AREA

3,605 ft<sup>2</sup>

COMBUSTIBLES

Oil & Grease

None

Cable

Cable insulation

Class A

None

Charcoal

None

Plastics

Ladders

Miscellaneous

Rubber

Miscellaneous Gases

None

DESIGN BASIS FIRE

Combustible Loading

High

Max. Permissible Loading

746,000 Btu/ft<sup>2</sup>

Fire Duration

Less than 3 h

FIRE PROTECTION (AVAILABLE)

Suppression (type)

Wet pipe (FC) (see section 7.0)

Hose Stations

None

Portable Extinguishers

None

Detectors (type)

None

FIRE RESISTANCE RATING

Actual

- Walls

N-Open; S,W,-C/NR; E-C/3,NR

- Floors, Ceiling, or Roof

Concrete

- Fixed Openings

OP/1101

- Penetrations

See area 2101 text

- Doors (Fire-rated Class/Zone no.)

A/0001; NR/2101C

### CONSTRUCTION

All the walls are reinforced concrete and nonrated, with the exception of the east wall adjacent to the control building from column line T12 to T14 where it is 3-h rated. The north zone boundary is open to area 1101. (This boundary is an "analysis" boundary only, established to separate a Unit 2 area from a Unit 1 area. A fire that propagates through this boundary will not affect safe shutdown. See area 2101 or 1101 for further details). The floor and ceiling are nonrated reinforced concrete. There is a fire-rated Class A door to area 0001 and a nonrated door to zone 2101C. See area 2101 for penetrations.

### FIRE PROTECTION

This zone has full wet pipe sprinkler coverage. No manual firefighting equipment is located in this zone. However, hose stations located in zone 2101C and area 0001 are capable of directing an effective stream into this zone. Extra hose lengths, which allow full coverage of the zone by hose stream, are available to the plant fire brigade. Portable CO<sub>2</sub> extinguishers are also available from zone 2101C and area 0001.

### CONSEQUENCES OF DESIGN BASIS FIRE

In the event of a design basis fire in this zone, actuation of the wet pipe suppression system will provide both local and MCR alarms. The combustible loading in this zone consists almost entirely of cable insulation, which is predominantly IEEE-383 qualified and will ensure slow fire development, allowing ample time for the plant fire brigade to respond. Since there is no equipment in this zone that requires modification or maintenance, the introduction of transient combustibles is infrequent. Thus, the possibility of a fire is remote. In the unlikely event that a fire occurs, the wet pipe sprinkler would provide for rapid extinguishment. The substantial concrete walls are sufficient to contain the fire until it is brought under control.

FIRE ZONE 2101J

This zone is not considered safety related.

DESCRIPTION

Turbine Building Working Floor  
Unit 2 Turbine Building - el 130 ft

DRAWING NUMBER(S)

H-11821, H-11822

AREA

14,185 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                   |
|---------------------|-----------------------------------|
| Oil & Grease        | Grease, lube oil, transformer oil |
| Cable               | Cable insulation                  |
| Class A             | Paper, tape (cloth), trash        |
| Charcoal            | Charcoal                          |
| Plastics            | Plastic, ladders                  |
| Miscellaneous       | Solvent, rubber, resin            |
| Miscellaneous Gases | Hydrogen                          |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 109,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                    |
|------------------------|------------------------------------|
| Suppression (type)     | Water spray (PC) (see section 7.0) |
| Hose Stations          | H <sub>2</sub> O                   |
| Portable Extinguishers | CO <sub>2</sub>                    |
| Detectors (type)       | Smoke det (PC) (see section 7.0)   |

FIRE RESISTANCE RATING

|                                     |                                              |
|-------------------------------------|----------------------------------------------|
| Actual                              |                                              |
| - Walls                             | N-C/NR,B/NR,Open; E,S,W-C/NR,B/2 @ 2101,2103 |
| - Floors, Ceiling, or Roof          | Concrete                                     |
| - Fixed Openings                    | OH,CH/0101,2101C;OP/2101M,N,2104; CH/2101F   |
| - Penetrations                      | See area 2101 text                           |
| - Doors (Fire-rated Class/Zone no.) | B/2102; 2-NR/Outside; NR/2101K               |



### CONSTRUCTION

All the walls are concrete and nonrated with the exception of the walls around the stairwells (areas 2102 and 2103) which are block and 2-h rated. Zones 2101M and 2101N at el 147 ft are open to this zone. The floor is concrete with open hatches to zone 2101C and concrete covered hatches to zone 2101F. The ceiling is concrete and contains an open hatch and a closed hatch to area 0101. There is a nonrated door in the north wall to zone 2101K and a nonrated door and a rollup railroad door in the east wall to the outside. There is a fire-rated Class B door to zone 2102. There is an open passageway to area 2104 (see exemptions in area 2101). See area 2101 for penetrations.

### FIRE PROTECTION

This zone is equipped with an automatic fixed water spray system for the generator hydrogen seal oil unit actuated by the dry pilot portion of the system. Smoke detectors are located in the southwest corner under the el 147 ft platform. There are H<sub>2</sub>O hose stations and portable CO<sub>2</sub> fire extinguishers in this zone for manual firefighting. The detection systems in this zone alarm both locally and in the MCR to ensure prompt response by the plant fire brigade.

### CONSEQUENCES OF DESIGN BASIS FIRE

The open passageways present a fire propagation hazard to the adjacent zones. However, the installed suppression and detection systems at the primary hazards in this zone ensure rapid detection of a fire and prompt response by the plant fire brigade. Manual firefighting equipment in the zone is adequate for the fire. Propagation to area 2104 is prevented by the full coverage suppression system in area 2104 as is discussed in the area 2104 text. Propagation of a fire to other zones in this area will not affect the ability to achieve safe shutdown.

FIRE ZONE 2101K

This zone is not considered safety related.

DESCRIPTION

Turbine Building – 130-ft Main Condenser Area  
Unit 2 Turbine Building el - 130 ft and 147 ft

DRAWING NUMBER(S)

H-11816, H-11821, H-11822

AREA

22,081 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | Lube oil         |
| Cable               | Cable insulation |
| Class A             | Clothing, trash  |
| Charcoal            | Charcoal         |
| Plastics            | Plastic          |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | Hydrogen         |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | Preaction (PC) (see section 7.0) |
| Hose Stations          | H <sub>2</sub> O                 |
| Portable Extinguishers | CO <sub>2</sub>                  |
| Detectors (type)       | Dry pilot (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                              |
|-------------------------------------|------------------------------|
| Actual                              |                              |
| - Walls                             | N-C/3; W,S-C/NR; E-C/NR,2    |
| - Floors, Ceiling, or Roof          | Concrete                     |
| - Fixed Openings                    | OS,OH,CH/2101A,0101; SG/0101 |
| - Penetrations                      | See area 2101 text           |
| - Doors (Fire-rated Class/Zone no.) | NR/2101J,2104                |

### CONSTRUCTION

All the walls are reinforced concrete and nonrated with the exception of the north wall which is 3-h rated and the east wall at column line T20 adjacent to the stairwell (area 2103), which is 2-h rated. The ceiling and floor are reinforced concrete and open grating and are nonrated, with the exception of the floor of the main steam line portion of the zone over the control building switchgear and transformer section, which is 3-h rated. There are two nonrated doors; one in the south wall to zone 2101J and the other in the east wall to area 2104. The zone boundaries adjacent to area 2104 are exempted fire barriers (see area 2101 for exemptions). There is an open stairway and an open hatch to zone 2101A. There is also an open stairway and an open hatch to area 0101I. See area 2101 for penetrations.

### FIRE PROTECTION

Partial preaction sprinkler coverage actuated by a dry pilot system is provided in the west-central part of this zone, which is a potential oil spill/leak section of the zone. Activation of the suppression system results in an alarm, both locally and in the MCR. Manual firefighting equipment consists of hose stations and portable CO<sub>2</sub> fire extinguishers.

### CONSEQUENCES OF DESIGN BASIS FIRE

The primary hazards in this zone are those associated with potential oil leakage/rupture and cable insulation. The oil spill section is equipped with a preaction sprinkler system. Actuation of the system results in an alarm, both locally and in the MCR to ensure a prompt response by the plant fire brigade. In the event of a failure of the sprinkler system, manual firefighting equipment could be used to extinguish the fire. A fire involving cable would be slow in developing, providing further assurance that detection and suppression would occur in the early stages of the fire. The remaining combustibles are widely separated. Due to the substantial construction of the walls, a fire is not expected to propagate beyond the zone boundaries. Propagation of a fire to other zones in this area will not affect the ability to achieve safe shutdown.

FIRE ZONE 2101M

This zone is not considered safety related.

DESCRIPTION

East Switchgear Mezzanine  
Unit 2 Turbine Building - el 147 ft

DRAWING NUMBER(S)

H-11822

AREA

2,007 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                  |
|---------------------|----------------------------------|
| Oil & Grease        | Gasoline, transformer oil        |
| Cable               | Cable insulation                 |
| Class A             | Wood, paper, tape (cloth), trash |
| Charcoal            | None                             |
| Plastics            | Plastic, ladders                 |
| Miscellaneous       | Rubber                           |
| Miscellaneous Gases | None                             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | H <sub>2</sub> O                 |
| Portable Extinguishers | CO <sub>2</sub>                  |
| Detectors (type)       | Smoke det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                                             |
|-------------------------------------|---------------------------------------------|
| Actual                              |                                             |
| - Walls                             | E,N-C/NR; S-Open;W-B,C/2,NR,Open,B/2 @ 2103 |
| - Floors, Ceiling or Roof           | Concrete                                    |
| - Fixed Openings                    | OP/2101J                                    |
| - Penetrations                      | See area 2101 text                          |
| - Doors (Fire-rated Class/Zone No.) | B/2103                                      |

### CONSTRUCTION

The east and north walls are reinforced concrete and nonrated. A portion of the east wall is adjacent to the 3-h-rated radwaste building wall. The west wall is block and 2-h rated around the stairwell (area 2103) and nonrated, reinforced concrete adjacent to the main condenser area. The south end of the zone is open to zone 2101J. The ceiling and floor are nonrated, reinforced concrete. There is a fire-rated Class B door to area 2103. See area 2101 for penetrations.

### FIRE PROTECTION

This zone is equipped with smoke detection which provides an early warning alarm, both locally and in the MCR, to ensure prompt response by the plant fire brigade. There is no automatic suppression; however, a CO<sub>2</sub> portable fire extinguisher and an H<sub>2</sub>O hose station are provided in this zone for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

The open boundary on the south side of the zone presents a fire propagation hazard to zone 2101J and area 0101. However, the low combustible loading and large dilution volume in the adjacent turbine building preclude the propagation of the fire to any other adjacent areas or zones. Propagation to area 0101 is not considered credible as is discussed in the texts for areas 2101 and 0101. Propagation to zone 2101J is acceptable since all redundant safe shutdown circuits and components throughout area 2101 have been protected as necessary. The installed smoke detectors will provide an alarm, both locally and in the MCR, to ensure prompt response by the plant fire brigade. Manual firefighting equipment located in this zone is sufficient to extinguish the fire.

FIRE AREA/ZONE 2101N

This zone is not considered safety related.

DESCRIPTION

West Switchgear Mezzanine  
Unit 2 Turbine Building - el 147 ft

DRAWING NUMBER(S)

H-11822

AREA

3,548 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | Transformer oil  |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | Plastic, ladders |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 118,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | H <sub>2</sub> O                 |
| Portable Extinguishers | CO <sub>2</sub>                  |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                              |
|-------------------------------------|------------------------------|
| Actual                              |                              |
| - Walls                             | N-Open; W,S-C/NR; E-B/2,Open |
| - Floors, Ceiling or Roof           | Concrete                     |
| - Fixed Openings                    | OP/2101J                     |
| - Penetrations                      | See area 2101 text           |
| - Doors (Fire-rated Class/Zone No.) | B/2102                       |

### CONSTRUCTION

The north boundary is open to zone 2101J. The south and west walls are reinforced concrete and are nonrated. The east wall is block around stairwell 2102 and open to zone 2101J elsewhere. The floor and ceiling are nonrated, reinforced concrete. There is a fire-rated Class B door to area 2102. See area 2101 for penetrations.

### FIRE PROTECTION

This zone is equipped with smoke detectors which alarm both locally and in the MCR to ensure prompt response by the plant fire brigade. There is no automatic suppression; however, a CO<sub>2</sub> portable fire extinguisher and an H<sub>2</sub>O hose station are provided for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains a low loading of combustible material consisting primarily of IEEE-383 qualified, fire retardant cable and transformer oil. There is no barrier between this zone and adjacent zone 2101J which creates a fire propagation possibility to that zone. Due to the large dilution volume of area 2101, significant dilution of combustion products would occur. Therefore, flashover is not postulated to occur and propagation to adjacent zones is unlikely. In addition, propagation to zone 2101J is acceptable since all redundant safe shutdown circuits and components throughout area 2101 have been protected as appropriate. Propagation to adjacent area 0101 is not considered credible as is discussed in the texts for areas 2101 and 0101. The smoke detection system provides both local and MCR alarms which ensures sufficient early warning for prompt response by the plant fire brigade. The available firefighting equipment in this zone is adequate to extinguish the design basis fire.

FIRE AREA 2102

This area is not considered safety related.

DESCRIPTION

Southwest Stairwell

Unit 2 Turbine Building - All elevations

DRAWING NUMBER(S)

H-11820, H-11821, H-11822, H-11823

AREA

159 ft<sup>2</sup>

COMBUSTIBLES

|                     |         |
|---------------------|---------|
| Oil & Grease        | None    |
| Cable               | None    |
| Class A             | None    |
| Charcoal            | None    |
| Plastics            | Plastic |
| Miscellaneous       | None    |
| Miscellaneous Gases | None    |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                          |
|-------------------------------------|--------------------------|
| Actual                              |                          |
| - Walls                             | N,S,E,W-B,C/2 (See text) |
| - Floors, Ceiling or Roof           | Concrete                 |
| - Fixed Openings                    | SD/0101                  |
| - Penetrations                      | See text                 |
| - Doors (Fire-rated Class/Zone No.) | 3-B/2101; B/0101         |



### CONSTRUCTION

On all elevations the walls are block and 2-h rated with the exception of the 164-ft elevation where the walls are concrete. The floors are nonrated, reinforced concrete. The ceiling is nonrated, reinforced concrete with a smoke damper at the 164-ft elevation. There is a fire-rated Class B door to each of zones 2101C, 2101J, 2101N, and area 0101.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

There are no automatic suppression or detection systems in this area. There are, however, hose stations and CO<sub>2</sub> portable fire extinguishers in adjacent areas 2101 and 0101 on all elevations which can be easily accessed for manual firefighting.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

The negligible fire loading and substantial, rated construction preclude the propagation of the design basis fire beyond the boundaries of this area. The available firefighting equipment in adjacent zones and areas is adequate to extinguish a fire. Since this area contains no safe shutdown components or circuits, the design basis fire will not affect the ability to achieve safe shutdown. There are no radioactive materials in this area which could be released in the event of a fire.

FIRE AREA 2103

This area is not considered safety related.

DESCRIPTION

Southeast Stairway

Unit 2 Turbine Building - All elevations

DRAWING NUMBER(S)

H-11820, H-11821, H-11822, H-11823

AREA

159 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | None             |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | Plastic, ladders |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                          |
|-------------------------------------|--------------------------|
| Actual                              |                          |
| - Walls                             | N,S,E,W-B,C/2 (See text) |
| - Floors, Ceiling or Roof           | Concrete                 |
| - Fixed Openings                    | SD/0101                  |
| - Penetrations                      | See text                 |
| - Doors (Fire-rated Class/Zone No.) | 2-B/2101; B/0101,2104    |

### CONSTRUCTION

The south and east walls are block and are 2-h rated. The west wall is 2-h-rated, reinforced concrete. The north wall is all block with the exception of the 147-ft elevation, where it is reinforced concrete. All are 2-h rated. The floors are nonrated, reinforced concrete. The ceiling is nonrated, reinforced concrete with a smoke damper at the 164-ft elevation. Zone 2101H, zone 2101M, zone 0101J, and area 2104 each have a fire-rated Class B door to this zone.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

There are no automatic detection or suppression systems in this area. CO<sub>2</sub> extinguishers are available in adjacent zones 2101H, 2101J, and 0101J. A hose station is available in zone 2101M and fire areas 2104 and 0101.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

This area contains an insignificant loading of combustible materials. The negligible fire loading and substantial, rated construction preclude the propagation of the design basis fire beyond the boundaries of this area. The available firefighting equipment in adjacent zones and areas is adequate to extinguish a fire. Since this area contains no safe shutdown components or circuits, the design basis fire will not affect the ability to achieve safe shutdown. There are no radioactive materials in this area which could be released in the event of a fire.

FIRE AREA 2104

This area is considered safety related.

DESCRIPTION

East Cableway

Turbine Building - el 130 ft

DRAWING NUMBER(S)

H-11814, H-11821

AREA

3510 ft<sup>2</sup>

COMBUSTIBLES

Oil & Grease

Cable

Class A

Charcoal

Plastics

Miscellaneous

Miscellaneous Gases

Lube oil

Cable insulation

None

None

Plastic, ladders

None

None

DESIGN BASIS FIRE

Combustible Loading

Max. Permissible Loading

Fire Duration

High

234,000 Btu/ft<sup>2</sup>

Less than 3 h

FIRE PROTECTION (AVAILABLE)

Suppression (type)

Hose Stations

Portable Extinguishers

Detectors (type)

Water spray (PC); Wet pipe (FC) (see section 7.0)

H<sub>2</sub>O

CO<sub>2</sub>

Dry pilot (PC); Smoke det (FC) (see section 7.0)

FIRE RESISTANCE RATING

Actual

- Walls

- Floors, Ceiling or Roof

- Fixed Openings

- Penetrations

- Doors (Fire-rated Class/Zone No.)

N-B/3; S-B/2,Open;E-C/NR; W-C/3,NR

Concrete

OP/2101

See text

A/0014,1105,2203; B/2103; NR/2101

## CONSTRUCTION

The east wall is nonrated, reinforced concrete and is adjacent to the 3-h-rated reactor and radwaste building walls. The north portion of the west wall (from T12 to T14) is reinforced concrete and is 3-h rated. The balance of the west wall is nonrated, reinforced concrete (see exemptions). The north wall is block and 3-h rated. The south wall is partially 2-h-rated block (adjacent to the stairwell) and the rest is open to zone 2101 (see exemptions). The floor and ceiling are reinforced concrete and nonrated except for the ceiling under area 0024, which is 3-h rated (see exemptions). There is a fire-rated Class B door to area 2103. There is a fire-rated Class A door to each of areas 2203, 1104, and 0014. There is a nonrated doorway in the west wall to area 2101 and an open stairway down to area 0007 (see exemptions).

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier, have been exempted, or have been evaluated as acceptable as is documented in appendix I of this document.

## FIRE PROTECTION

This area is equipped with full coverage wet pipe sprinklers and full coverage smoke detectors which alarm both locally and in the MCR. The reactor feed pump oil conditioner located in this area is equipped with a water spray system actuated by the dry pilot portion of the system. hose stations and portable CO<sub>2</sub> fire extinguishers are located in this area for manual firefighting.

## APPENDIX R EXEMPTIONS

An exemption from Section III.G.2 requirement for complete 3-h-rated fire barriers has been granted for the nonrated walls, floor and ceiling, the opening to area 2101, and the open stairwell to area 0007 per the April 1984 NRC SER.

An additional exemption has been requested from the barrier requirements of Section III.G.2, for specific HPCI system circuits routed through this area, as is documented in appendix C of this document. This exemption was withdrawn, as is documented in appendix C of this document.

## CONSEQUENCES OF DESIGN BASIS FIRE

A design basis fire in this area will primarily involve cable insulation. The cable used at E. I. Hatch Nuclear Plant is predominantly IEEE-383 qualified, which ensures that the design basis fire will develop and propagate through the area slowly, allowing ample time for response by the plant fire brigade. The reactor feed pump oil conditioner in this area is surrounded by a curb to contain any oil spills or leaks in the immediate vicinity of the conditioner. The conditioner is equipped with a dry pilot actuated water spray system, specifically designed to extinguish this type of fire. The combination of rated and exempted fire barriers surrounding this area, the automatic sprinkler coverage and the available manual firefighting equipment, preclude propagation of the fire to adjacent areas. A fire in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 2201

This area is considered safety related.

DESCRIPTION

Unit 2 Drywell and Torus  
Unit 2 Reactor Building

DRAWING NUMBER(S)

H-11832, H-11833, H-11834, H-11835, H-11836

AREA

3,339 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | Lube oil         |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | None             |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 50,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                 |
|-----------------------------------|-----------------|
| Actual                            |                 |
| - Walls                           | S, C/NR         |
| - Floors, Ceiling or Roof         | Steel           |
| - Fixed Openings                  | See text        |
| - Penetrations                    | See text        |
| - Doors (Fire-rated Class/Zone #) | NR/2203F, 2205F |

## CONSTRUCTION

The boundaries of this area are nonrated, reinforced concrete and steel exempted barriers. The torus and downcomers are steel, approximately 1 in. thick. All penetrations and doors to adjacent areas are nonrated and airtight.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier, have been exempted, or have been evaluated as acceptable as is documented in appendix I of this document.

## FIRE PROTECTION

This area is not equipped with any detection or suppression system. However, the drywell is inerted during power operation, thereby preventing fires from being ignited or sustained. A hose stream can be provided to all parts of this area using the hose stations located in areas 2205 and 2203 during nonpower operation.

## APPENDIX R EXEMPTIONS

The drywell vessel and shield walls comprise a portion of the boundary between the north and south halves of the reactor building. This boundary, including the drywell walls, has been exempted from the Section III.G.2 requirement for complete, 3-h-rated barriers per the April 1984 NRC Safety Evaluation Report (SER).

## CONSEQUENCES OF DESIGN BASIS FIRE

During power operation, the drywell is inerted and a fire is not credible. A design basis fire in this area will, therefore, not affect the ability to achieve safe shutdown. Per Appendix R to 10 CFR 50.48, no further protection is required. During periods when the drywell is not inerted a fire will not propagate to other fire areas due to the substantial construction and the low combustible loading. In the event of a fire during an outage, the high traffic in the drywell will ensure prompt detection of a fire in its early stages. Existing drywell temperature instruments may also be used for drywell fire detection. Fire detection by either means is expected to result in prompt response by the plant fire brigade. The available manual firefighting equipment in the adjacent areas is adequate to extinguish the fire.

The primary combustibles in this area are concentrated in four specific locations; in each of the two recirculation pumps and each of two cable penetration sections. Curbs are provided under each recirculation pump to contain any oil spills to the localized area of the pump, thereby preventing propagation of a pump lube oil fire throughout the area. The two cable penetration sections are on opposite sides of the area. Each section contains cables of predominantly one safe shutdown path. This separation provides assurance that damage to only one safe shutdown path will result from a fire in this area and that a fire originating in one cable penetration section will not propagate to the other. Similarly, any radioactive materials contained in the area will be confined to the area in the event of a fire.

FIRE AREA 2203

This area is considered safety related.

DESCRIPTION

Reactor Building North  
Unit 2 Reactor Building - All Elevations

DRAWING NUMBER(S)

H-11832, H-11833, H-11834, H-11835, H-11836, H-11837

AREA

19,806 ft<sup>2</sup>

COMBUSTIBLES

|                     |                              |
|---------------------|------------------------------|
| Oil & Grease        | Grease, lube oil             |
| Cable               | Cable insulation             |
| Class A             | Wood, clothing, trash, paper |
| Charcoal            | None                         |
| Plastics            | Plastic, ladders             |
| Miscellaneous       | Rubber                       |
| Miscellaneous Gases | Hydrogen                     |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                                 |
|------------------------|-------------------------------------------------|
| Suppression (type)     | Halon; wet pipe (PC) (see section 7.0)          |
| Hose Stations          | H <sub>2</sub> O                                |
| Portable Extinguishers | CO <sub>2</sub>                                 |
| Detectors (type)       | Lin therm det; smoke det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                                                                      |
|-----------------------------------|----------------------------------------------------------------------|
| Actual                            |                                                                      |
| - Walls                           | E, N-C/NR; S-C/3, NR, open; W-C/3                                    |
| - Floors, Ceiling or Roof         | Concrete                                                             |
| - Fixed Openings                  | OD, OP, OH/2205; MH, CH/2201; SD/Outside                             |
| - Penetrations                    | See text                                                             |
| - Doors (Fire-rated Class/Zone #) | 5-A/2205; 2-A/1203, 2210, 2211; A/2104, 0201; NR/Outside, 2205, 2604 |



CONSTRUCTIONBelow 130-ft Elevation

The west wall of this area below the 130-ft elevation is a 3-h-rated reinforced concrete wall separating the reactor building from the turbine and control buildings. The north and east boundaries are reinforced concrete below grade reactor building exterior walls and are nonrated. The north wall is adjacent to the 3-h-rated Unit 1 reactor building exterior wall. The south boundary is defined by the nonrated concrete drywell in the center and is open to area 2205 on the east and west sides of the drywell. The floor and ceiling are nonrated, reinforced concrete. The northeast (zone 2203B) and northwest (zone 2203C) corners communicate with the 130-ft elevation floor via open stairwells. A hatch is provided in the floor at the 130-ft elevation for access to the general floor on this elevation, and there is a steam vent opening in the ceiling communicating with area 2205 (see exemptions). Area 2201 (drywell and torus) is separated from area 2203 on this elevation by the nonrated but substantial torus vessel and downcomer walls, which are constructed of approximately 1-in.-thick steel.

130-ft Elevation

The west wall of this area is a 3-h-rated, reinforced concrete, exterior wall. The north and east walls are nonrated, reinforced concrete reactor building exterior walls. The north wall is adjacent to the 3-h-rated Unit 1 reactor building exterior wall.

The south boundary is defined by the nonrated drywell in the center and the main steam chase on the west and is open to area 2205 on the east. A fire-rated Class A door is provided in the west wall to area 2104. There are two nonrated doors; one large, railroad vault door accesses the outside and the other accesses area 2604. There is a nonrated door in the southwest wall accessing zone 2205H. Stairs in the northwest corner of this area provide access to zone 2203C below and zone 2203I above this elevation. Stairs in the northeast corner provide access to zone 2203B below this elevation.

158-ft Elevation

The west wall is reinforced concrete and 3-h rated. This boundary extends along column line RA from column line R14 to R15 and then along column line RB from R15 to R21. The east wall is nonrated, reinforced concrete exterior wall. The northwest corner walls (around the stairwell) are reinforced concrete, 3-h rated adjacent to areas 2205 and 2210 and nonrated adjacent to 3-h-rated Unit 1 reactor building wall. The south area boundary consists of the 3-h-rated concrete south wall of the stairwell, the nonrated reinforced concrete shield wall adjacent to the phase separators (zone 2205M), the concrete and steel drywell wall, the RWCU pump room wall, and the open corridor on the east side to area 2205. The floor and ceiling are nonrated, reinforced concrete. The ceiling of this area is the boundary between areas 1203 and 1205. It is provided with full wet pipe suppression system coverage on el 185 ft from column lines R14 to R19 (except for the drywell, fuel pool, and zone 2205W). There are two fire-rated Class A doors, one in the south wall and one in the north wall, which access the chiller room (zone 2205N) and the Unit 1 reactor building (area 1203), respectively. An open doorway in the southeast boundary accesses the RWCU pump room (area 2205). There is a stairwell in the northwest corner of the area which accesses the 130-ft

CONSTRUCTION (cont'd)158-ft Elevation (cont'd)

and 185-ft elevations of this area. In addition, there is an open equipment hatch which accesses the 130-ft elevation below and area 2205 on the 185-ft elevation above. The hatch is equipped with a high density fixed water spray suppression system around its perimeter on the 185-ft elevation.

185-ft Elevation and Above (Stairwell)

The east, west, and south walls are 3-h-rated reinforced concrete walls, except the west and west half of the south walls at the 228-ft elevation which are nonrated exterior walls. The north wall is a nonrated, reinforced concrete wall at all elevations, but is adjacent to the 3-h-rated Unit 1 reactor building wall. At the 185-ft elevation there are three fire-rated Class A doors; a double door in the south wall and a door in the east wall, both providing access to area 2205, and a door in the north wall to area 1203. At the 203-ft elevation there are two fire-rated Class A double doors; one in the east wall and one in the south wall, both to area 2205. At el 228 ft, there is a fire-rated Class A door in the south wall providing access to the airlock to the reactor building roof. The room at the top of the stairwell above el 228 ft contains openings to area 0201 (see exemptions).

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

FIRE PROTECTION

The area is equipped with wet pipe sprinkler systems which are designed to function as a propagation barrier to separate the north half of the reactor building (area 2203) from the south half (area 2205). These systems are described and defined in section 3.4 of this document. These wet pipe systems are located in the east and west torus room on el 87 ft, in the east corridor on el 130 ft, on the north side of the main steam chase on el 130 ft, and in the east corridor on el 158 ft. The system to the north of the main steam chase on elevation 130 ft deviates from the description by not having all safe shutdown cables within the section of floor covered by the system protected.

The hatchway penetrating the 158-ft elevation ceiling is equipped with a high density, fixed water spray suppression system around the hatch on the 185-ft elevation. In addition, the north half of the building on the 185-ft elevation, with the exception of the drywell, fuel pool, and zone 2205W, is covered with a wet pipe suppression system. The combination of sprinkler systems is designed to preclude propagation of a fire either up or down through the floor or hatch.

An additional wet pipe system is provided in the RCIC pump room. Linear thermal detectors are provided in the reactor building centerline suppression system sections on el 87 ft. Linear thermal detectors are also provided in the RHR pump room on el 87 ft and the CRD area north of the main steam chase on el 130 ft. Smoke detectors are provided in the reactor building centerline suppression system section on the east side of el 130 ft, near the equipment hatches at el 130 ft, and in the east reactor building centerline suppression system section on

### FIRE PROTECTION (cont'd)

el 158 ft. Activation of the detection or suppression systems results in an alarm, both locally and in the MCR. There are hose stations and portable CO<sub>2</sub> fire extinguishers located throughout the area.

### APPENDIX R EXEMPTIONS

An exemption from the Section III.G.2 requirements of Appendix R has been approved for the nonrated shield walls and open areas separating this area from the south half of the reactor building and for the lack of areawide suppression coverage, per the April 1984 NRC Safety Evaluation Report (SER).

An exemption from Section III.G.2 requirements has been approved for certain safe shutdown equipment located under the reactor building centerline suppression systems per the January 1987 NRC SER.

An exemption from the Section III.G.2 requirements for fire barriers has been requested as is documented in appendix C of this document, for the openings from this area to area 0201 at the top of the stairwell. However, per the January 1987 NRC SER, no exemption is required, based on part 4 of NRC Generic Letter 86-10.

### CONSEQUENCES OF DESIGN BASIS FIRE

The north half of the Unit 2 reactor building primarily contains components and cables for safe shutdown path 1 and the south half primarily contains components and cables for safe shutdown path 2. Path 2 systems that are required for safe shutdown and are located in the north half and path 1 systems that are located in the south half of the reactor building and are required for safe shutdown are protected by a 1-h-rated fire barrier. All safe shutdown circuits in the reactor building centerline suppression system sections are protected by a 1-h-rated fire barrier.

The fire detection systems provide reasonable assurance that a fire will be detected in its initial stages before significant damage occurs. The fire will then be suppressed by the automatic systems or manually by the plant fire brigade before it represents a serious threat to safe shutdown systems. The fire suppression systems, fire barriers, the large open areas of the reactor building, and the existing spatial separation between redundant paths provide assurance that one path will remain free of fire damage.

Therefore, a fire in the north half of the Unit 2 reactor building will not affect the capability to achieve safe shutdown or result in the release of significant radioactivity.

FIRE ZONE 2203A

This zone is considered safety related.

DESCRIPTION

Reactor Building North  
Unit 2 Reactor Building - Below the 130-ft elevation

DRAWING NUMBER(S)

H-11832

AREA

6,427 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | Trash            |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                      |
|------------------------|--------------------------------------|
| Suppression (type)     | Wet pipe (PC) (see section 7.0)      |
| Hose Stations          | H <sub>2</sub> O                     |
| Portable Extinguishers | CO <sub>2</sub>                      |
| Detectors (type)       | Lin therm det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                                   |
|-----------------------------------|-----------------------------------|
| Actual                            |                                   |
| - Walls                           | E, N-C/NR; S-C, S/NR, open: W-C/3 |
| - Floors, Ceiling or Roof         | Concrete                          |
| - Fixed Openings                  | OP/2205; CH/2203F; M/2203F        |
| - Penetrations                    | See area 2203 text                |
| - Doors (Fire-rated Class/Zone #) | None                              |

### CONSTRUCTION

The south portion of the west wall is reinforced concrete and is 3-h rated. The east, north, northeast, and northwest walls are all reinforced concrete and are nonrated. A portion of the south boundary of the zone is the drywell which is reinforced concrete and steel and is nonrated. The southeast and southwest boundaries of the zone are open to zone 2205A. The floor and ceiling are nonrated, reinforced concrete. There is an open hatch in the ceiling which accesses zone 2203F and a steam vent opening to zone 2205H. Area 2201, the drywell and torus, is separated from area 2203 in this zone by the nonrated steel torus vessel walls. See area 2203 for penetrations.

### FIRE PROTECTION

The southeast and southwest portions of the zone approximately 20 ft north of column line R19 are provided with linear heat detection and a wet pipe suppression system. In addition, the zone is equipped with hose stations and a portable CO<sub>2</sub> fire extinguisher for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

The reactor building centerline suppression system sprinklers are designed to prevent fire propagation through the open areas along column line R19 to area 2205. The low combustible loading and substantial wall construction preclude the potential propagation of a design basis fire to other adjacent zones. Activation of a suppression or detection system results in an alarm both locally and in the MCR to ensure prompt response by the plant fire brigade. The available manual firefighting equipment is sufficient to extinguish a fire.

FIRE ZONE 2203B

This zone is considered safety related.

DESCRIPTION

Reactor Building Northeast Corner Room  
Unit 2 Reactor Building - el 87 ft

DRAWING NUMBER(S)

H-11832

AREA

659 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | Grease           |
| Cable               | Cable insulation |
| Class A             | Clothing, trash  |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 117,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                      |
|------------------------|--------------------------------------|
| Suppression (type)     | None                                 |
| Hose Stations          | H <sub>2</sub> O                     |
| Portable Extinguishers | CO <sub>2</sub>                      |
| Detectors (type)       | Lin therm det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                    |
|-----------------------------------|--------------------|
| Actual                            |                    |
| - Walls                           | N, SW, E-C/NR      |
| - Floors, Ceiling or Roof         | Concrete           |
| - Fixed Openings                  | OS, CH/2203F       |
| - Penetrations                    | See area 2203 text |
| - Doors (Fire-rated Class/Zone #) | None               |

### CONSTRUCTION

The north, east, and southwest walls are nonrated, reinforced concrete. The north wall is adjacent to the Unit 1 reactor building 3-h-rated, reinforced concrete wall. The floor and ceiling are also nonrated, reinforced concrete. There is one open stairwell in the northeast corner which accesses zone 2203F. There are several concrete equipment hatches in the ceiling which access zone 2203F. See area 2203 for penetrations.

### FIRE PROTECTION

The zone is equipped with a full coverage linear heat detection system which provides an alarm both locally and in the MCR. There is no automatic suppression system provided in this zone. The zone is equipped with a hose station and portable CO<sub>2</sub> fire extinguishers for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

In the event of a design basis fire, wall construction is substantial, containing a limited number of penetrations; this will preclude fire propagation to adjacent zones and areas. The open stairwell represents a potential threat of fire propagation to zone 2203F above; however, the linear heat detection system in this zone will detect the fire and provide an early alarm, both locally and in the MCR to ensure prompt response by the plant fire brigade to prevent propagation of the fire to zone 2203F. The manual firefighting equipment in this zone is adequate to extinguish the fire. Propagation of a fire to other zones in this area will not affect the ability to achieve safe shutdown.

FIRE ZONE 2203C

This zone is considered safety related.

DESCRIPTION

Northwest Corner Room

Unit 2 Reactor Building - Below el 130 ft

DRAWING NUMBER(S)

H-11832

AREA

659 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | Lube oil         |
| Cable               | Cable insulation |
| Class A             | Paper, clothing  |
| Charcoal            | None             |
| Plastics            | Plastic, ladders |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                 |
|------------------------|---------------------------------|
| Suppression (type)     | Wet pipe (PC) (see section 7.0) |
| Hose Stations          | H <sub>2</sub> O                |
| Portable Extinguishers | CO <sub>2</sub>                 |
| Detectors (type)       | None                            |

FIRE RESISTANCE RATING

|                                   |                    |
|-----------------------------------|--------------------|
| Actual                            |                    |
| - Walls                           | SE, N-C/NR: W-C/3  |
| - Floors, Ceiling or Roof         | Concrete           |
| - Fixed Openings                  | OS, CH/2203F       |
| - Penetrations                    | See area 2203 text |
| - Doors (Fire-rated Class/Zone #) | None               |



### CONSTRUCTION

The southeast and north wall are reinforced concrete and are nonrated. The north wall is adjacent to the Unit 1 reactor building 3-h-rated, reinforced concrete wall. The west wall is reinforced concrete and is 3-h rated. The floor and ceiling are nonrated, reinforced concrete. There is an open stairwell and a concrete equipment hatch which access zone 2203F above. See area 2203 for penetrations.

### FIRE PROTECTION

The zone is equipped with an automatic wet pipe suppression system. No detection is provided; however, activation of the suppression system will result in an alarm both locally and in the MCR. There are hose stations and portable CO<sub>2</sub> fire extinguishers for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains low loading of combustible materials. The low fire loading and substantial construction preclude propagation of the design basis fire beyond the boundaries of this zone, except potentially through the open stairwell to zone 2203F. This is not expected to occur since there are no intervening combustibles in the vicinity of the stairwell opening in zone 2203F. Activation of the wet pipe sprinklers in this zone will provide an alarm both locally and in the MCR to ensure prompt response by the plant fire brigade. The available manual firefighting equipment is adequate to extinguish the fire. Propagation of a fire to other zones in this area will not affect the ability to achieve safe shutdown.

FIRE ZONE 2203F

This zone is considered safety related.

DESCRIPTION

Working Floor North  
Unit 2 Reactor Building - el 130 ft

DRAWING NUMBER(S)

H-11833

AREA

7,438 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | Clothing, trash  |
| Charcoal            | None             |
| Plastics            | Plastic, ladders |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 144,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                                      |
|------------------------|------------------------------------------------------|
| Suppression (type)     | Wet pipe (PC); (see section 7.0)                     |
| Hose Stations          | H <sub>2</sub> O                                     |
| Portable Extinguishers | CO <sub>2</sub>                                      |
| Detectors (type)       | Smoke det (PC); Lin therm det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                                                                      |
|-----------------------------------|----------------------------------------------------------------------|
| Actual                            |                                                                      |
| - Walls                           | E, N-C/NR; S-C/NR, open; W-C/3                                       |
| - Floors, Ceiling or Roof         | Concrete                                                             |
| - Fixed Openings                  | OP/2205; CH, OS/2203B,C; MH, CH/2201;<br>OH/2203K; OS/2203I; M/2203A |
| - Penetrations                    | See area 2203 text                                                   |
| - Doors (Fire-rated Class/Zone #) | A/2104; NR/2205, 2604, Outside                                       |

### CONSTRUCTION

The north and east walls are nonrated, reinforced concrete. The west wall is 3-h-rated reinforced concrete. The south boundary is defined by the nonrated drywell in the center, the nonrated main steam pipe chase shield wall on the west side, and by the opening on the east side (along column line R19) to area 2205. A fire-rated Class A door is provided in the west wall, which accesses area 2104. Nonrated doors in the east wall access area 2604 and the outside. In addition, there is a nonrated door in the southwest wall accessing zone 2205H. The floor and ceiling are nonrated, reinforced concrete. There are two open stairwells which access zones 2203B and 2203C below and 2203I above. The south wall has several closed hatches which access area 2201 (Drywell). The northeast portion of the ceiling in this zone has an open equipment hatch which accesses zone 2203K above. Closed equipment hatches are provided in the floor which access zone 2203A, zone 2203B, and zone 2203C. A manway to the torus room (zone 2203A) is provided in the northwest portion of the floor. See area 2203 for penetrations.

### FIRE PROTECTION

The zone is equipped with smoke detectors east of column line RH and linear heat detection west of column line RH. The southeast and southwest portions of this zone along column line R19 are equipped with automatic wet pipe suppression systems designed as a fire propagation barrier. In addition, hose stations and portable CO<sub>2</sub> fire extinguishers are provided for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

A design basis fire in this zone is expected to be slow developing, consisting primarily of cable insulation and Class A materials. The automatic reactor building centerline suppression system would prevent fire propagation to adjacent zones 2205H and 2205F. Based on a moderate combustible loading, limited penetrations, and substantial wall construction, lateral fire propagation to adjacent zones is not considered probable. The open equipment hatch and open stairwells create a potential propagation threat to zones 2203A, 2203B below, and zones 2203I and 2203K above. Early detection of the slowly developing fire provided by the installed detection systems and prompt action by the plant fire brigade make the propagation beyond this zone unlikely. Propagation of a fire to other zones in this area will not affect the ability to achieve safe shutdown.

FIRE ZONE 2203I

This zone is not considered safety related.

DESCRIPTION

Stair Vestibule

Unit 2 Reactor Building - el 158 ft, 185 ft, 203 ft, 228 ft

DRAWING NUMBER(S)

H-11834, H-11835, H-11836, H-11837

AREA

897 ft<sup>2</sup>

COMBUSTIBLES

|                     |         |
|---------------------|---------|
| Oil & Grease        | None    |
| Cable               | None    |
| Class A             | None    |
| Charcoal            | None    |
| Plastics            | Plastic |
| Miscellaneous       | None    |
| Miscellaneous Gases | None    |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                  |
|------------------------|------------------|
| Suppression (type)     | None             |
| Hose Stations          | H <sub>2</sub> O |
| Portable Extinguishers | CO <sub>2</sub>  |
| Detectors (type)       | None             |

FIRE RESISTANCE RATING

|                                   |                                |
|-----------------------------------|--------------------------------|
| Actual                            |                                |
| - Walls                           | N-C/NR; E, S, W-C/3, NR        |
| - Floors, Ceiling or Roof         | Concrete                       |
| - Fixed Openings                  | OS/2203F; OD/2203K; SD/Outside |
| - Penetrations                    | See area 2203 text             |
| - Doors (Fire-rated Class/Zone #) | 5-A/2205; 2-A/1203; A/0201     |

## CONSTRUCTION

### 158-ft Elevation

The north wall is reinforced concrete and nonrated and is adjacent to the Unit 1 reactor building 3-h-rated, reinforced concrete wall. The east, south, and west walls are reinforced concrete and are 3-h fire barriers. The north wall has a fire-rated Class A door which accesses area 1203. The south wall has a fire-rated Class A double door which accesses area 2205. There is an open doorway in the east wall which accesses zone 2203K. The floor and ceiling are nonrated, reinforced concrete. The base of the stairwell accesses zone 2203F below.

### 185-ft Elevation

The east, west, and south walls are reinforced concrete and are 3-h rated. The north wall is nonrated, reinforced concrete and is adjacent to the Unit 1 reactor building 3-h-rated, reinforced concrete wall. The north and east walls each have a fire-rated Class A door which access areas 1203 and 2205, respectively. The south wall has a fire-rated Class A double door accessing area 2205. The ceiling and floor are nonrated, reinforced concrete.

### 203-ft Elevation

The north wall is nonrated, reinforced concrete and is adjacent to the 3-h-rated Unit 1 reactor building wall. The east, west, and south walls are reinforced concrete, 3-h fire barriers with fire-rated Class A double doors in the east and south walls which access area 2205. The floor and ceiling are nonrated, reinforced concrete.

### 228-ft Elevation

The northwest and west half of the south walls are nonrated, reinforced concrete exterior walls. The east portion of the south wall adjacent to the airlock and the east wall are 3-h rated. A fire-rated Class A door in the south wall accesses the airlock to the reactor building roof and refueling floor. The floor and ceiling are reinforced concrete. There are two small rooms above this elevation which are separated from the rest of the stairwell by a nonrated floor with a metal hatch. There are openings from these rooms to area 0201 (see exemptions for area 2203). See area 2203 for penetrations.

## FIRE PROTECTION

The zone is not equipped with a detection or automatic suppression system. CO<sub>2</sub> fire extinguishers and a hose station are provided for manual firefighting.

CONSEQUENCES OF DESIGN BASIS FIRE

This zone has no fixed combustibles, therefore, the only credible fire would be due to the presence of transient combustibles. The negligible combustion loading and substantial wall construction with limited penetrations would preclude the potential for fire propagation beyond this zone.

FIRE ZONE 2203K

This zone is considered safety related.

DESCRIPTION

Working Floor North

Unit 2 Reactor Building - el 158 ft

DRAWING NUMBER(S)

H-11834

AREA

3,726 ft<sup>2</sup>

COMBUSTIBLES

|                     |                       |
|---------------------|-----------------------|
| Oil & Grease        | None                  |
| Cable               | Cable insulation      |
| Class A             | Wood, clothing, trash |
| Charcoal            | None                  |
| Plastics            | Plastic               |
| Miscellaneous       | Rubber                |
| Miscellaneous Gases | Hydrogen              |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | Wet pipe (PC) (see section 7.0)  |
| Hose Stations          | H <sub>2</sub> O                 |
| Portable Extinguishers | CO <sub>2</sub>                  |
| Detectors (type)       | Smoke det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                                            |
|-----------------------------------|--------------------------------------------|
| Actual                            |                                            |
| - Walls                           | S-C/NR, Open; E-C/NR, W-C/3                |
| - Floors, Ceiling or Roof         | Concrete                                   |
| - Fixed Openings                  | OP/2205I; OH/2203F, 2205S; OD/2205L, 2203I |
| - Penetrations                    | See area 2203 text                         |
| - Doors (Fire-rated Class/Zone #) | 2-A/2210, 2211                             |

### CONSTRUCTION

The east wall is a nonrated, reinforced concrete exterior wall. The west wall is a 3-h-rated, reinforced concrete wall. The south wall of this zone is an exempted barrier (see area 2203) consisting of the concrete shield walls adjacent to the cleanup phase separator and the RWCU recirculation pumps, the drywell wall, and the open passageway to zone 2205I. The floor and ceiling are nonrated, reinforced concrete. An open doorway accesses zone 2205L. In the northeast portion of this zone there is an open equipment hatch to zones 2205S above and 2203F below. The ceiling of this zone serves as the area boundary between area 2203 and 2205. To ensure that propagation of a fire through this boundary does not occur, the majority of the 185-ft elevation north floor is covered by a wet pipe suppression system and the hatch is equipped with closely spaced, fixed water spray heads around its perimeter.

### FIRE PROTECTION

A wet pipe sprinkler system designed as a fire propagation barrier is provided over the majority of the east portion of this zone. Smoke detection is also provided in this reactor building centerline suppression system section. Manual firefighting equipment consists of a hose station and portable CO<sub>2</sub> fire extinguishers.

### CONSEQUENCES OF DESIGN BASIS FIRE

In the event of a design basis fire in this zone, the open passageways and hatches create a fire propagation hazard to adjacent areas and zones. The water curtain in the southeast section of this zone is specifically designed to prevent this propagation. Similarly, the sprinkler coverage and directional spray nozzles around the open hatch on the 185-ft elevation are designed to prevent propagation through the hatch. The remainder of the zone boundaries are rated or exempted fire barriers. Smoke and heat from a fire in this zone are expected to actuate the detection system in the southeast part of the zone to ensure prompt response by the plant fire brigade. The substantial or rated construction, the installed suppression systems, the likelihood of early detection, and the low combustible loading preclude propagation of the design basis fire beyond the boundaries of this zone. Propagation of a fire to other zones in this area, in the unlikely event that it does occur, will not affect the ability to achieve safe shutdown or result in a significant release of radioactivity.



FIRE AREA 2205

This area is considered safety related.

DESCRIPTION

Unit 2 Reactor Building South

Unit 2 Reactor Building - All elevations

DRAWING NUMBER(S)

H-11832, H-11833, H-11834, H-11835, H-11836, H-11837

AREA

54,816 ft<sup>2</sup>

COMBUSTIBLES

Oil & Grease

Cable

Class A

Charcoal

Plastics

Miscellaneous

Miscellaneous Gases

Grease, lube oil

Cable insulation

Trash, clothing, paper, wood, tape (cloth),  
rags

Charcoal

Plastic, ladders, respirators, PVC

Rubber

Hydrogen

DESIGN BASIS FIRE

Combustible Loading

Max. Permissible Loading

Fire Duration

Low

100,000 Btu/ft<sup>2</sup>

Less than 1 h

FIRE PROTECTION (AVAILABLE)

Suppression (type)

Hose Stations

Portable Extinguishers

Detectors (type)

Water spray; Wet pipe; Preaction (PC) (see  
section 7.0)

H<sub>2</sub>O

CO<sub>2</sub>

Lin therm det; Smoke det (PC) (see  
section 7.0)

FIRE RESISTANCE RATING

Actual

- Walls

- Floors, Ceiling, or Roof

- Fixed Openings

- Penetrations

- Doors (Fire-rated Class/Zone no.)

N-C, S/3, NR, Open; S-C/3, NR; E-C/NR

Concrete

CH, SD/0201; OH, OD, OP/2203

See text

5-A/2203; A/2301; NR/2203, 0201

## CONSTRUCTION

### Below el 130 ft

The south and west walls of this area consist of 3-h-rated, reinforced concrete, reactor building exterior walls separating this area from the radwaste building and turbine building, respectively. The central part of the north boundary (enclosing the drywell) is nonrated, reinforced concrete and steel; the remaining part of the north boundary is open to area 2203. The east wall is a nonrated, reinforced concrete, reactor building exterior wall. Access from the el 130-ft working floor to the southeast and southwest corner rooms is provided through open stairways. Access to the main floor at this elevation is by a small hatch on the south side of the 130-ft elevation floor. The floor is nonrated, reinforced concrete slab. The ceiling is nonrated, reinforced concrete. The drywell and torus (area 2201) are separated from this area by the steel torus vessel.

### Elevation 130 ft

The west wall and west portion of the south wall are 3-h-rated, reinforced concrete, reactor building exterior walls. The east wall and the remainder of the south wall are nonrated, reinforced concrete exterior walls. The north boundary is open to area 2203 on the east side, accessible through the labyrinth entries and a nonrated door of the main steam chase on the west side, and defined by the drywell and personnel access area walls in the center. There is one fire-rated Class A door in the south wall accessing area 2301. There are open stairwells and covered equipment hatches accessing the upper and lower elevations of this area. The floor and ceiling of the main steam chase portion of this elevation contain steam vents to both the upper and lower elevations of this area and to area 2203 (see exemptions). The floor and ceiling are nonrated, reinforced concrete.

### Elevation 158 ft

The west wall, the section of wall along column line RB from approximately column line R16 to column line R21, and the west portion of the south wall are 3-h-rated reinforced concrete. The east wall and remainder of the south wall are nonrated, reinforced concrete exterior walls. The north boundary is 3-h-rated reinforced concrete around zone 2203I and open to area 2203 on the east side of this elevation. The remainder of the north boundary consists of the nonrated, reinforced concrete, drywell, RWCU phase separator room and RWCU pump room north shield walls. The floor and ceiling are nonrated, reinforced concrete. There is an open stairwell and several covered equipment hatches that access the upper and lower elevations of this area. Steam blowout panels located in the west wall are designed to vent steam from a main steam piping rupture to the turbine building (area 0101). There is a fire-rated Class A door in the north wall to area 2203.

CONSTRUCTION (cont'd)185-ft, 203-ft, and 228-ft Elevations

This section consists of the entire reactor building floor on el 185 ft and 203 ft with the exception of the drywell (area 2201), the refueling and storage pools (area 0201), and the stairwell (zone 2203I). The refueling floor access stairwell enclosure is the only portion of the 228-ft elevation included in this area. All walls are nonrated, reinforced concrete with the exception of the west wall and the walls enclosing the stairwell (area 2203), which are both 3-h-rated, reinforced concrete. The floors and ceilings are reinforced, nonrated concrete. The floors contain open stairwells and equipment hatches to the lower elevations of this area and area 2203. The ceiling is the refueling floor. It contains a stairwell opening, enclosed in a block "dog-house", with a nonrated access door to area 0201. The ceiling also contains several covered and sealed equipment hatches. See area 0201 for an evaluation of this area boundary. There are two fire-rated Class A doors provided to zone 2203I on each of the 185-ft and 203-ft elevations.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

FIRE PROTECTION

This area is equipped with wet pipe sprinklers designed as a fire propagation barrier to separate the north half of the reactor building (area 2203) from the south half (area 2205). These systems are described and defined in section 3.4 of this document. These wet pipe systems are located on the east and west sides of the torus room at el 87 ft, on the east side of the drywell and the north side of the main steam chase at el 130 ft, on the east side of the drywell at el 158 ft, and the entire north half of the building at el 185 ft with the exception of zones 2205T and 2205W. A high density, fixed water spray suppression system is provided around the equipment hatch at the 185-ft elevation. The combination of suppression systems on el 185 ft is designed to prevent propagation of a fire either up or down through the floor or hatch.

Additional suppression systems include; a wet pipe system in zone 2205Z, a preaction system in zone 2205N, and individual water spray systems for the charcoal filters in zones 2205N, 2205Q, 2205T, and 1205V. Linear thermal heat detectors are provided in the reactor building centerline suppression system sections on el 87 ft in zone 2205B and in zones 2205F and 2205H on the 130-ft elevation. Smoke detectors are provided in the southeast corner of the 130-ft elevation (in the vicinity of the stairwell and hatches), in the reactor building centerline suppression system section of the 130-ft elevation, throughout zone 2205N, and in the reactor building centerline suppression system section on the 158-ft elevation. Thermal detectors are provided for the water spray systems in all filters containing charcoal. Activation of any of the detection or suppression systems results in both local and MCR alarms. The area is equipped with hose stations and portable CO<sub>2</sub> fire extinguishers for manual firefighting.

## APPENDIX R EXEMPTIONS

An exemption from the Section III.G.2 requirements has been approved for the nonrated walls, openings and open areas separating this area from the north half of the reactor building for the nonrated steam blowout panel between this area and area 0101 and for the lack of full area suppression coverage per the April 1984 NRC SER.

Requests for exemptions from the Section III.G.2 requirement for complete 3-h-rated barriers have been submitted as is documented in appendix C of this document for the nonrated refueling floor and refueling floor access stairwell doghouses. However, per the January 1987 NRC SER, no exemption is required based on part 4 of NRC Generic Letter 86-10.

In addition, exemptions from the Section III.G.2 separation requirements have been approved for certain safe shutdown components located under the reactor building centerline suppression systems and for HPCI system components located in this area, per the January 1987 NRC SER.

## CONSEQUENCES OF DESIGN BASIS FIRE

The north half of the Unit 2 reactor building primarily contains components and cables for safe shutdown path 1 and the south half primarily contains components and cables for safe shutdown path 2. Path 2 systems that are located in the north half and path 1 systems that are located in the south half of the reactor building and are required for safe shutdown are protected by a 1-h fire-rated barrier.

All safe shutdown circuits required for safe shutdown for both paths are protected by a 1-h fire-rated barrier in the reactor building centerline suppression system sections.

The fire detection systems provide reasonable assurance that a fire will be detected in its initial stages before significant damage occurs. The fire will then be suppressed by the automatic systems or manually by the plant fire brigade before it represents a serious threat to shutdown systems. The fire suppression systems, fire barriers, the large open areas of the reactor building, and the existing spatial separation between redundant safe shutdown paths provide assurance that one path will remain free of fire damage.

FIRE ZONE 2205A

This zone is considered safety related.

DESCRIPTION

Reactor Building South

Unit 2 Reactor Building - Below el 130

DRAWING NUMBER(S)

H-11832

AREA

6427 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | Trash            |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                      |
|------------------------|--------------------------------------|
| Suppression (type)     | Wet pipe (PC) (see section 7.0)      |
| Hose Stations          | H <sub>2</sub> O                     |
| Portable Extinguishers | CO <sub>2</sub>                      |
| Detectors (type)       | Lin therm det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                                                      |
|-----------------------------------|------------------------------------------------------|
| Actual                            |                                                      |
| - Walls                           | N-C, S/NR, open; S-C/3; E-C/NR; W-C/3;<br>SE/SW-C/NR |
| - Floors, Ceiling or Roof         | Concrete                                             |
| - Fixed Openings                  | OP/2203;M, CH/2205F                                  |
| - Penetrations                    | See area 2205 text                                   |
| - Doors (Fire-rated Class/Zone #) | None                                                 |

### CONSTRUCTION

The north wall is nonrated, reinforced concrete and steel drywell. The north boundary of the zone is open to zone 2203A on the east and west sides of the drywell along column line R19. The entire northern perimeter of this zone constitutes an exempted boundary (see area 2205). The south and west walls are reinforced concrete and are 3-h rated. The east, southeast, and southwest walls are nonrated, reinforced concrete. The ceiling and floor are nonrated, reinforced concrete. The ceiling has several concrete and metal hatchways to zone 2205F and a steam vent opening to zone 2205H. Area 2201 (drywell and torus) is separated from area 2205 in this zone by the nonrated steel torus vessel and downcomer walls. See area 2205 for penetrations.

### FIRE PROTECTION

This zone is equipped with partial coverage linear heat detection and wet pipe sprinklers. Reactor building centerline suppression systems are provided from the northern zone boundary at column line R19, extending approximately 20 ft south of column line R19 in the northeast and northwest quadrants of this zone. The zone is provided with hose stations and a portable CO<sub>2</sub> fire extinguisher for manual firefighting. Activation of a detection or suppression system results in an alarm, both locally and in the MCR to ensure prompt response by the plant fire brigade.

### CONSEQUENCES OF DESIGN BASIS FIRE

The suppression systems in this zone are designed to prevent fire propagation through the open sections along column line R19 to area 2203. Activation of the detection or suppression systems provides an alarm both locally and in the MCR to ensure prompt response by the plant fire brigade. The installed suppression and detection systems along with the low fire loading and substantial wall construction preclude propagation of the design basis fire beyond the boundaries of this zone.

FIRE ZONE 2205B

This zone is considered safety related.

DESCRIPTION

Southeast Corner Room

Unit 2 Reactor Building - Elevation below 130 ft

DRAWING NUMBER(S)

H-11832

AREA

659 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | Grease           |
| Cable               | Cable insulation |
| Class A             | Clothing, trash  |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                      |
|------------------------|--------------------------------------|
| Suppression (type)     | None                                 |
| Hose Stations          | H <sub>2</sub> O                     |
| Portable Extinguishers | CO <sub>2</sub>                      |
| Detectors (type)       | Lin therm det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                    |
|-----------------------------------|--------------------|
| Actual                            |                    |
| - Walls                           | E, S, NW-C/NR      |
| - Floors, Ceiling or Roof         | Concrete           |
| - Fixed Openings                  | OS, CH/2205F       |
| - Penetrations                    | See area 2205 text |
| - Doors (Fire-rated Class/Zone #) | W/2205Z            |

### CONSTRUCTION

The northwest, east, and south walls are nonrated, reinforced concrete. The ceiling and floor area are also nonrated, reinforced concrete. There are several concrete covered equipment hatchways and an open stairwell which provide access to zone 2205F above. A nonrated, watertight door in the southeast corner provides access to zone 2205Z. See area 2205 for penetrations.

### FIRE PROTECTION

The zone is equipped with full coverage linear heat detection which provides an early warning alarm both locally and in the MCR to ensure prompt response by the plant fire brigade. The zone is not equipped with an automatic fire suppression system; however, a hose station and portable CO<sub>2</sub> extinguishers are provided for manual firefighting. Additional hose stations are available in zone 2205F.

### CONSEQUENCES OF DESIGN BASIS FIRE

In the event of design basis fire, the substantial construction of the walls, containing a limited number of open penetrations, precludes fire propagation to adjacent zones and areas. The open stairwell represents a potential threat of fire propagation to zone 2205F above; however, the primary combustible in this zone is cable which is predominately IEEE-383 qualified which ensures a slow developing fire. This, coupled with an early warning provided by the full coverage linear heat detection system, would ensure prompt response by the plant fire brigade to extinguish the fire by utilizing the available manual firefighting equipment in the zone. The nonrated, watertight door which accesses zone 2205Z also poses some threat as a potential propagation path, however, due to the low combustible loading and the likelihood of early detection and suppression of a fire, it is unlikely that propagation would occur. Propagation of a fire to other zones in this area will not affect the ability to achieve safe shutdown or result in any release of radioactivity.



FIRE ZONE 2205C

This zone is considered safety related.

DESCRIPTION

Southwest Corner Room

Unit 2 Reactor Building - Below el 130 ft

DRAWING NUMBER(S)

H-11832

AREA

659 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | Plastic, ladders |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 72,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                  |
|------------------------|------------------|
| Suppression (type)     | None             |
| Hose Stations          | H <sub>2</sub> O |
| Portable Extinguishers | CO <sub>2</sub>  |
| Detectors (type)       | None             |

FIRE RESISTANCE RATING

|                                   |                    |
|-----------------------------------|--------------------|
| Actual                            |                    |
| - Walls                           | NE-C/NR; W, S-C/3  |
| - Floors, Ceiling or Roof         | Concrete           |
| - Fixed Openings                  | OS, CH/2205F       |
| - Penetrations                    | See area 2205 text |
| - Doors (Fire-rated Class/Zone #) | None               |

### CONSTRUCTION

The west and south walls are reinforced concrete and are 3-h rated. The northeast wall is nonrated, reinforced concrete. The floor and ceiling are nonrated, reinforced concrete. There is an open stairwell and a concrete hatch which provide access to zone 2205F. See area 2205 for penetrations.

### FIRE PROTECTION

The zone is not provided with any detection or automatic suppression system. However, the zone is equipped with hose stations and portable CO<sub>2</sub> fire extinguishers for manual firefighting. An additional hose station is available in zone 2205F.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains a low loading of combustible materials. The low fire loading and substantial construction preclude the propagation of a design basis fire beyond the boundaries of the zone, except potentially through the open stairwell. However, the low fire loading and large dilution volume of zone 2205F above this zone minimize this possibility. Detection of a fire in this zone would likely result from the linear thermal detection in the vicinity of the stairwell in zone 2205F, further reducing the probability of propagation. The available firefighting equipment is adequate to extinguish a fire. Propagation of a fire to other zones in this area will not affect the ability to achieve safe shutdown or result in the release of any radioactivity.

FIRE ZONE 2205F

This zone is considered safety related.

DESCRIPTION

Working Floor South  
Unit 2 Reactor Building - el 130 ft

DRAWING NUMBER(S)

H-11833

AREA

7,379 ft<sup>2</sup>

COMBUSTIBLES

|                     |                        |
|---------------------|------------------------|
| Oil & Grease        | None                   |
| Cable               | Cable insulation       |
| Class A             | Paper, clothing, trash |
| Charcoal            | None                   |
| Plastics            | Plastic, ladders       |
| Miscellaneous       | Rubber                 |
| Miscellaneous Gases | None                   |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 111,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                                 |
|------------------------|-------------------------------------------------|
| Suppression (type)     | Wet pipe (PC) (see section 7.0)                 |
| Hose Stations          | H <sub>2</sub> O                                |
| Portable Extinguishers | CO <sub>2</sub>                                 |
| Detectors (type)       | Lin therm det; smoke det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                                                  |
|-----------------------------------|--------------------------------------------------|
| Actual                            |                                                  |
| - Walls                           | N-C/NR, open; S-C/3, NR; E-C/NR; W-C/3           |
| - Floors, Ceiling or Roof         | Concrete                                         |
| - Fixed Openings                  | OS, CH/2205B, C; CH, M/2205A; OP, 2203; OS/2205I |
| - Penetrations                    | See area 2205 text                               |
| - Doors (Fire-rated Class/Zone #) | A/2301; NR/2205H                                 |

### CONSTRUCTION

The east and south walls are reinforced concrete and nonrated with the exception of the south wall from approximately column line RA to approximately RH which is 3-h rated. The west wall is reinforced concrete and is 3-h rated. The north boundary consists of the nonrated, reinforced concrete shield walls of the main steam chase and drywell and an open passage on the east side to zone 2203F. The floor is nonrated concrete with two open stairwells which provide access to zones 2205B and 2205C. In addition, there are several concrete covered equipment hatches which provide access to zone 2205A, zone 2205B, and zone 2205C below. The ceiling is nonrated, reinforced concrete with one open stairwell to zone 2205I. There is one fire-rated Class A door in the southwest corner of the zone accessing area 2301. In addition, there is one nonrated door accessing zone 2205H. See area 2205 for penetrations.

### FIRE PROTECTION

Detection is provided by smoke detectors east of column line RH (except in the piping penetration room) and by linear heat detection west of column line RH in this zone. The opening to area 2203 is equipped with a reactor building centerline suppression system extending into this zone approximately 35 ft south of column line R19. In addition, hose stations and portable CO<sub>2</sub> fire extinguishers are provided for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

A design basis fire in this zone is expected to be slow developing, consisting primarily of IEEE-383 qualified cable insulation and Class A materials. The automatic reactor building centerline suppression system would prevent fire propagation to adjacent area 2203. Based on a low combustible loading, limited penetrations, and substantial wall construction, the boundaries of this zone are adequate to contain a fire. The open equipment hatch and open stairwells create a potential propagation threat to zones 2205A, 2205B, and 2205C below and zone 2205I above; however, the design basis fire is slow developing and the full coverage detection system would ensure prompt response by the plant fire brigade to prevent fire propagation by utilizing the available manual firefighting equipment in the zone. Propagation of a fire to other zones in this area will not affect the ability to achieve safe shutdown.

FIRE ZONE 2205H

This zone is considered safety related.

DRAWING NUMBER(S)

H-11833, H-11834

DESCRIPTION

Main Steam Chase

Unit 2 Reactor Building - 130–ft Elevation

AREA

1,279 ft<sup>2</sup>

COMBUSTIBLES

|                     |                 |
|---------------------|-----------------|
| Oil & Grease        | None            |
| Cable               | None            |
| Class A             | Clothing, trash |
| Charcoal            | None            |
| Plastics            | Plastic         |
| Miscellaneous       | Rubber          |
| Miscellaneous Gases | None            |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                      |
|------------------------|--------------------------------------|
| Suppression (type)     | Wet pipe (PC) (see section 7.0)      |
| Hose Stations          | None                                 |
| Portable Extinguishers | None                                 |
| Detectors (type)       | Lin therm det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                          |
|-----------------------------------|--------------------------|
| Actual                            |                          |
| - Walls                           | S, N-C/NR; E-C/NR; W-C/3 |
| - Floors, Ceiling or Roof         | Concrete                 |
| - Fixed Openings                  | OP/2203A, 2205A          |
| - Penetrations                    | See area 2205 text       |
| - Doors (Fire-rated Class/Zone #) | NR/2203F, 2205F          |

### CONSTRUCTION

The north and south walls are nonrated, reinforced concrete shield walls. The east wall is the drywell which is nonrated concrete and steel. The west wall is 3-h-rated, reinforced concrete. The ceiling and floor are nonrated, reinforced concrete. The floor contains steam vent openings to zones 2203A and 2205A below this zone. The west wall contains steam blowout panels which vent to area 0101 (turbine building) (see exemptions in area 2205). There are two nonrated doors which access zones 2203F and 2205F. See area 2205 for penetrations.

### FIRE PROTECTION

The linear heat detection systems in adjacent zones 2203F and 2205F extend into the labyrinth entries to this zone. Similarly, the suppression system in zone 2203F extends into the north entry of this zone. No manual firefighting equipment is provided in this zone; however, there are hose stations and portable extinguishers available in the adjacent zones.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone has a negligible combustible loading and the zone is a high radiation area which limits the introduction of transient combustibles. The low fire loading and substantial construction preclude the propagation of a design basis fire beyond the boundaries of this zone. In addition, the suppression system to the north of the zone will further reduce the probability of fire propagation to zone 2203F. The available firefighting equipment in adjacent zones 2203F and 2205F is adequate to extinguish a fire.

FIRE ZONE 2205I

This zone is considered safety related.

DESCRIPTION

Working Floor South  
Unit 2 Reactor Building - el 158 ft

DRAWING NUMBER(S)

H-11834

AREA

3,669 ft<sup>2</sup>

COMBUSTIBLES

|                     |                               |
|---------------------|-------------------------------|
| Oil & Grease        | None                          |
| Cable               | Cable insulation              |
| Class A             | Clothing, trash               |
| Charcoal            | None                          |
| Plastics            | Plastic, respirators, ladders |
| Miscellaneous       | Rubber                        |
| Miscellaneous Gases | Hydrogen                      |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | Wet pipe (PC) (see section 7.0)  |
| Hose Stations          | H <sub>2</sub> O                 |
| Portable Extinguishers | CO <sub>2</sub>                  |
| Detectors (type)       | Smoke det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                                         |
|-----------------------------------|-----------------------------------------|
| Actual                            |                                         |
| - Walls                           | N-C/NR, open; S-C/3, NR; E-C/NR; W-C/NR |
| - Floors, Ceiling or Roof         | Concrete                                |
| - Fixed Openings                  | OD/2205L; OS/2205F, R; OP/2203          |
| - Penetrations                    | See area 2205 text                      |
| - Doors (Fire-rated Class/Zone #) | None                                    |

### CONSTRUCTION

All the walls are nonrated, reinforced concrete with the exception of a portion of the south wall from column line RB to approximately column line RH, which is 3-h rated. The east portion of the north boundary along column line R19 is open to area 2203. There are two open doorways which access zone 2205L. The ceiling and floor are nonrated, reinforced concrete. There are two open stairwells along the east wall accessing zones 2205F below and zone 2205R above. The shield wall for the RWCU heat exchangers (zone 2205L) is provided with a removable block section for equipment removal. See area 2205 zone for penetrations.

### FIRE PROTECTION

The zone is equipped with partial coverage of smoke detectors and wet pipe sprinklers designed as a fire propagation barrier in the opening between this zone and area 2203 between column line R19 and approximately column line R23. Actuation of either the detection or suppression system results in both local and MCR alarms, which ensures prompt response by the plant fire brigade. In addition, the zone is equipped with hose stations and portable CO<sub>2</sub> fire extinguishers for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

In the event of design basis fire, early detection may not occur unless the fire initially developed in the northeast quadrant, which is equipped with smoke detectors. The automatic reactor building centerline suppression system would prevent the only potential fire propagation into area 2203. The open stairwells accessing zone 2205F and zone 2205R and the open doorways to zone 2205L represent propagation threats. However, a fire is expected to be slow developing, consisting primarily of cable insulation. Due to the low combustible loading and substantial wall construction with limited penetrations, a fire would not be expected to propagate beyond this zone. Propagation of a fire to other zones in this area, in the unlikely event that it does occur, will not affect the ability to achieve safe shutdown.



FIRE ZONE 2205L

This zone is not considered safety related.

DESCRIPTION

Reactor Water Cleanup (RWCU) Heat Exchanger Room  
Unit 2 Reactor Building - el 158 ft

DRAWING NUMBER(S)

H-11834

AREA

1,870 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | Lube oil         |
| Cable               | Cable insulation |
| Class A             | Trash            |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 27,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                              |
|-----------------------------------|------------------------------|
| Actual                            |                              |
| - Walls                           | N-C/NR; W, S-C/NR; E-C, B/NR |
| - Floors, Ceiling or Roof         | Concrete                     |
| - Fixed Openings                  | OD/2203K, 2205I, 2205M       |
| - Penetrations                    | See area 2205 text           |
| - Doors (Fire-rated Class/Zone #) | None                         |

### CONSTRUCTION

The south, west, and east walls are nonrated and are constructed of reinforced concrete except for the removable block shielding on the east wall around the RWCU heat exchangers. The north wall is nonrated, reinforced concrete and steel drywell. The extreme northeast corner of this zone, containing the RWCU pumps, is separated from the balance of the zone by a partial height reinforced concrete shield wall approximately 15 ft high which provides an effective heat shield to prevent propagation within this zone. The ceiling and floor are nonrated, reinforced concrete. There are open doorways which access adjacent zone 2205I, zone 2205M, and area 2203.

### FIRE PROTECTION

This zone contains no detection, automatic suppression, or manual firefighting equipment; however, manual firefighting equipment consisting of hose stations and portable CO<sub>2</sub> fire extinguishers is available in adjacent zone 2205I and adjacent area 2203.

### CONSEQUENCES OF DESIGN BASIS FIRE

Early detection of a fire in this zone is improbable; however, a fire in this zone is unlikely due to the negligible combustible loading. Propagation of a fire will not occur through the openings to zones 2203K and 2205I since the sprinkler systems in zones 2203K and 2205I are expected to actuate to prevent propagation. The substantial construction with limited penetrations precludes fire propagation beyond the boundaries of this zone. Propagation of a fire to other zones in this area, in the unlikely event that it does occur, will not affect the ability to achieve safe shutdown.

FIRE ZONE 2205M

This zone is not considered safety related.

DESCRIPTION

Cleanup Phase Separator Room  
Unit 2 Reactor Building - el 158 ft

DRAWING NUMBER(S)

H-11834

AREA

499 ft<sup>2</sup>

COMBUSTIBLES

|                     |         |
|---------------------|---------|
| Oil & Grease        | None    |
| Cable               | None    |
| Class A             | None    |
| Charcoal            | None    |
| Plastics            | Plastic |
| Miscellaneous       | None    |
| Miscellaneous Gases | None    |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                    |
|-----------------------------------|--------------------|
| Actual                            |                    |
| - Walls                           | N, S, E, W-C/NR    |
| - Floors, Ceiling or Roof         | Concrete           |
| - Fixed Openings                  | OD/2205L           |
| - Penetrations                    | See area 2205 text |
| - Doors (Fire-rated Class/Zone #) | None               |

### CONSTRUCTION

The north, south, east, and west walls of the zone are nonrated, reinforced concrete. Access to the zone is via an open doorway from zone 2205L in the east wall. Credit is taken for the substantial concrete construction of the north wall to provide separation of the north and south halves of the reactor building per an approved Appendix R exemption (see area 2205 text). The floor and ceiling are nonrated, reinforced concrete. See area 2205 for penetrations.

### FIRE PROTECTION

The zone contains no automatic fire suppression, detection, or manual firefighting equipment. In the unlikely event of a fire in this zone, there is manual firefighting equipment consisting of portable CO<sub>2</sub> fire extinguishers and hose stations in zone 2205I, which can be accessed through adjacent zone 2205L. A hose stream can be provided to this zone using multiple lengths of fire hose.

### CONSEQUENCES OF DESIGN BASIS FIRE

The only fire postulated for this zone would involve controlled amounts of transient combustibles. In the unlikely event of a significant fire due to the introduction of transient combustibles, the open doorway in the east wall creates a fire propagation hazard to adjacent zone 2205L. However, due to the lack of fixed combustibles, the absence of any intervening combustibles in the adjacent zone, and the extremely substantial construction of the balance of the zone boundaries, propagation of a fire outside of this zone is precluded.

FIRE ZONE 2205N

This zone is considered safety related.

DESCRIPTION

Chiller Room  
Unit 2 Reactor Building

DRAWING NUMBER(S)

H-11834

AREA

4,204 ft<sup>2</sup>

COMBUSTIBLES

|                     |                          |
|---------------------|--------------------------|
| Oil & Grease        | Lube oil                 |
| Cable               | Cable insulation         |
| Class A             | Wood, tape (cloth), rags |
| Charcoal            | None                     |
| Plastics            | Plastic, ladders         |
| Miscellaneous       | Rubber                   |
| Miscellaneous Gases | None                     |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 108,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 3 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | Preaction (FC) (see section 7.0) |
| Hose Stations          | H <sub>2</sub> O                 |
| Portable Extinguishers | None                             |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                                          |
|-----------------------------------|------------------------------------------|
| Actual                            |                                          |
| - Walls                           | N,W, S-C/3; E-C/3, NR, C/NR around 2205H |
| - Floors, Ceiling or Roof         | Concrete                                 |
| - Fixed Openings                  | None                                     |
| - Penetrations                    | See area 2205 text                       |
| - Doors (Fire-rated Class/Zone #) | A/2203                                   |

### CONSTRUCTION

All the walls with the exception of the east wall south of column line R21 and the west wall around zone 2205H are reinforced concrete and are 3-h rated. There is a fire-rated Class A double door in the north wall to area 2203. The floor and ceiling are nonrated, reinforced concrete. The main steam line passage, a part of fire zone 2205H, is located on the west side of this zone enclosed by nonrated concrete walls. See area 2205 for penetrations.

### FIRE PROTECTION

The zone is equipped with a preaction sprinkler suppression system activated by smoke detectors which provide an early warning alarm both locally and in the MCR. In addition, a hose station is provided in this zone for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

The smoke detectors in this zone provide an early warning alarm both locally and in the MCR to ensure prompt response by the plant fire brigade. The preaction suppression system is sufficient to extinguish the fire; however, if this system were to fail, the available manual firefighting equipment is adequate to extinguish the fire. Due to the low combustible loading and substantial or rated construction of the zone boundaries, the fire is not expected to propagate outside of the zone. In the unlikely event that propagation occurs, only other zones of area 2205 will be affected and no adverse impact on the ability to achieve safe shutdown will result.

FIRE ZONE 2205Q

This zone is considered safety related.

DESCRIPTION

Standby Gas Filter Room  
Unit 2 Reactor Building - el 185 ft

DRAWING NUMBER(S)

H-11835

AREA

1,636 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | Charcoal         |
| Plastics            | PVC, ladders     |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                    |
|------------------------|------------------------------------|
| Suppression (type)     | Water spray (PC) (see section 7.0) |
| Hose Stations          | None                               |
| Portable Extinguishers | None                               |
| Detectors (type)       | Heat det (PC) (see section 7.0)    |

FIRE RESISTANCE RATING

|                                   |                     |
|-----------------------------------|---------------------|
| Actual                            |                     |
| - Walls                           | N, E, S-C/NR; W-C/3 |
| - Floors, Ceiling or Roof         | Concrete            |
| - Fixed Openings                  | OP/2205R            |
| - Penetrations                    | See area 2205 text  |
| - Doors (Fire-rated Class/Zone #) | 2-NR/2205T          |

### CONSTRUCTION

The north, east, and south walls are nonrated, reinforced concrete. The east wall contains an opening to adjacent zone 2205R. The west wall is reinforced concrete and is 3-h rated. The floor and ceiling are nonrated, reinforced concrete. There are two nonrated double doors to zone 2205T. See area 2205 for penetrations.

### FIRE PROTECTION

This zone is equipped with heat detectors and manually activated fixed water spray suppression systems in the standby gas filters. No manual firefighting equipment is provided for this zone. However, a portable CO<sub>2</sub> fire extinguisher is available in adjacent zone 2205T and multiple hose lengths using the hose station in zone 2203I provide an effective hose stream. Activation of the detection system provides alarms, both locally and in the MCR to ensure prompt response by the plant fire brigade.

### CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire is postulated to be slow developing, consisting primarily of charcoal and IEEE-383 cable insulation. The charcoal is concentrated in the HVAC filters which are equipped with heat detection and manually activated suppression systems; therefore, fire propagation is unlikely. In the event of a design basis fire in the zone, the detection system in the filters would provide early warning alarms in the local area and in the MCR to assure prompt response by the plant fire brigade. The fire brigade will initiate the water spray system in the filter unit to suppress the fire. Low combustible loading, the installed detection, and substantial construction preclude fire propagation beyond the boundaries of this zone.



FIRE ZONE 2205R

This zone is not considered safety related.

DESCRIPTION

Working Floor South RB-185  
Unit 2 Reactor Building - el 185 ft

DRAWING NUMBER(S)

H-11835

AREA

5,915 ft<sup>2</sup>

COMBUSTIBLES

|                     |                               |
|---------------------|-------------------------------|
| Oil & Grease        | None                          |
| Cable               | Cable insulation              |
| Class A             | Wood, trash, clothing         |
| Charcoal            | None                          |
| Plastics            | Plastic, respirators, ladders |
| Miscellaneous       | Rubber                        |
| Miscellaneous Gases | None                          |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 49,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                  |
|------------------------|------------------|
| Suppression (type)     | None             |
| Hose Stations          | H <sub>2</sub> O |
| Portable Extinguishers | CO <sub>2</sub>  |
| Detectors (type)       | None             |

FIRE RESISTANCE RATING

|                                   |                             |
|-----------------------------------|-----------------------------|
| Actual                            |                             |
| - Walls                           | N-C/NR, Open; E, W, S-C/NR  |
| - Floors, Ceiling or Roof         | Concrete                    |
| - Fixed Openings                  | OP/2205Q, S, U; OS/2205I, Y |
| - Penetrations                    | See area 2205 text          |
| - Doors (Fire-rated Class/Zone #) | None                        |

### CONSTRUCTION

The east, west, and south walls are reinforced concrete and are nonrated. The west wall contains an opening to zone 2205Q. The north end of this zone is partially bounded by the drywell (nonrated steel and concrete, exempted barrier) and is open on the east and west side along column line R19 to zones 2205S and 2205U. The floor and ceiling are nonrated, reinforced concrete. There is one open stairwell which accesses zones 2205I below and 2205Y above. See area 2205 for penetrations.

### FIRE PROTECTION

The zone is not equipped with any detection or suppression systems; however, the north boundary borders the wet pipe sprinkler coverage for the north reactor building. The zone is provided with hose stations and portable CO<sub>2</sub> fire extinguishers for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire is postulated to be a slow developing fire consisting primarily of fire retardant, IEEE-383 qualified cable insulation and Class A materials. Propagation of the fire to adjacent zones 2205S and 2205U is precluded by the wet pipe suppression system in these zones. The substantial construction with limited penetrations and the low combustible loading make it unlikely for a fire to propagate to any other adjacent zones. The only potential propagation path through the floor or ceiling is the open stairwell. Due to the low fire loading, this is credible but unlikely. The manual firefighting equipment in the zone is adequate to extinguish the fire. Propagation of a fire to other zones in this area, in the unlikely event that it does occur, will not affect the ability to achieve safe shutdown.

FIRE ZONE 2205S

This zone is not considered safety related.

DESCRIPTION

Working Floor North

Unit 2 Reactor Building - el 185 ft

DRAWING NUMBER(S)

H-11835

AREA

3,292 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | Ladders          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                 |
|------------------------|---------------------------------|
| Suppression (type)     | Wet pipe (FC) (see section 7.0) |
| Hose Stations          | H <sub>2</sub> O                |
| Portable Extinguishers | CO <sub>2</sub>                 |
| Detectors (type)       | None                            |

FIRE RESISTANCE RATING

|                                   |                                    |
|-----------------------------------|------------------------------------|
| Actual                            |                                    |
| - Walls                           | N, E-C/NR; S-Open; W-C/NR          |
| - Floors, Ceiling or Roof         | Concrete                           |
| - Fixed Openings                  | OP/2205R; OH/2203, 2205Y; OD/2205W |
| - Penetrations                    | See area 2205 text                 |
| - Doors (Fire-rated Class/Zone #) | None                               |

### CONSTRUCTION

The north and east walls are reinforced concrete and are nonrated. The north wall is adjacent to the Unit 1 reactor building 3-h-rated, reinforced concrete wall. The south boundary of this zone along column line R19 is open to zone 2205R. The west wall is nonrated, reinforced concrete and steel fuel pool and drywell walls. There is a large equipment hatch which accesses zones 2205K below and 2205Y above. The west wall has an open doorway which accesses zone 2205W. The floor and ceiling are nonrated, reinforced concrete. See area 2205 for penetrations.

### FIRE PROTECTION

The zone is equipped with full coverage wet pipe sprinklers designed as part of the reactor building centerline suppression system. The portion of the zone around the hatch is equipped with a high density ring of fixed spray heads. The combination of suppression is intended to prevent propagation of a fire, either up or down, through the floor or hatch. No early warning fire detection system is provided in this zone. Activation of the suppression system provides an alarm both locally and in the MCR to ensure prompt response by the plant fire brigade. In addition, a hose station and a portable CO<sub>2</sub> fire extinguisher are provided for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

In the event of a design basis fire, actuation of the suppression systems in the zone will result in both local and MCR alarms to ensure prompt response by the plant fire brigade. The construction is substantial and the expected fire severity is sufficiently low to preclude fire propagation to adjacent zones 2505W and 2205R. The open equipment hatch and open hallway pose some threat of propagation to area 2203 and zone 2205Y and to zone 2205R, respectively. Propagation to zone 2205R or 2205Y is acceptable since both zones rely on path 1 for safe shutdown. However, the installed full coverage suppression system is expected to rapidly extinguish any fire which might occur. The automatic high density suppression system around the equipment hatch is designed to preclude propagation of a design basis fire through the hatch in either direction. Propagation is therefore not expected to occur. The manual firefighting equipment provided in this zone is adequate to extinguish any fire which may occur.

FIRE ZONE 2205T

This zone is considered safety related.

DESCRIPTION

Heating and Ventilation Room  
Unit 2 Reactor Building - el 185 ft

DRAWING NUMBER(S)

H-11835

AREA

2,082 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | Trash            |
| Charcoal            | Charcoal         |
| Plastics            | None             |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                    |
|------------------------|------------------------------------|
| Suppression (type)     | Water spray (PC) (see section 7.0) |
| Hose Stations          | None                               |
| Portable Extinguishers | CO <sub>2</sub>                    |
| Detectors (type)       | Heat det (PC) (see section 7.0)    |

FIRE RESISTANCE RATING

|                                   |                     |
|-----------------------------------|---------------------|
| Actual                            |                     |
| - Walls                           | W, N-C/3; E, S-C/NR |
| - Floors, Ceiling or Roof         | Concrete            |
| - Fixed Openings                  | None                |
| - Penetrations                    | See area 2205 text  |
| - Doors (Fire-rated Class/Zone #) | A/2203I; 2-NR/2205Q |

### CONSTRUCTION

The north and west walls are reinforced concrete and are 3-h rated. The east and south walls are nonrated, reinforced concrete. There is a fire-rated Class A double door in the north wall accessing area 2203. The south wall is provided with two nonrated double doors accessing zone 2205Q. The floor and ceiling are nonrated, reinforced concrete. See area 2205 for penetrations.

### FIRE PROTECTION

The zone is equipped with a heat detection system in the filter unit, which alarms both locally and in the MCR to ensure prompt response by the plant fire brigade. In addition, a portable CO<sub>2</sub> fire extinguisher is provided for manual firefighting. A hose station is available in adjacent area 2203.

### CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire is postulated to be a slow developing fire consisting primarily of charcoal and cable insulation. The charcoal is concentrated in the reactor building vent filter which is equipped with heat detection and water spray systems. In the event of a design basis fire in the zone, the detection system in the filters would provide early warning alarms in the local area and in the MCR to assure prompt response by the plant fire brigade. The fire brigade will initiate the water spray system in the filter unit to suppress the fire. The water spray systems are specifically designed for extinguishing this type of fire. In the event the water spray system fails, prompt response by the plant fire brigade utilizing the manual firefighting equipment available could extinguish or contain a fire in this zone. The installed detection and suppression systems, the substantial wall construction with limited penetrations, and the low combustible loading preclude fire propagation outside this zone.

FIRE ZONE 2205U

This zone is considered to be safety related.

DESCRIPTION

Northwest Corridor

Unit 2 Reactor Building - el 185 ft

DRAWING NUMBER(S)

H-11835

AREA

534 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | Ladders          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                 |
|------------------------|---------------------------------|
| Suppression (type)     | Wet pipe (FC) (see section 7.0) |
| Hose Stations          | None                            |
| Portable Extinguishers | CO <sub>2</sub>                 |
| Detectors (type)       | None                            |

FIRE RESISTANCE RATING

|                                   |                                   |
|-----------------------------------|-----------------------------------|
| Actual                            |                                   |
| - Walls                           | N-C/NR; S-open; E-C/NR; W-C/3, NR |
| - Floors, Ceiling or Roof         | Concrete                          |
| - Fixed Openings                  | OP/2205R                          |
| - Penetrations                    | See area 2205 text                |
| - Doors (Fire-rated Class/Zone #) | A/2203                            |

### CONSTRUCTION

The north, east, and west walls are nonrated, reinforced concrete with the exception of the portion of the west wall north of column line R15, which is 3-h rated. The north wall is adjacent to the Unit 1 reactor building 3-h-rated, reinforced concrete wall and the east wall consists of the drywell and fuel pool walls which are substantial nonrated, reinforced concrete and steel. The south end of this zone is open to zone 2205R. The ceiling and floor are nonrated, reinforced concrete. There is one fire-rated Class A door in the west wall to area 2203. See area 2205 for penetrations.

### FIRE PROTECTION

The zone contains no fire detection system, but is equipped with full coverage automatic wet pipe suppression designed as a part of the reactor building centerline suppression system. Actuation of the suppression system provides both local and MCR alarms. A portable CO<sub>2</sub> fire extinguisher is provided in this zone and a hose station is available in adjacent area 2203 for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire is postulated to be slow developing, consisting primarily of IEEE-383 qualified cable insulation. The open south end of the zone to zone 2205R presents the greatest threat of fire propagation; however, the low combustible loading and lack of intervening combustibles in this zone significantly reduce the hazard of fire propagation. Actuation of the suppression system in this zone will provide both local and MCR alarms, which ensure prompt response by the plant fire brigade. The substantial wall construction with limited penetrations and the reactor building centerline suppression system are capable of suppressing or containing a fire within the zone. Propagation of a fire to adjacent zones in this area will not affect the capability to achieve safe shutdown or result in a significant release of radioactivity.



FIRE\_ZONE 2205V

This zone is considered safety related.

DESCRIPTION

Exhaust Filter and Demineralizer Room  
Unit 2 Reactor Building - el 203 ft

DRAWING NUMBER(S)

H-11836

AREA

4,418 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | Charcoal         |
| Plastics            | Ladders          |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                    |
|------------------------|------------------------------------|
| Suppression (type)     | Water spray (PC) (see section 7.0) |
| Hose Stations          | H <sub>2</sub> O                   |
| Portable Extinguishers | CO <sub>2</sub>                    |
| Detectors (type)       | Heat det (PC) (see section 7.0)    |

FIRE RESISTANCE RATING

|                                   |                     |
|-----------------------------------|---------------------|
| Actual                            |                     |
| - Walls                           | S, E-C/NR; N, W-C/3 |
| - Floors, Ceiling or Roof         | Concrete            |
| - Fixed Openings                  | None                |
| - Penetrations                    | See area 2205 text  |
| - Doors (Fire-rated Class/Zone #) | A/2203              |

### CONSTRUCTION

The east and south walls are nonrated, reinforced concrete. The west and north walls are reinforced concrete and are 3-h rated. There is a fire-rated Class A door in the north wall accessing area 2203. The floor and ceiling are nonrated, reinforced concrete. See area 2205 for penetrations.

### FIRE PROTECTION

Heat detection and an automatic water spray suppression system are provided for each filter unit in the zone. Activation of the detection system results in an alarm, both locally and in the MCR. In addition, a hose station is provided for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

The majority of the combustibles in this zone are concentrated in the filters (charcoal). In the event of a design basis fire in the zone, the detection system in the filters would provide early warning alarms to assure prompt response by the plant fire brigade. The fire brigade will initiate the water spray system in the filter unit to suppress the fire. The filter water spray systems are expected to rapidly extinguish the fire and prevent propagation outside of the filter units. The low fire loading, likelihood of early detection, available automatic suppression, and the lack of intervening combustibles preclude propagation of the fire to adjacent areas or zones.

FIRE ZONE 2205W

This zone is considered safety related.

DESCRIPTION

Area North of Spent Fuel Pit  
Unit 2 Reactor Building - el 185 ft

DRAWING NUMBER(S)

H-11835, H-11836

AREA

630 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                      |
|-------------------------------------|----------------------|
| Actual                              |                      |
| - Walls                             | N, E-C/NR; S, W-C/NR |
| - Floors, Ceiling, or Roof          | Concrete             |
| - Fixed Openings                    | OD/2205S             |
| - Penetrations                      | See text             |
| - Doors (Fire-rated Class/Zone no.) | None                 |

### CONSTRUCTION

All zone walls are nonrated, reinforced concrete. The north wall is adjacent to the Unit 1 reactor building 3-h-rated wall and the south and west walls consist of fuel pool exterior walls substantially constructed of concrete and steel. The east wall has an open doorway accessing zone 2205S. The floor and ceiling are nonrated, reinforced concrete. See area 2205 for penetrations.

### FIRE PROTECTION

This zone is not equipped with a detection or suppression system. However, a hose station and a portable CO<sub>2</sub> fire extinguisher are available in zone 2205S for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible materials. The only fire postulated for this zone would involve controlled amounts of transient combustibles. The negligible fire loading, substantial construction, and lack of intervening combustibles in the vicinity of the open doorway preclude propagation of the design basis fire beyond the boundaries of this zone. The available firefighting equipment in adjacent zone 2205S is adequate to extinguish a fire which may result from the introduction of the transient combustibles to this zone.

FIRE ZONE 2205X

This zone is considered safety related.

DESCRIPTION

Stack Monitoring Room  
Unit 2 Reactor Building - el 203 ft

DRAWING NUMBER(S)

H-11836

AREA

1,017 ft<sup>2</sup>

COMBUSTIBLES

|                     |            |
|---------------------|------------|
| Oil & Grease        | None       |
| Cable               | None       |
| Class A             | Wood, rags |
| Charcoal            | None       |
| Plastics            | Plastic    |
| Miscellaneous       | Rubber     |
| Miscellaneous Gases | None       |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                  |
|------------------------|------------------|
| Suppression (type)     | None             |
| Hose Stations          | H <sub>2</sub> O |
| Portable Extinguishers | None             |
| Detectors (type)       | None             |

FIRE RESISTANCE RATING

|                                   |                              |
|-----------------------------------|------------------------------|
| Actual                            |                              |
| - Walls                           | N, S-C/NR; E-C/NR; W-C/3, NR |
| - Floors, Ceiling or Roof         | Concrete                     |
| - Fixed Openings                  | None                         |
| - Penetrations                    | See area 2205 text           |
| - Doors (Fire-rated Class/Zone #) | A/2203                       |

### CONSTRUCTION

The north, east, and south walls are nonrated, reinforced concrete. The north wall is adjacent to the 3-h-rated Unit 1 reactor building wall and the east wall consists of the substantial concrete and steel fuel pool and drywell walls. The west wall is 3-h-rated, reinforced concrete adjacent to area 2203 and nonrated concrete elsewhere. The west wall has a fire-rated Class A double door accessing area 2203. The floor and ceiling are nonrated, reinforced concrete. See area 2205 for penetrations.

### FIRE PROTECTION

This zone is not equipped with a detection or suppression system; however, there is a hose station in this zone and a portable CO<sub>2</sub> fire extinguisher is available in adjacent area 2203 for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustibles. The low fire loading and substantial construction of the concrete walls preclude the propagation of the design basis fire beyond the boundaries of this zone. The available firefighting equipment in this zone and in adjacent area 2203 is adequate to extinguish the fire.

FIRE ZONE 2205Y

This zone is considered safety related.

DESCRIPTION

Working Floor

Unit 2 Reactor Building - el 203 ft and 228 ft

DRAWING NUMBER(S)

H-11836, H-11837

AREA

7,286 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                    |
|---------------------|------------------------------------|
| Oil & Grease        | None                               |
| Cable               | Cable insulation                   |
| Class A             | Wood, paper, clothing, trash, rags |
| Charcoal            | None                               |
| Plastics            | Plastic, ladders                   |
| Miscellaneous       | Rubber                             |
| Miscellaneous Gases | None                               |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 39,400 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                  |
|------------------------|------------------|
| Suppression (type)     | None             |
| Hose Stations          | H <sub>2</sub> O |
| Portable Extinguishers | CO <sub>2</sub>  |
| Detectors (type)       | None             |

FIRE RESISTANCE RATING

|                                   |                                                      |
|-----------------------------------|------------------------------------------------------|
| Actual                            |                                                      |
| - Walls                           | N, S, E-C/NR; W-C, S/NR, C/NR Walls around stairwell |
| - Floors, Ceiling or Roof         | Concrete                                             |
| - Fixed Openings                  | OH/2205S; OS/2205R; CH, SD/0201                      |
| - Penetrations                    | See area 2205 text                                   |
| - Doors (Fire-rated Class/Zone #) | NR/0201                                              |

### CONSTRUCTION

All the zone walls are reinforced concrete and nonrated. The north wall is adjacent to the 3-h-rated Unit 1 reactor building wall. The west wall consists of the nonrated but substantially constructed dryer/separator pool, the drywell, and the refuel pool walls. The remaining walls are reactor building exterior walls. The floor is nonrated, reinforced concrete with an open stairwell down to zone 2205R. There is also an open hatch down to zone 2205S. The ceiling is nonrated, reinforced concrete with an open stairwell and a closed hatch up to area 0201. The ceiling consists of the refueling floor, a part of secondary containment which assures that all penetrations in the ceiling are closed and airtight sealed. See area 0201 for an evaluation of this area boundary. The stairwell is enclosed in a block "doghouse" on the 228-ft elevation with a nonrated door.

### FIRE PROTECTION

There are no detection or automatic suppression systems in this zone. Manual firefighting equipment consists of hose stations and portable CO<sub>2</sub> fire extinguishers.

### CONSEQUENCES OF DESIGN BASIS FIRE

Due to extremely substantial construction of the zone boundaries, the only credible propagation paths for a design basis fire in this zone are through the open stairwell and hatches. All of the combustibles in this zone are concentrated toward the center of the zone, away from these potential propagation paths. Propagation up through the stairwell to area 0201 is not considered credible as discussed in the text for area 0201. Propagation down through the hatches and stairwells is unlikely due to the lack of intervening combustibles. In the event that propagation does occur through the hatch or stairwell in the north part of this zone, actuation of the hatch water spray system and/or general area wet pipe sprinklers on the 185-ft elevation is expected. Actuation of these suppression systems will provide both local and MCR alarms to ensure prompt response by the plant fire brigade. Propagation through these openings or the stairwell in the south part of the zone will affect only other zones of area 2205 which assures damage to only one safe shutdown path.



FIRE ZONE 2205Z

This zone is considered safety related.

DESCRIPTION

HPCI Pump Room

Unit 2 Reactor Building - Elevation below 130 ft

DRAWING NUMBER(S)

H-11832

AREA

1,361 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | Lube oil         |
| Cable               | Cable insulation |
| Class A             | Clothing, trash  |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                 |
|------------------------|---------------------------------|
| Suppression (type)     | Wet pipe (FC) (see section 7.0) |
| Hose Stations          | H <sub>2</sub> O                |
| Portable Extinguishers | CO <sub>2</sub>                 |
| Detectors (type)       | None                            |

FIRE RESISTANCE RATING

|                                   |                     |
|-----------------------------------|---------------------|
| Actual                            |                     |
| - Walls                           | N, E-C/NR; S, W-C/3 |
| - Floors, Ceiling or Roof         | Concrete            |
| - Fixed Openings                  | CH/Outside          |
| - Penetrations                    | See area 2205 text  |
| - Doors (Fire-rated Class/Zone #) | W/2205B             |

### CONSTRUCTION

The south and west walls are below grade, concrete reactor building exterior walls and are 3-h-rated fire barriers. The north and east walls are reinforced concrete and nonrated. The floor and ceiling are reinforced concrete and nonrated. There is one nonrated door in the north wall which accesses zone 2205B. A concrete hatch in the ceiling accesses the outside. See area 2205 for penetrations.

### FIRE PROTECTION

This zone is not equipped with any early warning fire detection system. A full coverage wet-pipe sprinkler suppression system is provided in this zone. Actuation of the suppression system results in an alarm both locally and in the main control room. In addition, a hose station and a portable CO<sub>2</sub> fire extinguisher are provided for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

The only credible propagation of the design basis fire is through the north wall of this zone. This propagation is acceptable since only other zones of area 2205 would be damaged, thereby limiting fire damage to one safe shutdown path. In the event of a design basis fire, the substantial or rated wall construction coupled with the limited number of penetrations would limit the potential for fire propagation to adjacent areas or zones. The wet pipe sprinkler system is expected to activate during a fire, alarming both locally and in the MCR to ensure prompt response by the plant fire brigade. The manual firefighting equipment provided is adequate to control a fire in the zone.

FIRE AREA 2210

This area is considered safety related.

DESCRIPTION

Recirculation ASD Room A  
Unit 2 Reactor Building - el 158 ft

DRAWING NUMBER(S)

H-11834

AREA

1,406 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Cable               | Cable insulation |
| Class A             | Paper            |
| Charcoal            | None             |
| Plastics            | PVC              |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                 |
|------------------------|---------------------------------|
| Suppression (type)     | Wet pipe (FC) (see section 7.0) |
| Hose Stations          | None                            |
| Portable Extinguishers | None                            |
| Detectors (type)       | None                            |

FIRE RESISTANCE RATING

|                           |              |
|---------------------------|--------------|
| Actual                    |              |
| - Walls                   | E, N-C/NR; S |
| - Floors, Ceiling or Roof | Concrete     |
| - Fixed Openings          | None         |
| - Penetrations            | See text     |

### CONSTRUCTION

The north and east walls are reinforced concrete and are nonrated. The north wall is adjacent to the 3-h-rated Unit 1 reactor building wall and the east wall is substantial Unit 2 reactor building exterior wall. The ceiling is 3-h-rated reinforced concrete. The floor is reinforced concrete and is nonrated.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

A full coverage wet pipe suppression system is provided in the area. Activation of the system results in an alarm both locally and in the MCR. The area contains no manual firefighting equipment. However, a hose station and portable CO<sub>2</sub> fire extinguishers are available in adjacent area 2203.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

The local and MCR alarms resulting from suppression system actuation will ensure prompt response by the plant fire brigade. In the event of a suppression system failure, the rated construction will preclude the possibility of fire propagation. The available manual firefighting equipment in adjacent area 2203 is adequate to extinguish the fire. A fire in this area will not affect the capability to achieve and maintain safe shutdown or result in a significant release of radioactivity.

FIRE AREA 2211

This area is considered safety related.

DESCRIPTION

Recirculation ASD Room B  
Unit 2 Reactor Building - el 158 ft

DRAWING NUMBER(S)

H-11834

AREA

1,684 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Cable               | Cable insulation |
| Class A             | Paper, trash     |
| Charcoal            | None             |
| Plastics            | PVC              |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                 |
|------------------------|---------------------------------|
| Suppression (type)     | Wet pipe (FC) (see section 7.0) |
| Hose Stations          | None                            |
| Portable Extinguishers | None                            |
| Detectors (type)       | None                            |

FIRE RESISTANCE RATING

|                           |                  |
|---------------------------|------------------|
| Actual                    |                  |
| - Walls                   | N-C/NR; W-C/3; E |
| - Floors, Ceiling or Roof | Concrete         |
| - Fixed Openings          | None             |
| - Penetrations            | See text         |

### CONSTRUCTION

The north wall is reinforced concrete reactor building exterior and is nonrated, but is adjacent to the Unit 1 reactor building 3-h-rated wall. The ceiling is 3-h-rated, reinforced concrete. The floor is reinforced concrete and is nonrated.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

A full coverage wet pipe suppression system is provided in the area. Activation of the system results in an alarm both locally and in the MCR. The area contains no manual firefighting equipment. However, a hose station and portable CO<sub>2</sub> fire extinguishers are available in adjacent area 2203.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

The local and MCR alarms resulting from suppression system actuation will ensure prompt response by the plant fire brigade. In the event of a suppression system failure, the substantial or rated construction of the area boundaries precludes propagation of the fire. A fire in this area will not affect the capability to achieve and maintain safe shutdown or result in a significant release of radioactivity.

FIRE AREA 2301

This area is not considered safety related.

DESCRIPTION

Unit 2 Radwaste Building  
Radwaste Building - All elevations

DRAWING NUMBER(S)

H-11842, H-11843, H-11844

AREA

39,708 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                                                                     |
|---------------------|-------------------------------------------------------------------------------------|
| Oil & Grease        | Lube oil, gasoline                                                                  |
| Cable               | Cable insulation                                                                    |
| Class A             | Clothing, trash, paper, rags, wood, tape<br>(cloth), pallets, plank, desks, plywood |
| Charcoal            | Charcoal                                                                            |
| Plastics            | Plastic, ladders                                                                    |
| Miscellaneous       | Rubber, resin, solvent, EHC fluid                                                   |
| Miscellaneous Gases | None                                                                                |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                                 |
|------------------------|-------------------------------------------------|
| Suppression (type)     | Wet pipe; Water spray (PC) (see<br>section 7.0) |
| Hose Stations          | H <sub>2</sub> O                                |
| Portable Extinguishers | CO <sub>2</sub>                                 |
| Detectors (type)       | Smoke det; Heat det (PC) (see section 7.0)      |

FIRE RESISTANCE RATING

|                                     |                                   |
|-------------------------------------|-----------------------------------|
| Actual                              |                                   |
| - Walls                             | N,S,E-C/NR;W-C/3,S/NR @ 2301Z     |
| - Floors, Ceiling, or Roof          | Concrete                          |
| - Fixed Openings                    | CH/Outside; OP/Outside            |
| - Penetrations                      | See text                          |
| - Doors (Fire-rated Class/Zone no.) | 2-A/0101;A/2101,2205;8-NR/Outside |

## CONSTRUCTION

All the walls are nonrated, reinforced concrete with the exception of the west wall which is 3-h rated. The north wall is adjacent to the 3-h-rated reactor building wall. The floor and ceiling are nonrated, reinforced concrete. There are four fire-rated Class A doors; one communicates with each fire area 2205 and 2101, and two communicate with fire area 0101. There are nonrated doors to the outside including two double doors in the south wall, three nonrated steel hatch doors in the south wall, a vault door in the east wall at el 130 ft, a door to the radwaste building roof at el 148 ft, and a door to the roof at el 178 ft.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

## FIRE PROTECTION

This area is equipped with smoke detection in the radwaste control room (RCR) which provides both local and main control room (MCR) alarms to ensure prompt response by the plant fire brigade. The exhaust filters are equipped with a heat detector actuated water spray suppression system. The dry waste storage area is covered with a wet pipe sprinkler system. Manual firefighting equipment consists of hose stations and portable CO<sub>2</sub> fire extinguishers throughout the area.

## APPENDIX "R" EXEMPTIONS

None.

## CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire for this area may propagate among zones of the area through the open and nonrated zone boundaries, particularly in the few places where local concentrations of combustibles are located near openings between zones. This propagation is acceptable within the area since no safe shutdown circuits or components are located in the area. The effects of a fire on the radwaste systems have been previously analyzed as described in the Unit 2 FSAR. No significant radioactive releases were determined to result from exposure of these systems to fire. All radwaste building exterior walls are approximately 2 ft thick. The design basis fire is not considered capable of breaching these area boundaries. In addition, all sections of this area that contain specific fire hazards (charcoal filters) or high concentrations of combustibles (dry waste storage area, RCR) are equipped with detection, suppression, or both. The combustible loading in many zones is negligible and is very low throughout the area. Although the internal walls are nonrated and contain openings between zones, they are of substantial, reinforced concrete construction. Actuation of any of the detection or suppression systems, expected to occur in the incipient stages of a fire, will provide both local and MCR alarms to ensure prompt response by the plant fire brigade. The available manual firefighting equipment is adequate to extinguish any fire which might occur. Therefore, propagation of a fire among zones is considered unlikely; propagation outside of the area is not credible. A fire in this area will not affect the capability to achieve or maintain safe shutdown or result in a significant release of radioactivity.



FIRE ZONE 2301A

This zone is not considered safety related.

DESCRIPTION

Condensate Sludge Mix Pump Room  
Radwaste Building - el 103 ft

DRAWING NUMBER(S)

H-11842

AREA

5,444 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | Clothing, trash  |
| Charcoal            | None             |
| Plastics            | None             |
| Miscellaneous       | Rubber           |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 56,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                  |
|------------------------|------------------|
| Suppression (type)     | None             |
| Hose Stations          | H <sub>2</sub> O |
| Portable Extinguishers | CO <sub>2</sub>  |
| Detectors (type)       | None             |

FIRE RESISTANCE RATING

|                                     |                                    |
|-------------------------------------|------------------------------------|
| Actual                              |                                    |
| - Walls                             | N,S,E-C/NR:W-C/3                   |
| - Floors, Ceiling or Roof           | Concrete                           |
| - Fixed Openings                    | OD/2301B,C,D,E,F,G,H,I;OH,OS/2301J |
| - Penetrations                      | See area 2301 text                 |
| - Doors (Fire-rated Class/Zone No.) | A/2101                             |

### CONSTRUCTION

The north, south and east walls are nonrated reinforced concrete. The west wall is a 3-h-rated, reinforced concrete wall separating this zone from the turbine building (area 2101). Open doorways in the north wall provide access to zones 2301B and 2301C. There are open doorways to zones 2301D, 2301I, and 2301H in the east wall and to zones 2301E, 2301F, and 2301G in the south wall. 11 fire-rated Class A door is provided in the west wall at the 112-ft elevation connecting this zone with the turbine building (area 2101). The floor and ceiling are reinforced concrete. See area 2301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with detection or automatic suppression systems. However, hose stations and portable CO<sub>2</sub> fire extinguishers are provided for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains low loading of combustible materials. The low fire loading and substantial construction makes propagation of the fire to adjacent zones unlikely. The available manual firefighting equipment in the zone is adequate to extinguish the fire. Propagation of a fire to other zones in this area, in the unlikely event that it does occur, will not affect the ability to achieve safe shutdown.

FIRE ZONE 2301B

This zone is not considered safety related.

DESCRIPTION

Condensate Phase Separator  
Unit 2 Radwaste Building - el 103 ft

DRAWING NUMBER(S)

H-11842

AREA

1,045 ft<sup>2</sup>

COMBUSTIBLES

|                     |         |
|---------------------|---------|
| Oil & Grease        | None    |
| Cable               | None    |
| Class A             | None    |
| Charcoal            | None    |
| Plastics            | Plastic |
| Miscellaneous       | Rubber  |
| Miscellaneous Gases | None    |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N,S,E-C/NR;W-C/3   |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | OD/2301A           |
| - Penetrations                      | See area 2301 text |
| - Doors (Fire-rated Class/Zone No.) | None               |

### CONSTRUCTION

The west wall of this zone is a 3-h-rated, reinforced concrete. The north, east, and south walls are nonrated, reinforced concrete. The north wall is adjacent to the 3-h-rated Unit 2 reactor building wall. The floor and ceiling are nonrated, reinforced concrete. Open doorways in the south wall provide access to zone 2301A. See area 2301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with any detection or automatic suppression system. The zone is not provided with any manual firefighting equipment; however, hose stations and portable CO<sub>2</sub> fire extinguishers are provided in adjacent zone 2301A for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible materials. The negligible fire loading and the substantial construction preclude propagation of the design basis fire beyond the boundaries of this zone. The available firefighting equipment in adjacent zone 2301A is adequate to extinguish the fire in this zone. Propagation of a fire to other zones in this area, in the unlikely event that it does occur, will not affect the ability to achieve safe shutdown.

FIRE ZONE 2301C

This zone is not considered safety related.

DESCRIPTION

Oil Skimmer Room

Unit 2 Radwaste Building - el 103 ft

DRAWING NUMBER(S)

H-11842

AREA

262 ft<sup>2</sup>

COMBUSTIBLES

|                     |             |
|---------------------|-------------|
| Oil & Grease        | None        |
| Cable               | None        |
| Class A             | Paper, rags |
| Charcoal            | None        |
| Plastics            | Plastic     |
| Miscellaneous       | None        |
| Miscellaneous Gases | None        |

ESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N,S,E,W-C/NR       |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | OD/2301A,2301D     |
| - Penetrations                      | See area 2301 text |
| - Doors (Fire-rated Class/Zone No.) | None               |

### CONSTRUCTION

All the walls are nonrated, reinforced concrete. The north wall is adjacent to the Unit 2 reactor building 3-h-rated, reinforced concrete wall. The floor and ceiling are nonrated, reinforced concrete. This zone is accessed from zone 2301A through two open doorways in the south wall. There is an open doorway in the east wall to zone 2301D. See area 2301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with a detection or suppression system. However, hose stations and portable CO<sub>2</sub> fire extinguishers are located in adjacent zone 2301A for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible materials. The low fire loading and substantial construction preclude propagation of the design basis fire beyond the boundaries of this zone. The available firefighting equipment in adjacent zone 2301A is adequate to extinguish the fire. Propagation of a fire to other zones in this area, in the unlikely event that it does occur, will not affect the ability to achieve safe shutdown.

FIRE ZONE 2301D

This zone is not considered safety related.

DESCRIPTION

Floor Drain and Chemical Waste Tank Room  
Unit 2 Radwaste Building - el 103 ft

DRAWING NUMBER(S)

H-11842

AREA

1,088 ft<sup>2</sup>

COMBUSTIBLES

|                     |         |
|---------------------|---------|
| Oil & Grease        | None    |
| Cable               | None    |
| Class A             | Trash   |
| Charcoal            | None    |
| Plastics            | Plastic |
| Miscellaneous       | Rubber  |
| Miscellaneous Gases | None    |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N,S,E,W-C/NR       |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | OD/2301A,C         |
| - Penetrations                      | See area 2301 text |
| - Doors (Fire rated Class/Zone No.) | None               |

### CONSTRUCTION

All the walls are nonrated, reinforced concrete. The north wall is adjacent to the Unit 2 reactor building 3-h-rated, reinforced concrete wall. The floor and ceiling are also nonrated, reinforced concrete. Two open doorways in the west wall access zone 2301A. There is an additional open doorway in the west wall to zone 2301C. See area 2301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with any detection or suppression system. However, hose stations and portable CO<sub>2</sub> fire extinguishers are provided in adjacent zone 2301A for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible materials. The negligible fire loading and substantial construction preclude propagation of the design basis fire beyond the boundaries of this zone. The available firefighting equipment in adjacent zone 2301A is adequate to extinguish the fire. Propagation of a fire to other zones in this area, in the unlikely event that it does occur, will not affect the ability to achieve safe shutdown.



FIRE ZONE 2301E

This zone is not considered safety related.

DESCRIPTION

Decontamination Solution Concentration Pump Tank Room  
Unit 2 Radwaste Building - el 103 ft

DRAWING NUMBER(S)

H-11842

AREA

600 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N,S,E-C/NR;W-C/3   |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | OD/2301A           |
| - Penetrations                      | See area 2301 text |
| - Doors (Fire-rated Class/Zone No.) | None               |

### CONSTRUCTION

The west wall is 3-h-rated, reinforced concrete. The other three walls are nonrated concrete. The floor and ceiling are also nonrated, reinforced concrete. There is an open doorway in the north wall to zone 2301A. See area 2301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with any detection or suppression system. Hose stations and portable CO<sub>2</sub> fire extinguishers are provided in adjacent zone 2301A for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible materials. The only fire postulated for this zone would involve controlled amounts of transient combustibles. The negligible fire loading and substantial construction preclude propagation of the design basis fire beyond the boundaries of this zone. The available firefighting equipment in adjacent zone 2301A is adequate to extinguish any fire which may result from the introduction of the transient combustibles to this zone. Propagation of a fire to other zones in this area, in the unlikely event that it does occur, will not affect the ability to achieve safe shutdown.

FIRE AREA/ZONE 2301F

This zone is not considered safety related.

DESCRIPTION

Chemical Waste Neutralizer Tank and Pump Room  
Unit 2 Radwaste Building - el 103 ft

DRAWING NUMBER(S)

H-11842

AREA

700 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N,S,E,W-C/NR       |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | OD/2301A           |
| - Penetrations                      | See area 2301 text |
| - Doors (Fire-rated Class/Zone No.) | None               |

### CONSTRUCTION

All zone walls are nonrated, reinforced concrete. The floor and ceiling are also nonrated, reinforced concrete. An open doorway in the east wall provides access to zone 2301A. See area 2301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with any detection or suppression system. Hose stations and portable CO<sub>2</sub> fire extinguishers are provided in adjacent zone 2301A for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible materials. The only fire postulated for this zone would involve controlled amounts of transient combustibles. The negligible fire loading and substantial construction preclude propagation of the design basis fire beyond the boundaries of this zone. The available firefighting equipment in adjacent zone 2301A is adequate to extinguish any fire which may result from the introduction of the transient combustibles to this zone. Propagation of a fire to other zones in this area, in the unlikely event that it does occur, will not affect the ability to achieve safe shutdown.

FIRE ZONE 2301G

This zone is not considered safety related.

DESCRIPTION

Spent Resin Pump and Tank Room  
Unit 2 Radwaste Building - el 103 ft

DRAWING NUMBER(S)

H-11842

AREA

264 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N,S,E-W-C/NR       |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | OD/2301A           |
| - Penetrations                      | See area 2301 text |
| - Doors (Fire-rated Class/Zone No.) | None               |

### CONSTRUCTION

All zones walls are nonrated, reinforced concrete. The floor and ceiling are also nonrated, reinforced concrete. An open doorway in the north wall provides access to zone 2301A. See area 2301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with any detection or suppression system. However, hose stations and portable CO<sub>2</sub> fire extinguishers are provided in adjacent zone 2301A for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible materials. The only fire postulated for this zone would involve controlled amounts of transient combustibles. The negligible fire loading and substantial construction preclude propagation of the design basis fire beyond the boundaries of this zone. The available firefighting equipment in adjacent zone 2301A is adequate to extinguish any fire which may result from the introduction of the transient combustibles to this zone. Propagation of a fire to other zones in this area, in the unlikely event that it does occur, will not affect the ability to achieve safe shutdown.

FIRE ZONE 2301H

This zone is not considered safety related.

DESCRIPTION

Waste Sludge Phase Separator Room  
Unit 2 Radwaste Building - el 103 ft

DRAWING NUMBER(S)

H-11842

AREA

809 ft<sup>2</sup>

COMBUSTIBLES

|                     |        |
|---------------------|--------|
| Oil & Grease        | None   |
| Cable               | None   |
| Class A             | None   |
| Charcoal            | None   |
| Plastics            | None   |
| Miscellaneous       | Rubber |
| Miscellaneous Gases | None   |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N,S,E,W-C/NR       |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | OD/2301A           |
| - Penetrations                      | See area 2301 text |
| - Doors (Fire-rated Class/Zone No.) | None               |

### CONSTRUCTION

All zone walls are nonrated, reinforced concrete. The floor and ceiling of this zone are also nonrated, reinforced concrete. An open doorway in the west wall provides access to zone 2301A. See area 2301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with any detection or suppression system. However, hose stations and CO<sub>2</sub> fire extinguishers are provided in adjacent zone 2301A for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible materials. The negligible fire loading and substantial construction preclude the propagation of the design basis fire beyond the boundaries of this zone. The available firefighting equipment in adjacent zone 2301A is adequate to extinguish any fire in this zone. Propagation of a fire to other zones in this area, in the unlikely event that it does occur, will not affect the ability to achieve safe shutdown.



FIRE ZONE 2301I

This zone is not considered safety related.

DESCRIPTION

Waste and Surge Tank Room

Unit 2 Radwaste Building - el 103 ft

DRAWING NUMBER(S)

H-11842

AREA

3,506 ft<sup>2</sup>

COMBUSTIBLES

Oil & Grease

Cable

Class A

Charcoal

Plastics

Miscellaneous

Miscellaneous Gases

Lube oil

Cable insulation

Clothing, trash

None

Plastic, ladders

Rubber

None

DESIGN BASIS FIRE

Combustible Loading

Max. Permissible Loading

Fire Duration

Low

51,000 Btu/ft<sup>2</sup>

Less than 1 h

FIRE PROTECTION (AVAILABLE)

Suppression (type)

Hose Stations

Portable Extinguishers

Detectors (type)

None

H<sub>2</sub>O

CO<sub>2</sub>

None

FIRE RESISTANCE RATING

Actual

- Walls

- Floors, Ceiling or Roof

- Fixed Openings

- Penetrations

- Doors (Fire-rated Class/Zone No.)

N,S,E,W-C/NR

Concrete

OD/2301A

See area 2301 text

None

### CONSTRUCTION

All the walls of this zone are nonrated, reinforced concrete. The floor and ceiling are also nonrated, reinforced concrete. An open doorway in the west wall provides access to zone 2301A. See area 2301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with an automatic detection or suppression system. However, a hose station and portable CO<sub>2</sub> fire extinguishers are located within the zone for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains a low loading of combustible materials. The low fire loading and substantial construction makes propagation of this fire to adjacent zones unlikely. The available manual firefighting equipment in the zone is adequate to extinguish the fire. Propagation of a fire to other zones in this area, in the unlikely event that it does occur, will not affect the ability to achieve safe shutdown.

FIRE ZONE 2301J

This zone is not considered safety related.

DESCRIPTION

Dry Waste Storage Area

Unit 2 Radwaste Building - el 130 ft

DRAWING NUMBER(S)

H-11843

AREA

3,884 ft<sup>2</sup>

COMBUSTIBLES

Oil & Grease

Cable

Class A

Charcoal

Plastics

Miscellaneous

Miscellaneous Gases

None

Cable insulation

Wood, paper, clothing, tape (cloth),  
trash, rags

None

Plastic, ladders

Rubber

None

DESIGN BASIS FIRE

Combustible Loading

Max. Permissible Loading

Fire Duration

Low

100,000 Btu/ft<sup>2</sup>

Less than 1 h

FIRE PROTECTION (AVAILABLE)

Suppression (type)

Hose Stations

Portable Extinguishers

Detectors (type)

Wet pipe (PC) (see section 7.0)

H<sub>2</sub>O

CO<sub>2</sub>

None

FIRE RESISTANCE RATING

Actual

- Walls

- Floors, Ceiling or Roof

- Fixed Openings

- Penetrations

- Doors (Fire-rated Class/Zone No.)

N,S-C/NR;W-C/3,NR;E-B,C/NR

Concrete

OD/2301L,M,N;OS,OH/2301A;OS/2301R

See area 2301 text

A/2205;2-NR/2301K;NR/2301P;NR/Outside;  
NR/2301L

### CONSTRUCTION

The west wall of this zone is 3-h-rated, reinforced concrete except for the nonrated, reinforced concrete walls around zones 2301P and 2301Q. The remaining three walls are nonrated, reinforced concrete. A fire-rated Class A door in the north wall provides access to area 2205 and two nonrated double doors also in the north wall provide access to zone 2301K. A nonrated door in the west wall connects this zone with zone 2301P. A nonrated double door in the south wall provides access to the outside. The east wall has a nonrated door to zone 2301L and open doorways to zones 2301M and 2301N. The floor and ceiling are nonrated, reinforced concrete. There is an open equipment hatch in the west central part of the floor and a stairwell in the north part of the zone provides access to zones 2301A below and 2301R above. See area 2301 for penetrations.

### FIRE PROTECTION

The west central part of this zone over the drywaste storage section, is equipped with a wet pipe suppression system. The rest of the zone has no detection or automatic suppression coverage. This zone is provided with an H<sub>2</sub>O hose station and portable CO<sub>2</sub> fire extinguishers for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

The drywaste storage section of this zone contains the bulk of the combustibles in the zone. A fire originating in this section is expected to be rapidly extinguished by the installed wet pipe sprinkler system. In addition, alarms resulting from actuation of the suppression system over the drywaste storage section ensure early fire detection and prompt response by the plant fire brigade. The open stairwells and doorways represent a fire propagation possibility to adjacent zones; however the low combustible loading and the likelihood of early fire detection preclude fire propagation. Propagation of a fire to other zones in this area, in the unlikely event that it does occur, will not affect the ability to achieve safe shutdown.

FIRE ZONE 2301K

This zone is not considered safety related.

DESCRIPTION

HVAC Room

Unit 2 Radwaste Building - el 130 ft

DRAWING NUMBER(S)

H-11843

AREA

2,723 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | Charcoal         |
| Plastics            | Plastic, ladders |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                    |
|------------------------|------------------------------------|
| Suppression (type)     | Water spray (PC) (see section 7.0) |
| Hose Stations          | H <sub>2</sub> O                   |
| Portable Extinguishers | None                               |
| Detectors (type)       | Heat det (PC) (see section 7.0)    |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N,S,E,W-C/NR       |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | None               |
| - Penetrations                      | See area 2301 text |
| - Doors (Fire-rated Class/Zone No.) | 2-NR/2301J         |

### CONSTRUCTION

All the walls of this zone are nonrated, reinforced concrete. The north wall is adjacent to the 3-h-rated Unit 2 reactor building wall. The floor and ceiling are also nonrated, reinforced concrete. There are two nonrated double doors in the south wall providing access to zone 2301J. See area 2301 for penetrations.

### FIRE PROTECTION

The filters in the zone are internally equipped with heat detection and water spray systems. This zone is also equipped with a hose station and adjacent zone 2301J contains portable CO<sub>2</sub> fire extinguishers for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains a low loading of combustible materials. The low fire loading and substantial construction preclude the propagation of the design basis fire beyond the boundaries of this zone. The primary combustible in the zone is the charcoal, contained in the filters. The water spray suppression system is expected to rapidly extinguish any fire which occurs in the filters. Actuation of the detection system will result in both local and MCR alarms, which will ensure prompt response by the plant fire brigade. The fire brigade will initiate the water spray system in the filter unit to suppress the fire. Firefighting equipment in this zone and in adjacent zone 2301J are adequate to extinguish the fire.

FIRE ZONE 2301L

This zone is not considered safety related.

DESCRIPTION

Solidification Area

Unit 2 Radwaste Building - el 130 ft

DRAWING NUMBER(S)

H-11843

AREA

1,964 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                |
|---------------------|--------------------------------|
| Oil & Grease        | Lube oil                       |
| Cable               | None                           |
| Class A             | Pallets, clothing, trash, rags |
| Charcoal            | None                           |
| Plastics            | Plastic                        |
| Miscellaneous       | Rubber, resin                  |
| Miscellaneous Gases | None                           |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Moderate                    |
| Max. Permissible Loading | 292,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Greater than 3 h            |

FIRE PROTECTION (AVAILABLE)

|                        |                 |
|------------------------|-----------------|
| Suppression (type)     | None            |
| Hose Stations          | None            |
| Portable Extinguishers | CO <sub>2</sub> |
| Detectors (type)       | None            |

FIRE RESISTANCE RATING

|                                     |                                |
|-------------------------------------|--------------------------------|
| Actual                              |                                |
| - Walls                             | N,S,E,W-C/NR                   |
| - Floors, Ceiling or Roof           | Concrete                       |
| - Fixed Openings                    | OD/2301J                       |
| - Penetrations                      | See area 2301 text             |
| - Doors (Fire-rated Class/Zone No.) | 2-NR/Outside;NR/2301M;NR/2301J |

### CONSTRUCTION

All the walls of this zone are nonrated, reinforced concrete. The floor and ceiling are also nonrated, reinforced concrete. The west wall has a nonrated door to zone 2301J and a nonrated door to zone 2301M. A nonrated vault-type door in the east wall provides access to the outside. A nonrated double door in the south wall allows access to the loading area outside the radwaste building. See area 2301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with any automatic suppression or detection system. However, the zone is provided with a portable CO<sub>2</sub> fire extinguisher for manual firefighting. In addition, hose stations are available in nearby zones 2301J and 2301K.

### CONSEQUENCES OF DESIGN BASIS FIRE

The moderate fire loading and substantial construction minimizes the possibility of propagation of the design basis fire beyond the boundaries of this zone. Propagation of a fire to other zones in this area, in the unlikely event that it does occur, will not affect the ability to achieve safe shutdown.



FIRE ZONE 2301M

This zone is not considered safety related.

DESCRIPTION

Conveyer Room

Unit 2 Radwaste Building - el 130 ft

DRAWING NUMBER(S)

H-11843

AREA

1,319 ft<sup>2</sup>

COMBUSTIBLES

|                     |          |
|---------------------|----------|
| Oil & Grease        | Lube oil |
| Cable               | None     |
| Class A             | Trash    |
| Charcoal            | None     |
| Plastics            | None     |
| Miscellaneous       | None     |
| Miscellaneous Gases | None     |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 54,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                       |
|-------------------------------------|-----------------------|
| Actual                              |                       |
| - Walls                             | N,S,E-C/NR;W-C,B/NR   |
| - Floors, Ceiling or Roof           | Concrete              |
| - Fixed Openings                    | OD/2301J              |
| - Penetrations                      | See area 2301 text    |
| - Doors (Fire-rated Class/Zone No.) | 3-NR/Outside;NR/2301L |

### CONSTRUCTION

All the walls of this zone are nonrated, reinforced concrete. The floor and ceiling are also nonrated, reinforced concrete. There is a nonrated door in the east wall to zone 2301L. There are two open doorways in the south wall to zone 2301J and three nonrated, heavy steel hatch doors to the outside. The north wall of this zone is provided with a periscope window to monitor activities in the conveyor room. See area 2301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with a detection or suppression system. A hose station and portable CO<sub>2</sub> fire extinguishers are available in adjacent zone 2301J for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

The low fire loading and substantial construction make it unlikely that a fire will propagate outside the zone. If a fire does occur propagation may occur through the open doorways to zone 2301J. Propagation of a fire to other zones in this area will not affect the ability to achieve safe shutdown. Manual firefighting equipment provided in adjacent zone 2301J is adequate to suppress the fire.

FIRE ZONE 2301N

This zone is not considered safety related.

DESCRIPTION

Floor Drain and Waste Collector Filter Holding Pump Area  
Unit 2 Radwaste Building - el 130 ft

DRAWING NUMBER(S)

H-11843

AREA

881 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | Lube oil         |
| Cable               | Cable insulation |
| Class A             | Trash            |
| Charcoal            | None             |
| Plastics            | None             |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 79,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                     |
|-------------------------------------|---------------------|
| Actual                              |                     |
| - Walls                             | N,S,E,W-C/NR        |
| - Floors, Ceiling or Roof           | Concrete            |
| - Fixed Openings                    | CH/Outside;OD/2301J |
| - Penetrations                      | See area 2301 text  |
| - Doors (Fire-rated Class/Zone No.) | None                |

### CONSTRUCTION

All the walls are nonrated, reinforced concrete. The floor and ceiling are also nonrated, reinforced concrete. The roof contains concrete covered hatches over the holding tanks. There is an open doorway in the north wall to zone 2301J. See area 2301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with any detection or suppression systems. A hose station and portable CO<sub>2</sub> fire extinguishers are available in adjacent zone 2301J.

### CONSEQUENCES OF DESIGN BASIS FIRE

The low fire loading and substantial construction minimize the possibility of propagation of the design basis fire beyond the boundaries of the zone. The manual firefighting equipment available in adjacent zone 2301J is adequate to suppress the fire. Propagation of a fire to other zones in this area, in the unlikely event that it does occur, will not affect the ability to achieve safe shutdown.

FIRE ZONE 2301P

This zone is not considered safety related.

DESCRIPTION

Steam Generator Room

Unit 2 Radwaste Building - el 130 ft

DRAWING NUMBER(S)

H-11843

AREA

648 ft<sup>2</sup>

COMBUSTIBLES

|                     |                       |
|---------------------|-----------------------|
| Oil & Grease        | None                  |
| Cable               | None                  |
| Class A             | Clothing, trash, rags |
| Charcoal            | None                  |
| Plastics            | Plastic               |
| Miscellaneous       | Rubber                |
| Miscellaneous Gases | None                  |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N,S,E-C/NR;W-C/3   |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | None               |
| - Penetrations                      | See area 2301 text |
| - Doors (Fire-rated Class/Zone No.) | NR/2301J           |

### CONSTRUCTION

The west wall of this zone is a 3-h-rated, reinforced concrete. The other three walls are nonrated, reinforced concrete. The floor and ceiling are nonrated, reinforced concrete. There is a nonrated door in the east wall to zone 2301J. See area 2301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with any detection or suppression system. A hose station and portable CO<sub>2</sub> fire extinguishers are provided in adjacent zone 2301J.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible materials. The low fire loading and substantial or rated construction preclude propagation of the design basis fire beyond the boundaries of this zone. The available manual firefighting equipment in adjacent zone 2301J is adequate to extinguish the fire. Propagation of a fire to other zones in this area, in the unlikely event that it does occur, will not affect the ability to achieve safe shutdown.

FIRE ZONE 2301Q

This zone is not considered safety related.

DESCRIPTION

Decontamination Solution Concentrate Room  
Unit 2 Radwaste Building - el 132 ft, 148 ft, 158 ft

DRAWING NUMBER(S)

H-11842, H-11843

AREA

362 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N,S,E-C/NR;W-C/3   |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | CH/Outside         |
| - Penetrations                      | See area 2301 text |
| - Doors (Fire-rated Class/Zone No.) | None               |

### CONSTRUCTION

The west wall of this zone is a 3-h-rated, reinforced concrete wall extending from el 132 ft through 158 ft. The remaining walls are all nonrated, reinforced concrete. The floor and ceiling are nonrated, reinforced concrete. The roof contains concrete covered hatches over the concentrate tanks. This zone is completely enclosed, with no means of access except through the roof hatches. See area 2301 for penetrations.

### FIRE PROTECTION

Since this is a sealed zone with no means of normal access, containing no fixed combustibles, no fire protection features are provided for this zone.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains a negligible loading of combustible material. The only fire postulated for this zone would involve transient combustibles. Since this zone is completely sealed with no normal access possible, the introduction of transient combustibles is not expected. In the unlikely event of any fire in this zone, the negligible fire loading and substantial or rated construction preclude propagation of a fire beyond the boundaries of this zone.



FIRE ZONE 2301R

This zone is not considered safety related.

DESCRIPTION

Working Floor

Radwaste Building - el 148 ft

DRAWING NUMBER(S)

H-11842

AREA

6,096 ft<sup>2</sup>

COMBUSTIBLES

|                     |                    |
|---------------------|--------------------|
| Oil & Grease        | None               |
| Cable               | Cable insulation   |
| Class A             | None               |
| Charcoal            | None               |
| Plastics            | Ladders            |
| Miscellaneous       | Solvent, EHC fluid |
| Miscellaneous Gases | None               |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 34,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                  |
|------------------------|------------------|
| Suppression (type)     | None             |
| Hose Stations          | H <sub>2</sub> O |
| Portable Extinguishers | CO <sub>2</sub>  |
| Detectors (type)       | None             |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N,S,E-C/NR;W-C/3   |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | OS/2301J,U         |
| - Penetrations                      | See area 2301 text |
| - Doors (Fire-rated Class/Zone No.) | NR/Outside,2301S,T |

### CONSTRUCTION

All the walls except the west wall are nonrated, reinforced concrete. The west wall is a 3-h-rated, reinforced concrete wall. The floor and ceiling are nonrated, reinforced concrete. The east wall has three nonrated doors to zones 2301S, 2301T, and to the outside. An open stairway in the floor and ceiling provide access to zones 2301J below and 2301U above this zone, respectively. See area 2301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with any detection or automatic suppression system. Hose stations and portable CO<sub>2</sub> fire extinguishers are provided in this zone for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains a low loading of combustible materials. The low fire loading, substantial or rated construction, and the minimal amount intervening combustibles in the vicinity of the stairwell and doors make propagation of the design basis fire to adjacent zones unlikely. The majority of the combustibles in the zone consist of cable which is predominately IEEE-383 qualified. The fire is therefore expected to develop slowly which will ensure adequate time for response by the plant fire brigade. The available manual firefighting equipment in this zone is adequate to extinguish the fire. Propagation of a fire to other zones in this area will not affect the ability to achieve safe shutdown.

FIRE ZONE 2301S

This zone is not considered safety related.

DESCRIPTION

Hopper A Room

Unit 2 Radwaste Building - el 148 ft

DRAWING NUMBER(S)

H-11842

AREA

367 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N,S,E,W-C/NR       |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | None               |
| - Penetrations                      | See area 2301 text |
| - Doors (Fire-rated Class/Zone No.) | NR/2301R           |

### CONSTRUCTION

All the walls of this zone are nonrated, reinforced concrete with a nonrated door in the north wall to zone 2301R. The floor and ceiling are also nonrated, reinforced concrete. See area 2301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with any detection or suppression system. However, hose stations and portable CO<sub>2</sub> fire extinguishers are available in adjacent zone 2301R.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible materials. The only fire postulated for this zone would involve controlled amounts of transient combustibles. The negligible fire loading and substantial construction preclude the propagation of the design basis fire beyond the boundaries of this zone. The available firefighting equipment in adjacent zone 2301R is adequate to extinguish a fire which may result from the introduction of transient combustibles to this zone.

FIRE ZONE 2301T

This zone is not considered safety related.

DESCRIPTION

Hopper B Room  
Radwaste Building - el 148 ft

DRAWING NUMBER(S)

H-11842

AREA

250 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N,S,E,W-C/NR       |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | None               |
| - Penetrations                      | See area 2301 text |
| - Doors (Fire-rated Class/Zone No.) | NR/2301R           |

### CONSTRUCTION

All the walls are nonrated, reinforced concrete. The floor and ceiling are also nonrated, reinforced concrete. There is a nonrated door in the west wall to zone 2301R. See area 2301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with any detection or suppression system. However, hose stations and portable CO<sub>2</sub> fire extinguishers are available in adjacent zone 2301R.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible materials. The only fire postulated for this zone would involve controlled amounts of transient combustibles. The negligible fire loading and substantial construction preclude the propagation of the design basis fire beyond the boundaries of this zone. The available firefighting equipment in adjacent zone 2301R is adequate to extinguish a fire which may result from the introduction of transient combustibles to this zone.

FIRE ZONE 2301U

This zone is not considered safety related.

DESCRIPTION

Working Floor

Unit 2 Radwaste Building - el 164 ft

DRAWING NUMBER(S)

H-11844

AREA

2,643 ft<sup>2</sup>

COMBUSTIBLES

Oil & Grease

Lube oil, gasoline

Cable

Cable insulation

Class A

Plank, clothing, tape (cloth), trash, rags

Charcoal

None

Plastics

Plastic

Miscellaneous

Rubber

Miscellaneous Gases

None

DESIGN BASIS FIRE

Combustible Loading

Low

Max. Permissible Loading

45,000 Btu/ft<sup>2</sup>

Fire Duration

Less than 1 h

FIRE PROTECTION (AVAILABLE)

Suppression (type)

None

Hose Stations

H<sub>2</sub>O

Portable Extinguishers

CO<sub>2</sub>

Detectors (type)

None

FIRE RESISTANCE RATING

Actual

- Walls

N,S,E-C/NR;W-C/3,NR

- Floors, Ceiling or Roof

Concrete

- Fixed Openings

OS/2301R

- Penetrations

See area 2301 text

- Doors (Fire-rated Class/Zone No.)

A/0101;NR/2301V,W,X,Y

### CONSTRUCTION

The west wall of this zone adjacent to the turbine building is 3-h-rated, reinforced concrete. The other walls are nonrated, reinforced concrete. The north wall is adjacent to the 3-h-rated, Unit 2 reactor building wall. The floor and ceiling are also nonrated, reinforced concrete. A fire-rated Class A door provides access to area 0101. Zone 2301U also communicates with zones 2301V, 2301Y, 2301X, and 2301W via nonrated doors provided in the south, west, and north walls. An open stairway in the floor provides access to zone 2301R. See area 2301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with a detection or suppression system. A hose station and portable CO<sub>2</sub> fire extinguishers are provided in this zone for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains low loading of combustible materials. The low fire loading and substantial or rated construction makes propagation of the design basis fire beyond the boundaries of this zone unlikely. In addition, the presence of operational personnel in the radwaste control room at all times will result in early fire detection and ensure prompt response by the plant fire brigade. The manual firefighting equipment provided in this zone is adequate to extinguish the fire. Propagation of a fire to other zones in this area, in the unlikely event that it does occur, will not affect the ability to achieve safe shutdown.



FIRE ZONE 2301V

This zone is not considered safety related.

DESCRIPTION

Unit 2 Radwaste Control Room

Unit 2 Radwaste Building - el 164 ft

DRAWING NUMBER(S)

H-11844

AREA

1429 ft<sup>2</sup>

COMBUSTIBLES

|                     |                     |
|---------------------|---------------------|
| Oil & Grease        | None                |
| Cable               | Cable insulation    |
| Class A             | Paper, trash, desks |
| Charcoal            | None                |
| Plastics            | Plastic, ladders    |
| Miscellaneous       | Rubber              |
| Miscellaneous Gases | None                |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None                             |
| Portable Extinguishers | Halon                            |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N,S,E-C/NR;W-C/3   |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | None               |
| - Penetrations                      | See area 2301 text |
| - Doors (Fire-rated Class/Zone No.) | NR/2301U           |

### CONSTRUCTION

The north, south, and east walls of this zone are nonrated, reinforced concrete. The north wall is adjacent to the Unit 2 reactor building 3-h-rated wall. The west wall is 3-h-rated, reinforced concrete. The floor and ceiling are nonrated, reinforced concrete. A nonrated door in the south wall provides access to zone 2301U. See area 2301 for penetration.

### FIRE PROTECTION

This zone is equipped with full coverage smoke detectors which provide an early warning alarm both locally and in the MCR to ensure prompt response by the plant fire brigade. A portable halon extinguisher is located in this zone. Portable CO<sub>2</sub> fire extinguishers and a hose station are also available in adjacent zone 2301U.

### CONSEQUENCES OF DESIGN BASIS FIRE

The smoke detectors located in this zone are expected to detect the combustion products from an incipient fire and alert the local plant personnel as well as the MCR to ensure prompt response by the plant fire brigade. The likelihood of early detection, substantial or rated construction of the zone walls, and the low combustible loading in this zone preclude the propagation of a design basis fire beyond the boundaries of the zone.

FIRE ZONE 2301W

This zone is not considered safety related.

DESCRIPTION

Centrifuge Room A

Unit 2 Radwaste Building - el 164 ft

DRAWING NUMBER(S)

H-11844

AREA

367 ft<sup>2</sup>

COMBUSTIBLES

|                     |                 |
|---------------------|-----------------|
| Oil & Grease        | None            |
| Cable               | None            |
| Class A             | Clothing, trash |
| Charcoal            | None            |
| Plastics            | Plastic         |
| Miscellaneous       | Rubber          |
| Miscellaneous Gases | None            |

DESIGN BASIS FIRE

|                          |                           |
|--------------------------|---------------------------|
| Combustible Loading      | Low                       |
| Max. Permissible Loading | 41000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h             |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N,S,E,W-C/NR       |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | None               |
| - Penetrations                      | See area 2301 text |
| - Doors (Fire-rated Class/Zone No.) | NR/2301U           |

### CONSTRUCTION

All zone walls are nonrated, reinforced concrete. A nonrated door in the north wall provides access to zone 2301U. The floor and ceiling are also nonrated, reinforced concrete. See area 2301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with a detection or suppression system. However, a hose station and portable CO<sub>2</sub> fire extinguishers are available in adjacent zone 2301U.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains low loading of combustible material. The low fire loading and substantial construction preclude the possibility of propagation of the design basis fire beyond the boundaries of this zone. Presence of operational personnel in the nearby radwaste control room at all times will likely result in early fire detection and ensure prompt response by the plant fire brigade to extinguish the fire. Manual firefighting equipment provided in adjacent zone 2301U is adequate to extinguish the fire.

FIRE ZONE 2301X

This zone is not considered safety related.

DESCRIPTION

Centrifuge Room B

Unit 2 Radwaste Building - el 164 ft

DRAWING NUMBER(S)

H-11844

AREA

235 ft<sup>2</sup>

COMBUSTIBLES

|                     |             |
|---------------------|-------------|
| Oil & Grease        | None        |
| Cable               | None        |
| Class A             | Paper, rags |
| Charcoal            | None        |
| Plastics            | Plastic     |
| Miscellaneous       | Rubber      |
| Miscellaneous Gases | None        |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 51,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                    |
|-------------------------------------|--------------------|
| Actual                              |                    |
| - Walls                             | N,S,E,W-C/NR       |
| - Floors, Ceiling or Roof           | Concrete           |
| - Fixed Openings                    | None               |
| - Penetrations                      | See area 2301 text |
| - Doors (Fire-rated Class/Zone No.) | NR/2301U           |

### CONSTRUCTION

All zone walls are nonrated, reinforced concrete. A nonrated door in the west wall provides access to zone 2301U. The floor and ceiling are also nonrated, reinforced concrete. See area 2301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with a detection or suppression system. However, a hose station and portable CO<sub>2</sub> fire extinguishers are available in adjacent zone 2301U.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains a low loading of combustible material. The low fire loading and substantial construction preclude the possibility of propagation of the design basis fire beyond the boundaries of this zone. Presence of operational personnel in the nearby radwaste control room at all times will likely result in early fire detection and ensure prompt response by the plant fire brigade to extinguish the fire. Manual firefighting equipment provided in adjacent zone 2301U is adequate to extinguish the fire.

FIRE ZONE 2301Y

This zone is not considered safety related.

DESCRIPTION

Chemical Treatment Area

Unit 2 Radwaste Building – el 164

DRAWING NUMBER(S)

H-11844

AREA

1,644 ft<sup>2</sup>

COMBUSTIBLES

|                     |                              |
|---------------------|------------------------------|
| Oil & Grease        | None                         |
| Cable               | None                         |
| Class A             | Plank, plywood, paper, trash |
| Charcoal            | None                         |
| Plastics            | Plastic                      |
| Miscellaneous       | Rubber, resin                |
| Miscellaneous Gases | None                         |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 39,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                     |
|-------------------------------------|---------------------|
| Actual                              |                     |
| - Walls                             | N,S,E-C/NR;W-C/3,NR |
| - Floors, Ceiling or Roof           | Concrete            |
| - Fixed Openings                    | OS/2301Z            |
| - Penetrations                      | See area 2301 text  |
| - Doors (Fire-rated Class/Zone No.) | A/0101;NR/2301U     |

### CONSTRUCTION

The north, south, and east walls of this zone are nonrated, reinforced concrete. The west wall is 3-h-rated, reinforced concrete. The floor and the ceiling are nonrated, reinforced concrete. A nonrated door in the north wall provides access to zone 2301U and a fire-rated Class A double door in the west wall provides access to area 0101. An open stairway in the southwest corner provides access to zone 2301Z. See area 2301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with a detection or automatic suppression system. A hose station and portable CO<sub>2</sub> fire extinguishers are available in adjacent zone 2301U.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains a low loading of combustible materials. The low fire loading and substantial or rated construction preclude the possibility of propagation of the design basis fire beyond the boundaries of this zone with the exception of zone 2301Z via the open stairway. The absence of fixed combustibles in zone 2301Z makes propagation unlikely. Propagation of a fire to other zones in this area, in the unlikely event that it does occur, will not affect the ability to achieve safe shutdown. The manual firefighting equipment provided in the adjacent zone is adequate to extinguish the fire.



FIRE ZONE 2301Z

This zone is not considered safety related.

DESCRIPTION

Radwaste Building Supply Ventilation Room  
Unit 2 Radwaste Building - el 178 ft

DRAWING NUMBER(S)

H-11842

AREA

1,178 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                     |                               |
|-------------------------------------|-------------------------------|
| Actual                              |                               |
| - Walls                             | N,S,E,W-S/NR                  |
| - Floors, Ceiling or Roof           | Floor-concrete; ceiling-steel |
| - Fixed Openings                    | OP/Outside; OS/2301Y          |
| - Penetrations                      | See area 2301 text            |
| - Doors (Fire-rated Class/Zone No.) | NR/Outside                    |

### CONSTRUCTION

All the walls of this zone are nonrated, steel walls. The floor is nonrated, reinforced concrete and the ceiling is nonrated steel. This zone communicates with zone 2301Y via an open stairway provided in the southwest corner and this zone accesses the outside through a ventilation opening and a nonrated door in the south wall. See area 2301 for penetrations.

### FIRE PROTECTION

This zone is not equipped with a detection or suppression system. A hose station and CO<sub>2</sub> portable fire extinguishers are available in nearby zone 2301U for manual firefighting.

### CONSEQUENCES OF DESIGN BASIS FIRE

This zone contains an insignificant loading of combustible materials. The only fire postulated for this zone would involve controlled amounts of transient combustibles. The negligible fire loading and substantial construction preclude the propagation of the design basis fire beyond the boundaries of this zone. The available firefighting equipment in nearby zone 2301U is adequate to extinguish a fire which may result from the introduction of transient combustibles to this zone.

FIRE AREA 2401

This area is considered safety related.

DESCRIPTION

Day Tank Room 2A

Diesel Generator Building - el 130 ft

DRAWING NUMBER(S)

H-11846

AREA

83 ft<sup>2</sup>

COMBUSTIBLES

|                     |             |
|---------------------|-------------|
| Oil & Grease        | Diesel fuel |
| Cable               | None        |
| Class A             | Paper       |
| Charcoal            | None        |
| Plastics            | None        |
| Miscellaneous       | None        |
| Miscellaneous Gases | None        |

DESIGN BASIS FIRE

|                          |                               |
|--------------------------|-------------------------------|
| Combustible Loading      | High                          |
| Max. Permissible Loading | 1,814,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Greater than 3 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                                              |
|------------------------|----------------------------------------------|
| Suppression (type)     | CO <sub>2</sub> flood (FC) (see section 7.0) |
| Hose Stations          | None                                         |
| Portable Extinguishers | None                                         |
| Detectors (type)       | Heat det (FC) (see section 7.0)              |

FIRE RESISTANCE RATING

|                                     |             |
|-------------------------------------|-------------|
| Actual                              |             |
| - Walls                             | N,S,E,W-C/3 |
| - Floors, Ceiling, or Roof          | Concrete    |
| - Fixed Openings                    | None        |
| - Penetrations                      | See text    |
| - Doors (Fire-rated Class/Zone no.) | A/0401      |

### CONSTRUCTION

All area walls are reinforced concrete and 3-h rated. The floor and roof are nonrated reinforced concrete. A fire-rated Class A door in the east wall provides access to adjacent area 0401. There are ventilation ducts with 3-h fire dampers in the east wall to adjacent area 0401. These dampers close automatically on high temperature or CO<sub>2</sub> flooding system actuation or they may be manually closed.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

The area is equipped with full coverage heat detectors to provide an early warning alarm both locally and in the main control room (MCR). In addition, an automatic CO<sub>2</sub> flooding system is provided. There is no manual firefighting equipment in this area; however, portable CO<sub>2</sub> and dry chemical fire extinguishers are easily accessible in adjacent areas 0401 and 2403. Yard hydrants are located immediately outside of the diesel generator building.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

A fire in this area involving diesel fuel oil as a result of leakage or rupture of the day tank will be rapidly detected by the thermal detectors and extinguished by the CO<sub>2</sub> flooding system. Activation of the detection and suppression system will provide an alarm, both locally and in the MCR, to ensure prompt response by the plant fire brigade. The rated construction of the area boundaries is sufficient to contain the fire until it is extinguished. A fire in this area will not affect the capability to achieve safe shutdown or result in a release of radioactivity. Overflow of the day tank, as a result of circuit faults in this area, is evaluated in calculation 1380-027-C010 in appendix L of this document.

FIRE AREA 2402

This area is considered safety related.

DESCRIPTION

Battery Room 2A

Diesel Generator Building - el 130 ft

DRAWING NUMBER(S)

H-11846

AREA

191 ft<sup>2</sup>

COMBUSTIBLES

|                     |                        |
|---------------------|------------------------|
| Oil & Grease        | None                   |
| Cable               | None                   |
| Class A             | None                   |
| Charcoal            | None                   |
| Plastics            | Plastic, battery cases |
| Miscellaneous       | Rubber                 |
| Miscellaneous Gases | None                   |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                               |
|------------------------|-------------------------------|
| Suppression (type)     | None                          |
| Hose Stations          | None                          |
| Portable Extinguishers | None                          |
| Detectors (type)       | Thermal det (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |             |
|-------------------------------------|-------------|
| Actual                              |             |
| - Walls                             | N,S,E,W-C/3 |
| - Floors, Ceiling, or Roof          | Concrete    |
| - Fixed Openings                    | None        |
| - Penetrations                      | See text    |
| - Doors (Fire-rated Class/Zone no.) | A/2408      |

### CONSTRUCTION

All walls of the area are constructed of 3-h-rated, reinforced concrete. The floor is base slab and the roof is nonrated, reinforced concrete. There is a fire-rated Class A door in the west wall to fire area 2408. A 3-h-rated vent damper is provided in the north wall to communicate with area 2403.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with a thermal detection system which will provide an early warning alarm both locally and in the MCR. There is no automatic suppression system within the area. No manual firefighting equipment is available in this area; however, a portable CO<sub>2</sub> fire extinguisher and a CO<sub>2</sub> hose reel are located in adjacent area 2408.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

Since the area is bounded on all sides by 3-h-rated barriers, propagation of the design basis fire outside of this area is not considered credible. In addition, due to the low combustible loading and installed detection system, which alarms both locally and in the MCR, the fire is expected to be detected in its incipient stages to ensure prompt response by the plant fire brigade. The available manual firefighting equipment in the adjacent area is adequate to extinguish the fire. The design basis fire for this area will not affect the ability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 2403

This area is considered safety related.

DESCRIPTION

Diesel Generator Room 2A

Diesel Generator Building - el 130 ft

DRAWING NUMBER(S)

H-11846

AREA

1,598<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | Lube oil         |
| Cable               | Cable insulation |
| Class A             | Paper, trash     |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                              |
|------------------------|----------------------------------------------|
| Suppression (type)     | CO <sub>2</sub> flood (FC) (see section 7.0) |
| Hose Stations          | None                                         |
| Portable Extinguishers | CO <sub>2</sub> ; Dry chem                   |
| Detectors (type)       | Heat det (FC) (see section 7.0)              |

FIRE RESISTANCE RATING

|                                   |                  |
|-----------------------------------|------------------|
| Actual                            |                  |
| - Walls                           | N-C/NR;S,E,W-C/3 |
| - Floors, Ceiling or Roof         | Concrete         |
| - Fixed Openings                  | None             |
| - Penetrations                    | See text         |
| - Doors (Fire-rated Class/Zone #) | 2-A/0401;A/2404  |

### CONSTRUCTION

The walls of the area are constructed of 3-h-rated, reinforced concrete except for the north wall which is nonrated, reinforced concrete. One large nonrated and one small 3-h-rated ventilation damper are located in the east wall, communicating with area 0401. An additional 3-h-rated damper in the south wall communicates with area 2402. All dampers are closed by high temperature, CO<sub>2</sub> flooding system actuation or manual actuation. Fire-rated Class A doors in the east and west walls provide access to areas 0401 and 2404, respectively. A fire-rated Class A rolling door is also provided in the east wall in series with the large vent damper. The floor and ceiling are both nonrated, reinforced concrete.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

Heat detectors are located within the area and provide alarms both locally and in the MCR. The area is also equipped with an automatic CO<sub>2</sub> flooding system. Portable CO<sub>2</sub> and dry chemical fire extinguishers are located in the area for manual firefighting. In addition, a CO<sub>2</sub> hose reel is located in adjacent area 2404. Hydrants are located immediately outside of the diesel generator building.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

Due to the 3-h-rated barriers on all sides of this area which are adjacent to any other fire areas and the low combustible loading, the design basis fire will not propagate outside of the area. A design basis fire will, therefore, not affect the capability to achieve or maintain safe shutdown or result in a significant release of radioactivity. In addition, the installed detection system provides both local and MCR alarms to ensure prompt response by the plant fire brigade. As a result, rapid extinguishment of the fire is expected either by the installed suppression system or by the plant fire brigade using the available manual firefighting equipment. Overflow of the diesel generator fuel oil day tanks as a result of circuit faults in this area is evaluated in calculation 1380-027-C010 in appendix L of this document.



FIRE AREA 2404

This area is considered safety related.

DESCRIPTION

Switchgear Room 2E

Diesel Generator Building - el 130 ft

DRAWING NUMBER(S)

H-11846

AREA

1,013 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | CO <sub>2</sub>                  |
| Portable Extinguishers | CO <sub>2</sub>                  |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                   |
|-----------------------------------|-------------------|
| Actual                            |                   |
| - Walls                           | N,W-C/NR;S,E-C/3  |
| - Floors, Ceiling or Roof         | Concrete          |
| - Fixed Openings                  | None              |
| - Penetrations                    | See text          |
| - Doors (Fire-rated Class/Zone #) | A/2403;NR/outside |

### CONSTRUCTION

The south and east walls of this area are 3-h-rated, reinforced concrete walls. The north and west walls are nonrated, reinforced concrete diesel generator building exterior walls. There is a fire-rated Class A door in the east wall to area 2403. The west wall has a nonrated double door and a vent with nonrated dampers, both communicating with the outside. The floor and ceiling are nonrated, reinforced concrete.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

The area is equipped with full coverage smoke detection which provides an early warning alarm both locally and in the MCR to ensure prompt response by the plant fire brigade. This area is also provided with a CO<sub>2</sub> hose reel and CO<sub>2</sub> portable fire extinguisher to support manual firefighting. Hydrants are located immediately outside of the diesel generator building.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

This area has a low combustible loading consisting of cable insulation. The cable used at E. I. Hatch Nuclear Plant is predominantly IEEE-383 qualified. A fire in this area would, therefore, be expected to develop slowly, allowing ample time for response by the plant fire brigade. The smoke detectors are expected to provide early warning alarms, both locally and in the MCR to further ensure prompt response by the plant fire brigade. The manual firefighting equipment provided is adequate to extinguish a fire in this area. In the unlikely event that early warning and response does not occur, the rated barriers between this and any adjacent areas preclude propagation of the design basis fire beyond the boundaries of this area. A fire in this area will not affect the capability to achieve safe shutdown or result in the release of any radioactivity. Overflow of the diesel generator fuel oil day tanks due to circuit faults in this area is evaluated in calculation 1380-027-C010 in appendix L of this document.

FIRE AREA 2405

This area is considered safety related.

DESCRIPTION

Day Tank Room 2C

Diesel Generator Building - el 130 ft

DRAWING NUMBER(S)

H-11846

AREA

83 ft<sup>2</sup>

COMBUSTIBLES

|                     |             |
|---------------------|-------------|
| Oil & Grease        | Diesel fuel |
| Cable               | None        |
| Class A             | Paper       |
| Charcoal            | None        |
| Plastics            | None        |
| Miscellaneous       | None        |
| Miscellaneous Gases | None        |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | High                        |
| Max. Permissible Loading | 181,400 Btu/ft <sup>2</sup> |
| Fire Duration            | Greater than 3 h            |

FIRE PROTECTION (AVAILABLE)

|                        |                                              |
|------------------------|----------------------------------------------|
| Suppression (type)     | CO <sub>2</sub> flood (FC) (see section 7.0) |
| Hose Stations          | None                                         |
| Portable Extinguishers | None                                         |
| Detectors (type)       | Heat det (FC) (see section 7.0)              |

FIRE RESISTANCE RATING

|                                   |             |
|-----------------------------------|-------------|
| Actual                            |             |
| - Walls                           | N,S,E,W-C/3 |
| - Floors, Ceiling or Roof         | Concrete    |
| - Fixed Openings                  | None        |
| - Penetrations                    | See text    |
| - Doors (Fire-rated Class/Zone #) | A/0401      |

### CONSTRUCTION

All area walls are reinforced concrete and 3-h rated. The floor and roof are nonrated, reinforced concrete. A fire-rated Class A door in the east wall provides access to adjacent area 0401. There are ventilation ducts with 3-h fire dampers in the east wall to adjacent area 0401. These dampers close automatically on high temperature or CO<sub>2</sub> flooding system actuation or they may be manually closed.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

The area is equipped with full coverage heat detection which provides an early warning alarm both locally and in the MCR. In addition, an automatic CO<sub>2</sub> flooding system is provided. There is no manual firefighting equipment in this area; however, portable CO<sub>2</sub> and dry chemical fire extinguishers are easily accessible in adjacent areas 0401 and 2407. Yard hydrants are located immediately outside of the diesel generator building.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

A fire in this area involving diesel fuel oil as a result of leakage or rupture of the day tank will be rapidly detected by the thermal detectors and extinguished by the CO<sub>2</sub> flooding system. Activation of the detection and suppression system will provide an alarm, both locally and in the MCR to ensure prompt response by the plant fire brigade. The rated construction of the area boundaries is sufficient to contain the fire until it is extinguished. A fire in this area will not affect the capability to achieve safe shutdown or result in a release of radioactivity. Overflow of the day tank as a result of circuit faults in this area is evaluated in calculation 1380-027-C010 in appendix L of this document.

FIRE AREA 2406

This area is considered safety related.

DESCRIPTION

Battery Room 2C

Diesel Generator Building - el 130 ft

DRAWING NUMBER(S)

H-11846

AREA

191 ft<sup>2</sup>

COMBUSTIBLES

|                     |                        |
|---------------------|------------------------|
| Oil & Grease        | None                   |
| Cable               | Cable insulation       |
| Class A             | None                   |
| Charcoal            | None                   |
| Plastics            | Plastic, battery cases |
| Miscellaneous       | Rubber                 |
| Miscellaneous Gases | None                   |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                               |
|------------------------|-------------------------------|
| Suppression (type)     | None                          |
| Hose Stations          | None                          |
| Portable Extinguishers | None                          |
| Detectors (type)       | Thermal det (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |             |
|-------------------------------------|-------------|
| Actual                              |             |
| - Walls                             | N,S,E,W-C/3 |
| - Floors, Ceiling, or Roof          | Concrete    |
| - Fixed Openings                    | None        |
| - Penetrations                      | See text    |
| - Doors (Fire-rated Class/Zone no.) | A/2409      |

### CONSTRUCTION

All walls of the area are constructed of 3-h-rated reinforced concrete. The floor is base slab, and the roof is nonrated reinforced concrete. There is a fire-rated Class A door in the west wall to fire area 2409. A 3-h-rated vent damper, communicating with area 2407, is provided in the north wall.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this fire hazard analysis.

### FIRE PROTECTION

This area is equipped with a thermal detection system that provides an early warning alarm, both locally and in the MCR. There is no automatic suppression system within the area. No manual firefighting equipment is available in this area; however, a portable CO<sub>2</sub> fire extinguisher and a CO<sub>2</sub> hose reel are located in adjacent area 2409.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

Since the area is fully bounded by 3-h-rated barriers, propagation of the design basis fire outside of this area is not considered credible. In addition, due to the low combustible loading and installed detection system, which alarms both locally and in the MCR, the fire is expected to be detected in its incipient stages to ensure prompt response by the plant fire brigade. The available manual firefighting equipment is adequate to extinguish the fire. The design basis fire for this area will not affect the ability to achieve safe shutdown or result in any release of radioactivity.

FIRE AREA 2407

This area is considered safety related.

DESCRIPTION

Diesel Generator Room 2C

Diesel Generator Building - el 130 ft

DRAWING NUMBER(S)

H-11846

AREA

1,598 ft<sup>2</sup>

COMBUSTIBLES

Oil & Grease

Cable

Class A

Charcoal

Plastics

Miscellaneous

Miscellaneous Gases

Lube oil

Cable insulation

Paper, trash

None

Plastic

None

None

DESIGN BASIS FIRE

Combustible Loading

Max. Permissible Loading

Fire Duration

Low

100,000 Btu/ft<sup>2</sup>

Less than 1 h

FIRE PROTECTION (AVAILABLE)

Suppression (type)

Hose Stations

Portable Extinguishers

Detectors (type)

CO<sub>2</sub> flood (FC) (see section 7.0)

None

CO<sub>2</sub>; Dry chem

Heat det (FC) (see section 7.0)

FIRE RESISTANCE RATING

Actual

- Walls

- Floors, Ceiling or Roof

- Fixed Openings

- Penetrations

- Doors (Fire-rated Class/Zone #)

N,S,E,W-C/3

Concrete

None

See text

2-A/0401;A/2408

### CONSTRUCTION

The walls of the area are constructed of 3-h-rated, reinforced concrete. One large nonrated and one small 3-h-rated ventilation damper are located in the east wall, communicating with area 0401. An additional 3-h-rated damper in the south wall communicates with area 2406. All dampers are closed by high temperature, CO<sub>2</sub> flooding system actuation, or manual actuation. Fire-rated Class A doors in the east and west walls access area 0401 and 2408, respectively. A fire-rated Class A rolling door is also provided, in series with the large damper, in the east wall. The floor and ceiling are both nonrated, reinforced concrete.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

Heat detectors are located within the area and provide both local and MCR alarms. The area is also equipped with an automatic CO<sub>2</sub> flooding system. Portable CO<sub>2</sub> and dry chemical fire extinguishers are located in the area for manual firefighting. In addition, a CO<sub>2</sub> hose reel is located in adjacent area 2408. Hydrants are located immediately outside of the diesel generator building.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

Due to the enclosure of this area with 3-h-rated barriers and the low combustible loading, the design basis fire is not expected to propagate outside of the area. A design basis fire in this area will, therefore, not affect the ability to achieve safe shutdown or result in any release of radioactivity. In addition, the local and MCR alarms provided by the installed detection system will ensure prompt response to and extinguishment of the fire either by the installed suppression system or by the plant fire brigade using the available manual firefighting equipment. Overflow of the diesel generator fuel oil day tanks as a result of circuit faults in this area is evaluated in calculation 1380-027-C010 in appendix L of this fire hazard analysis.



FIRE AREA 2408

This area is considered safety related.

DESCRIPTION

Switchgear Room 2F

Diesel Generator Building - el 130 ft

DRAWING NUMBER(S)

H-11846

AREA

1,013 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | CO <sub>2</sub>                  |
| Portable Extinguishers | CO <sub>2</sub>                  |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                        |
|-----------------------------------|------------------------|
| Actual                            |                        |
| - Walls                           | N,S,E-C/3;W-C/NR       |
| - Floors, Ceiling or Roof         | Concrete               |
| - Fixed Openings                  | None                   |
| - Penetrations                    | See text               |
| - Doors (Fire-rated Class/Zone #) | A/2402,2407;NR/outside |

### CONSTRUCTION

The north, south, and east walls of this area are 3-h-rated reinforced concrete walls. The west wall is nonrated, reinforced concrete. There are two fire-rated Class A doors in the east wall to areas 2402 and 2407. There is one nonrated double door in the west wall with nonrated dampers in the vent located above the door, both communicating with the outside. The floor and ceiling are nonrated, reinforced concrete.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this document.

### FIRE PROTECTION

This area is equipped with full area coverage smoke detection which provides an early warning alarm, both locally and in the MCR, to ensure prompt response by the plant fire brigade. The area is also provided with a CO<sub>2</sub> hose reel and a portable CO<sub>2</sub> fire extinguisher to support manual firefighting. Hydrants are located immediately outside of the diesel generator building.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

This area has a low combustible loading consisting of cable insulation. The cable used at E. I. Hatch Nuclear Plant is predominantly IEEE-383 qualified. A fire in this area would, therefore, be expected to develop slowly, allowing ample time for response by the plant fire brigade. The smoke detectors are expected to provide early warning to further ensure prompt response by the plant fire brigade. The manual firefighting equipment provided is adequate to extinguish a fire in this area. In the unlikely event that early warning and response does not occur, the rated barriers between this and any adjacent areas preclude propagation of the design basis fire beyond the boundaries of this area. A fire in this area will not affect the capability to achieve or maintain safe shutdown or result in the release of any radioactivity. Overflow of the diesel generator fuel oil day tanks due to circuit faults in this area is evaluated in calculation 1380-027-C010 in appendix L of this fire hazard analysis.

FIRE AREA 2409

This area is considered safety related.

DESCRIPTION

Switchgear Room 2G

Diesel Generator Building - el 130 ft

DRAWING NUMBER(S)

H-11846

AREA

1,013 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & Grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | Plastic          |
| Miscellaneous       | None             |
| Miscellaneous Gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | CO <sub>2</sub>                  |
| Portable Extinguishers | CO <sub>2</sub>                  |
| Detectors (type)       | Smoke det (FC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                        |
|-----------------------------------|------------------------|
| Actual                            |                        |
| - Walls                           | N,S,E-C/3;W-C/NR       |
| - Floors, Ceiling or Roof         | Concrete               |
| - Fixed Openings                  | None                   |
| - Penetrations                    | See text               |
| - Doors (Fire-rated Class/Zone #) | A/1411,2406;NR/outside |

### CONSTRUCTION

The north, south, and east walls of this area are 3-h-rated, reinforced concrete walls. The west wall is nonrated, reinforced concrete. There are two fire-rated Class A doors in the east wall to areas 1411 and 2406. There is one nonrated double door in the west wall with nonrated dampers in the vent located above the door, both communicating with the outside. The floor and ceiling are nonrated, reinforced concrete.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier or have been evaluated as acceptable as is documented in appendix I of this fire hazard analysis.

### FIRE PROTECTION

This area is equipped with full area coverage smoke detection which provides an early warning alarm, both locally and in the MCR to ensure prompt response by the plant fire brigade. The area is also provided with a CO<sub>2</sub> hose reel and a portable CO<sub>2</sub> fire extinguisher to support manual firefighting. Yard hydrants are located immediately outside of the diesel generator building.

### APPENDIX R EXEMPTIONS

An exemption from the Section III.G.2 requirement for a full area coverage suppression system has been granted for this area per the April 1984 Safety Evaluation Report.

### CONSEQUENCES OF DESIGN BASIS FIRE

This area has a low combustible loading consisting of cable insulation. The cable used at E. I. Hatch Nuclear Plant is predominantly IEEE-383 qualified. A fire in this area would, therefore, be expected to develop slowly, allowing ample time for response by the plant fire brigade. The smoke detectors are expected to provide early warning to further ensure prompt response by the plant fire brigade. The manual firefighting equipment provided is adequate to extinguish a fire in this area. In the unlikely event that early warning and response does not occur, the rated barriers between this and any adjacent areas preclude propagation of the design basis fire beyond the boundaries of this area. A fire in this area will not affect the capability to achieve or maintain safe shutdown or result in the release of any radioactivity. Overflow of the diesel generator fuel oil day tanks due to circuit faults in this area is evaluated in calculation 1380-027-C010 in appendix L of this document.

FIRE AREA 2601

This area is considered safety related.

DESCRIPTION

Unit 2 Service Water Valve Pit 2A  
East of the Diesel Generator Building - el 130 ft

DRAWING NUMBER(S)

H-11802

AREA

144 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                        |
|------------------------|------------------------|
| Suppression (type)     | None                   |
| Hose Stations          | None - Hydrants nearby |
| Portable Extinguishers | None                   |
| Detectors (type)       | None                   |

FIRE RESISTANCE RATING

|                                     |                                             |
|-------------------------------------|---------------------------------------------|
| Actual                              |                                             |
| - Walls                             | N,S,E,W-C/NR - Below grade                  |
| - Floors, Ceiling, or Roof          | Floor-gravel over concrete; ceiling-grating |
| - Fixed Openings                    | OP/Outside                                  |
| - Penetrations                      | See text                                    |
| - Doors (Fire-rated Class/Zone no.) | None                                        |

### CONSTRUCTION

The valve pit is constructed with reinforced concrete walls and floor, approximately 14 ft below grade. The "roof" is grating with access hatch. This construction is defined as a separate fire area due to a spatial separation of greater than 20 ft between this and any other plant areas. There are two conduit runs between this area and area 2602 (service water valve pit 2B). These are not considered to be propagation paths due to their small size, long length, and the negligible combustible loading in both areas. Since this is an open yard area, there are no other penetrations.

### FIRE PROTECTION

Two hydrants, one to the west and one to the southeast of the valve pits, are accessible for manual firefighting.

### APPENDIX R EXEMPTIONS

An exemption from the literal requirements in Section III.G.2 for complete 3-h barriers has been requested for this area as documented in appendix C of this document. However, per the January 1987 NRC SER, no exemption is required, based on part 4 of NRC Generic Letter 86-10.

### CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire for this area is considered to be due to transient combustibles. A fire involving transient combustibles within this area will result in no unacceptable consequences, since loss of the redundant safe shutdown circuits in the area may be compensated for by manual actions. The only fires of concern are external exposure fires involving both this area and area 2602 (service water valve pit 2B). These areas are separated by approximately 30 ft. An asphalt road runs between the two areas and is not considered a propagation path due to a lack of any ignition sources or combustibles sufficient to transfer enough heat to the asphalt material to raise it to its ignition temperature. The only transient combustible presenting an exposure fire hazard to both areas is the truck transport of fuel oil to the auxiliary boiler fuel oil tank. The only credible mechanism for a large spill of fuel oil is human error during refilling operations. The auxiliary boiler fuel oil tank is greater than 50 ft from the valve pits. The grade from the tank slopes to a yard drain near the tank which is still greater than 50 ft from the pits. Each pit has a 6-in. curb at the edge of the road to prevent the entrance of liquid combustibles. Thus, a fire in or near this area does not affect the ability to safely shut down the plant. This area contains no radioactive materials which could be released in the event of a fire.

FIRE AREA 2602

This area is considered safety related.

DESCRIPTION

Unit 2 Service Water Valve Pit 2B

East of the Diesel Generator Building - el 130 ft

DRAWING NUMBER(S)

H-11802

AREA

144 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                        |
|------------------------|------------------------|
| Suppression (type)     | None                   |
| Hose Stations          | None - Hydrants nearby |
| Portable Extinguishers | None                   |
| Detectors (type)       | None                   |

FIRE RESISTANCE RATING

|                                     |                                             |
|-------------------------------------|---------------------------------------------|
| Actual                              |                                             |
| - Walls                             | N,S,E,W-C/NR - Below grade                  |
| - Floors, Ceiling, or Roof          | Floor-gravel over concrete; ceiling-grating |
| - Fixed Openings                    | OP/Outside                                  |
| - Penetrations                      | See text                                    |
| - Doors (Fire-rated Class/Zone no.) | None                                        |

### CONSTRUCTION

The valve pit is constructed with reinforced concrete walls and floor, approximately 14 ft below grade. The "roof" is grating with access hatch. This construction is defined as a separate fire area due to the spatial separation of greater than 20 ft between this and any other plant areas. There are two conduit runs between this area and area 2601 (service water valve pit 2A). These are not considered to be propagation paths due to their small size, long length, and the negligible combustible loading in both areas. Since this is an open yard area, there are no other penetrations.

### FIRE PROTECTION

Two hydrants, one to the west and one to the southeast of the valve pits, are accessible for manual firefighting.

### APPENDIX R EXEMPTIONS

An exemption from the literal requirements of Section III.G.2 for complete 3-h barriers has been requested for this area as is documented in appendix C of this document. However, per the January 1987 NRC SER, no exemption is required, based on part 4 of NRC Generic Letter 86-10.

### CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire for this area is considered to be due to transient combustibles. A fire involving transient combustibles within this area will result in no unacceptable consequences, since loss of the redundant safe shutdown circuits in the area may be compensated for by manual actions. The only fires of concern are external exposure fires involving both this area and area 2601 (service water valve pit 2A). These areas are separated by approximately 30 ft. An asphalt road runs between the two areas and is not considered a propagation path due to a lack of any ignition sources or combustibles sufficient to transfer enough heat to the asphalt material to raise it to its ignition temperature. The only transient combustible presenting an exposure fire hazard to both areas is the truck transport of fuel oil to the auxiliary boiler fuel oil tank. The only credible mechanism for a large spill of fuel oil is human error during refilling operations. The auxiliary boiler fuel oil tank is greater than 50 ft from the valve pits. The grade from the tank slopes to a yard drain near the tank, which is still greater than 50 ft from the pits. Each pit has a 6-in. curb at the edge of the road to prevent the entrance of liquid combustibles. Thus, a fire in or near this area does not affect the ability to safely shut down the plant. This area contains no radioactive materials which could be released in the event of a fire.



FIRE AREA 2603

This area is considered safety related.

DESCRIPTION

Unit 2 Condensate Storage Tank/Pump  
East of the Unit 2 Radwaste Building - el 130 ft

DRAWING NUMBER(S)

H-11802

AREA

4,779 ft<sup>2</sup>

COMBUSTIBLES

|                     |                          |
|---------------------|--------------------------|
| Oil & Grease        | Grease                   |
| Cable               | None                     |
| Class A             | Plywood, clothing, trash |
| Charcoal            | None                     |
| Plastics            | Plastic                  |
| Miscellaneous       | Rubber                   |
| Miscellaneous Gases | None                     |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                        |
|------------------------|------------------------|
| Suppression (type)     | None                   |
| Hose Stations          | None - Hydrants nearby |
| Portable Extinguishers | None                   |
| Detectors (type)       | None                   |

FIRE RESISTANCE RATING

|                                   |                                   |
|-----------------------------------|-----------------------------------|
| Actual                            |                                   |
| - Walls                           | N,S,E,W-C/NR                      |
| - Floors, Ceiling or Roof         | Floor-concrete slab; ceiling-open |
| - Fixed Openings                  | OP/Outside                        |
| - Penetrations                    | See text                          |
| - Doors (Fire-rated Class/Zone #) | None                              |

### CONSTRUCTION

The condensate storage tank and pump enclosure are constructed with reinforced concrete walls approximately 20 ft high on a reinforced concrete slab. The "ceiling" is open. Access is via metal stairs on the side of the enclosure. Since this is an open yard area, there are no penetrations.

### FIRE PROTECTION

There is no detection or automatic suppression system in the area. A hydrant is located at the northeast corner of the enclosure.

### APPENDIX R EXEMPTIONS

An exemption from the literal requirements in Section III.G.2 for complete 3-h barriers has been requested for this area as is documented in appendix C of this document. However, per the January 1987 NRC SER, no exemption is required, based on part 4 of NRC Generic Letter 86-10.

### CONSEQUENCES OF DESIGN BASIS FIRE

A fire in this area that damages redundant safe shutdown equipment is not considered credible for the following reasons:

1. The majority of the combustibles in this fire area are small quantities associated with dress out areas at the top of the access stairs. These are separated from the nearest safe shutdown components by at least 15 ft.
2. Due to the very limited amount of equipment inside the enclosure, there is little likelihood of transients commonly associated with maintenance and modification activities being introduced. Similarly, there is little likelihood for the introduction of ignition sources.
3. The only safe shutdown components are located on opposite sides of the condensate storage tank and are not susceptible to a single exposure fire. The circuits associated with these components are routed in conduit, which provides a sufficient radiant heat shield for the low concentration of combustibles.
4. The condensate tank enclosure is sufficiently constructed to protect safe shutdown components from a fire external to the enclosure.

In addition, the available manual suppression is adequate to extinguish any insignificant fire which may occur. A fire in this area will not affect the ability to achieve safe shutdown or result in a significant release of radioactivity.

FIRE AREA 2604

This area is not considered safety related.

DESCRIPTION

Hot Machine Shop and Unit 2 Nitrogen Storage Tank  
East of Unit 2 Reactor Building - el 130 ft

DRAWING NUMBER(S)

H-11852

AREA

5,189 ft<sup>2</sup>

COMBUSTIBLES

|                     |                                                         |
|---------------------|---------------------------------------------------------|
| Oil & Grease        | Lube oil                                                |
| Cable               | None                                                    |
| Class A             | Wood, plank, paper, clothing, trash, rags, desks, files |
| Charcoal            | None                                                    |
| Plastics            | Plastic                                                 |
| Miscellaneous       | Rubber                                                  |
| Miscellaneous Gases | None                                                    |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | H <sub>2</sub> O                 |
| Portable Extinguishers | CO <sub>2</sub>                  |
| Detectors (type)       | Smoke det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |                           |
|-----------------------------------|---------------------------|
| Actual                            |                           |
| - Walls                           | N,S,E,W-C/NR              |
| - Floors, Ceiling or Roof         | Concrete                  |
| - Fixed Openings                  | None                      |
| - Penetrations                    | See text                  |
| - Doors (Fire-rated Class/Zone #) | 2-NR/Outside;NR/1604,2203 |

## CONSTRUCTION

The hot machine shop area, including the Unit 2 nitrogen storage tank enclosure, is constructed of nonrated, reinforced concrete. The north wall is adjacent to area 1604 and forms a part of the nitrogen tank enclosure. There is a double, nonrated airlock door in the north wall accessing area 1604. The west wall, adjacent to areas 1203 and 2203, contains a nonrated door accessing area 2203. The east and south walls are exterior building walls. The south wall has two nonrated doors accessing the outside. The floor and ceiling are nonrated, reinforced concrete. The enclosure around the nitrogen tank is constructed with partial height walls and is open at the top.

Penetrations in the area boundaries are either equal to or greater in rating than the penetrated barrier, have been exempted, or have been evaluated as acceptable as is documented in appendix I of this document.

## FIRE PROTECTION

The machine shop portion of this area is equipped with smoke detectors; the nitrogen tank portion has no detection or suppression system. The area is also equipped with portable CO<sub>2</sub> fire extinguishers and hose stations for manual firefighting.

## APPENDIX R EXEMPTIONS

An exemption from the Section III.G.2 requirement for complete 3-h barriers has been requested for this area as is documented in appendix C of this document. However, per the January 1987 NRC SER, no exemption is required, based on part 4 of the NRC Generic Letter 86-10.

## CONSEQUENCES OF DESIGN BASIS FIRE

Due to the negligible combustible loading in the area, a fire of significant size is not considered credible. The design basis fire is not of sufficient magnitude to be capable of breaching the nonrated reactor building exterior wall adjacent to this area due to the substantial construction of the wall as both a reactor building exterior wall of solid concrete approximately 2 ft thick and as a secondary containment boundary with airtight sealed penetrations. Similarly, the design basis fire is not expected to propagate through any of the other exterior walls of this area to present an exposure fire hazard to any other areas. A fire in this area will result in only localized damage. Since there are no safe shutdown circuits in the area, the only impact on safe shutdown capability would be the loss of the Unit 2 nitrogen system. Safe shutdown can be achieved using the Unit 1 nitrogen system. This area contains minimal amounts of surface contaminated radioactive materials. Release of these materials in the event of a fire is not expected to occur since propagation of a fire outside of the area is not expected.

FIRE AREA 2605

This area is not considered safety related.

DESCRIPTION

Unit 2 Circulating Water Pump Pit  
East of the Power Block

DRAWING NUMBER(S)

H-11802

AREA

2,555 ft<sup>2</sup>

COMBUSTIBLES

|                     |          |
|---------------------|----------|
| Oil & Grease        | Lube oil |
| Cable               | None     |
| Class A             | None     |
| Charcoal            | None     |
| Plastics            | None     |
| Miscellaneous       | Rubber   |
| Miscellaneous Gases | None     |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 46,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                                        |
|------------------------|----------------------------------------|
| Suppression (type)     | None                                   |
| Hose Stations          | None - Hydrants @ CST & Cooling towers |
| Portable Extinguishers | CO <sub>2</sub>                        |
| Detectors (type)       | None                                   |

FIRE RESISTANCE RATING

|                                     |                              |
|-------------------------------------|------------------------------|
| Actual                              |                              |
| - Walls                             | N,S,E,W-C/NR                 |
| - Floors, Ceiling or Roof           | Floor-Concrete; Ceiling-None |
| - Fixed Openings                    | OP/Outside                   |
| - Penetrations                      | See text                     |
| - Doors (Fire-rated Class/Zone no.) | None                         |

### CONSTRUCTION

The pump pit is constructed of reinforced concrete (below grade) with a reinforced concrete slab floor. The "roof" is open and at grade. The walls are approximately 15 ft high. Since this is an open yard area, penetrations are not sealed.

### FIRE PROTECTION

This area contains portable CO<sub>2</sub> fire extinguishers. Fire hydrants are located near the condensate storage tanks and the cooling towers. No automatic detection or suppression systems are provided.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire for this area is assumed to result in the loss of both Unit 2 circulating water pumps. However, the pumps are not required for safe shutdown. Other safe shutdown circuits and components are either embedded or located on the sides of the intake flume or the on the top of the pit wall. Loss of the circuits has been evaluated as acceptable by Bechtel calculation 66-2601. The components have been demonstrated to fail in the required position due to effects of the fire by the same calculation. Due to the low combustible loading, the substantial, below grade construction of the pit, and the large (greater than 50 ft) spatial separation of the pit from any other fire areas, propagation of the design basis fire outside of this area is not considered credible.

FIRE AREA 2606

This area is not considered safety related.

DESCRIPTION

Unit 2 Transformer Yard  
West of the Unit 2 Turbine Building

DRAWING NUMBER(S)

H-11802, H-11850

AREA

Approximately 16,500 ft<sup>2</sup> enclosing all six transformers and the fire protection valve house.

COMBUSTIBLES

|                     |                 |
|---------------------|-----------------|
| Oil & Grease        | Transformer oil |
| Cable               | None            |
| Class A             | None            |
| Charcoal            | None            |
| Plastics            | None            |
| Miscellaneous       | None            |
| Miscellaneous Gases | None            |

DESIGN BASIS FIRE

|                          |                  |
|--------------------------|------------------|
| Combustible Loading      | High             |
| Max. Permissible Loading | See text         |
| Fire Duration            | Greater than 3 h |

FIRE PROTECTION (AVAILABLE)

|                        |                                    |
|------------------------|------------------------------------|
| Suppression (type)     | Water spray (PC) (see section 7.0) |
| Hose Stations          | Hydrants                           |
| Portable Extinguishers | Dry chem                           |
| Detectors (type)       | Dry pilot (PC) (see section 7.0)   |

FIRE RESISTANCE RATING

|                                     |                           |
|-------------------------------------|---------------------------|
| Actual                              |                           |
| - Walls                             | None                      |
| - Floors, Ceiling, or Roof          | Concrete Pad/Gravel; None |
| - Fixed Openings                    | N/A                       |
| - Penetrations                      | See text                  |
| - Doors (Fire-rated Class/Zone no.) | N/A                       |

## CONSTRUCTION

This open area contains six large oil filled transformers, mounted on concrete pads surrounded by gravel, which are designed to contain any oil spills to a localized area. All six transformers are located within 50 ft of the turbine building exterior wall, which forms the east boundary of the area. The transformer cases are constructed of heavy sheet steel. Since this is an open yard area, there are no penetrations.

## FIRE PROTECTION

Each transformer is equipped with a fixed automatic water spray suppression system activated by a dry pilot system in the transformers. The area is served by three fire hydrants. The fire protection valve house is equipped with a portable dry chemical fire extinguisher for manual firefighting. In addition, the high visibility and traffic in the area would provide rapid detection of any fire and ensure prompt response by the plant fire brigade which is trained in the fighting of transformer fires.

## APPENDIX "R" EXEMPTIONS

None.

## CONSEQUENCES OF DESIGN BASIS FIRE

This area presents an exposure fire hazard to the Unit 2 turbine building. The guidance of Appendix A to BTP 9.5-1 position D.1.h indicates that oil filled transformers within 50 ft of the safety-related structures should have any openings in the separating wall sealed to a 3-h rating. Three transformers in this area are less than 20 ft from the turbine building exterior wall; three transformers are less than 40 ft from the same wall. The turbine building contains circuits for both safe shutdown paths. This arrangement is considered acceptable since:

- (1) The only openings in the turbine building west wall in proximity to these transformers are the switchgear control cable tray and the main plant bus ducts;
- (2) Radiant and convected heat entering the openings will be rapidly diluted in the large volume of the turbine building;
- (3) Each transformer is provided with an automatic water spray system;
- (4) Only one safe shutdown path will be affected in the unlikely event a fire propagates to the turbine building.
- (5) The PPT transformer is separated from the station auxiliary transformers by a fire barrier.
- (6) A fluid detection curb is provided around the PPT transformer.



FIRE AREA 2607

This area is not considered safety related.

DESCRIPTION

Unit 2 Radwaste Dilution Valve Pit  
Adjacent to the Unit 2 Radwaste Loading Dock

DRAWING NUMBER(S)

H-11802

AREA

Approximately 100 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |      |
|------------------------|------|
| Suppression (type)     | None |
| Hose Stations          | None |
| Portable Extinguishers | None |
| Detectors (type)       | None |

FIRE RESISTANCE RATING

|                                   |                            |
|-----------------------------------|----------------------------|
| Actual                            |                            |
| - Walls                           | N,S,E,W-Concrete           |
| - Floors, Ceiling or Roof         | Gravel over concrete; Open |
| - Fixed Openings                  | OP/Outside                 |
| - Penetrations                    | See text                   |
| - Doors (Fire-rated Class/Zone #) | None                       |

### CONSTRUCTION

The valve pit is constructed with nonrated, reinforced concrete walls and floor, approximately 14 ft below grade. The "roof" is open. This construction is defined as a separate fire area due to the spatial separation of greater than 20 feet between this and any other plant areas. Since this is an open yard area, there are no penetrations.

### FIRE PROTECTION

A fire hydrant is located to the east of the valve pit. No other detection or suppression systems are provided.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

There is no design basis fire postulated for this area due to the lack of fixed combustibles. An exposure fire to this area or a fire in this area due to the introduction of transient combustibles is unlikely due to the separation of this pit from other fire areas and since normal activities would not result in more than a negligible transient combustible loading. In the unlikely event of a fire in this area, no adverse impact on the ability to achieve safe shutdown would result since fire induced damage to all of the safe shutdown circuits and components in this area has been analyzed as acceptable. Manual firefighting equipment (hydrants) for this area is adequate to extinguish any fire which may occur as the result of the introduction of transient combustibles.

FIRE AREA 2608

This area is not considered safety related.

DESCRIPTION

Unit 2 Transformers in the Unit 1 Transformer Yard  
Unit 1 Transformer Yard

DRAWING NUMBER(S)

H-11802, H-11850

AREA

Each transformer covers approximately 400 ft<sup>2</sup>. The entire yard area is approximately 9,000 ft<sup>2</sup>.

COMBUSTIBLES

|                     |                 |
|---------------------|-----------------|
| Oil & Grease        | Transformer oil |
| Cable               | None            |
| Class A             | None            |
| Charcoal            | None            |
| Plastics            | None            |
| Miscellaneous       | None            |
| Miscellaneous Gases | None            |

DESIGN BASIS FIRE

|                          |                  |
|--------------------------|------------------|
| Combustible Loading      | High             |
| Max. Permissible Loading | See text         |
| Fire Duration            | Greater than 3 h |

FIRE PROTECTION (AVAILABLE)

|                        |                                    |
|------------------------|------------------------------------|
| Suppression (type)     | Water spray (PC) (see section 7.0) |
| Hose Stations          | None                               |
| Portable Extinguishers | None                               |
| Detectors (type)       | Dry pilot (PC) (see section 7.0)   |

FIRE RESISTANCE RATING

|                                     |                                         |
|-------------------------------------|-----------------------------------------|
| Actual                              |                                         |
| - Walls                             | None                                    |
| - Floors, Ceiling, or Roof          | Floor-Concrete Pad/Gravel; Ceiling-None |
| - Fixed Openings                    | N/A                                     |
| - Penetrations                      | See text                                |
| - Doors (Fire-rated Class/Zone no.) | N/A                                     |

### CONSTRUCTION

This is an open yard area. The transformer oil is contained in the steel transformer cases. The transformers are mounted on concrete pads with deep gravel paving over the balance of the area. Since this is an open yard area, there are no penetrations.

### FIRE PROTECTION

The fire protection for this area consists of fixed automatic water spray suppression systems for each transformer, actuated by the dry pilot portion of the system. Main control room alarms are provided to indicate suppression system actuation. Fire hydrants are located at the perimeter of the area. In addition, the gravel paving is designed to contain any oil spills to a localized area.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

This area contains no safe shutdown or safety-related equipment and presents no exposure fire hazard to any safe shutdown or safety-related equipment. A fire in this area is not expected to propagate due to the combination of fixed suppression systems, gravel paving designed to contain any oil spills in a localized area, and large spatial separation from all other areas of the plant. The available manual firefighting equipment and high visibility of this area enhance the likelihood that any fires would be quickly detected and extinguished by the plant fire brigade.

FIRE AREA 2610

This area is considered safety related.

DESCRIPTION

Diesel Fuel Oil Storage Tank 2A  
Underground - below 130 ft

DRAWING NUMBER(S)

H-11802

AREA

No area calculation is required due to tanks being located underground.

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |               |
|--------------------------|---------------|
| Combustible Loading      | Low           |
| Max. Permissible Loading | See text      |
| Fire Duration            | Less than 1 h |

FIRE PROTECTION (AVAILABLE)

|                        |          |
|------------------------|----------|
| Suppression (type)     | None     |
| Hose Stations          | Hydrant  |
| Portable Extinguishers | Dry chem |
| Detectors (type)       | None     |

FIRE RESISTANCE RATING

|                                   |          |
|-----------------------------------|----------|
| Actual                            |          |
| - Walls                           | See text |
| - Floors, Ceiling or Roof         | See text |
| - Fixed Openings                  | See text |
| - Penetrations                    | See text |
| - Doors (Fire-rated Class/Zone #) | See text |

### CONSTRUCTION

The diesel fuel oil storage tanks are 40,000-gal capacity underground tanks approximately 12 ft below grade. The area surrounding the tanks has been designed to drain spills and water away from the fire area.

### FIRE PROTECTION

Two hydrants, one to the southeast and one to the north of the fuel oil storage tanks, are accessible for manual firefighting. Three portable dry chemical fire extinguishers are post mounted in the vicinity of the tanks. A 150-lb dry chemical extinguisher is located near fire area 0501 approximately 300 ft away.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF A DESIGN BASIS FIRE

A fire involving transient combustibles within this area will result in no unacceptable consequences since all components and the fuel oil storage tanks are located underground. A fire involving a fuel oil tank truck will not impose a threat to the storage tanks or operation of the diesel generators. The diesel generators are separated from this fire area by a noncombustible exterior structural wall. Since the safe shutdown components are below grade and a tank truck spill will not impose a threat, there is no effect on safe shutdown capability. This area contains no radioactive materials which could be released in the event of a fire.

FIRE AREA 2612

This area is considered safety related.

DESCRIPTION

Diesel Fuel Oil Storage Tank 2C  
Underground - below 130 ft

DRAWING NUMBER(S)

H-11802

AREA

No area calculation is required due to tanks being located underground.

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |               |
|--------------------------|---------------|
| Combustible Loading      | Low           |
| Max. Permissible Loading | See text      |
| Fire Duration            | Less than 1 h |

FIRE PROTECTION (AVAILABLE)

|                        |          |
|------------------------|----------|
| Suppression (type)     | None     |
| Hose Stations          | Hydrant  |
| Portable Extinguishers | Dry chem |
| Detectors (type)       | None     |

FIRE RESISTANCE RATING

|                                   |          |
|-----------------------------------|----------|
| Actual                            |          |
| - Walls                           | See text |
| - Floors, Ceiling or Roof         | See text |
| - Fixed Openings                  | See text |
| - Penetrations                    | See text |
| - Doors (Fire-rated Class/Zone #) | See text |

### CONSTRUCTION

The diesel fuel oil storage tanks are 40,000-gal capacity underground tanks approximately 12 ft below grade. The area surrounding the tanks has been designed to drain spills and water away from the fire area.

### FIRE PROTECTION

Two hydrants, one to the southeast and one to the north of the fuel oil storage tanks, are accessible for manual firefighting. Three portable dry chemical fire extinguishers are post mounted in the vicinity of the tanks. A 150-lb dry chemical extinguisher is located near fire area 0501 approximately 300 ft away.

### APPENDIX R EXEMPTIONS

None.

### CONSEQUENCES OF A DESIGN BASIS FIRE

A fire involving transient combustibles within this area will result in no unacceptable consequences since all components and the fuel oil storage tanks are located underground. A fire involving a fuel oil tank truck will not impose a threat to the storage tanks or operation of the diesel generators. The diesel generators are separated from this fire area by a noncombustible exterior structural wall. Since the safe shutdown components are below grade and a tank truck spill will not impose a threat, there is no effect on safe shutdown capability. This area contains no radioactive materials which could be released in the event of a fire.



FIRE AREA 2801

This area is not considered safety related.

DESCRIPTION

Unit 2 "A" Cooling Tower and Switchgear Building  
East of the Unit 2 Power Block - el 118 ft

DRAWING NUMBER(S)

H-11802, H-11856, H-11861

AREA

35,000 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None - hydrants in area          |
| Portable Extinguishers | CO <sub>2</sub> ; Dry chem       |
| Detectors (type)       | Smoke det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |          |
|-----------------------------------|----------|
| Actual                            |          |
| - Walls                           | See text |
| - Floors, Ceiling or Roof         | See text |
| - Fixed Openings                  | See text |
| - Penetrations                    | See text |
| - Doors (Fire-rated Class/Zone #) | See text |

### CONSTRUCTION

The cooling towers are constructed with concrete end walls, concrete dividing walls between sections, and a concrete basin. The spray diffuser frames are metal and the diffuser fill material is plastic. The switchgear house is constructed of sheet metal on a wood frame over a concrete slab. Since this is an open yard area, not important to safe shutdown and located away from other plant areas, penetrations are not sealed.

### FIRE PROTECTION

There is no suppression system for fire protection in this area. The switchgear house is equipped with smoke detectors and portable CO<sub>2</sub> and dry chemical fire extinguishers. Both local and main control room (MCR) alarms are provided to indicate detection system actuation to ensure prompt response by the plant fire brigade. In addition, hydrants are provided near this area for manual firefighting.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

This area contains no safe shutdown equipment and does not present an exposure fire hazard to any other plant areas. There are no radioactive materials in the area which could be released in the event of a fire. The installed detection is expected to promptly notify the plant operators and the plant fire brigade to extinguish any fires which might occur. The open area around the towers and the numerous hydrants provided enhance the ability of the plant fire brigade to manually fight any fires. A fire in this area is not expected to impair the ability to safely shut down the plant or to result in any radioactive release.

FIRE AREA 2802

This area is not considered safety related.

DESCRIPTION

Unit 2 "B" Cooling Tower and Switchgear Building  
East of the Unit 2 Power Block - el 118 ft

DRAWING NUMBER(S)

H-11802, H-11856, H-11861

AREA

35,000 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None - hydrants in area          |
| Portable Extinguishers | CO <sub>2</sub> Dry chem         |
| Detectors (type)       | Smoke det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                     |          |
|-------------------------------------|----------|
| Actual                              |          |
| - Walls                             | See text |
| - Floors, Ceiling, or Roof          | See text |
| - Fixed Openings                    | See text |
| - Penetrations                      | See text |
| - Doors (Fire-rated Class/Zone no.) | See text |

### CONSTRUCTION

The cooling towers are constructed with concrete end walls, concrete dividing walls between sections, and a concrete basin. The spray diffuser frames are metal and the diffuser fill material is plastic. The switchgear house is constructed of sheet metal on a wood frame over a concrete slab. Since this is an open yard area not important to safe shutdown and located away from other plant areas, penetrations are not sealed.

### FIRE PROTECTION

There is no suppression system for fire protection in this area. The switchgear house is equipped with smoke detectors and portable CO<sub>2</sub> and dry chemical fire extinguishers. Both local and MCR alarms are provided to indicate detection system actuation to ensure prompt response by the plant fire brigade. In addition, hydrants are provided near this area for manual firefighting.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

This area contains no safe shutdown equipment and does not present an exposure fire hazard to any other plant areas. There are no radioactive materials in the area that could be released in the event of a fire. The installed detection is expected to promptly notify the plant operators and the plant fire brigade to extinguish any fires that might occur. The open area around the towers and the numerous hydrants provided enhance the ability of the plant fire brigade to manually fight any fires. A fire in this area is not expected to impair the ability to safely shut down the plant or to result in any radioactive release.

FIRE AREA 2803

This area is not considered safety related.

DESCRIPTION

Unit 2 "C" Cooling Tower and Switchgear Building  
East of the Unit 2 Power Block - el 118 ft

DRAWING NUMBER(S)

H-11802, H-11856, H-11861

AREA

35,000 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | None |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible Loading      | Low                         |
| Max. Permissible Loading | 100,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h               |

FIRE PROTECTION (AVAILABLE)

|                        |                                  |
|------------------------|----------------------------------|
| Suppression (type)     | None                             |
| Hose Stations          | None - hydrants in area          |
| Portable Extinguishers | CO <sub>2</sub> Dry chem         |
| Detectors (type)       | Smoke det (PC) (see section 7.0) |

FIRE RESISTANCE RATING

|                                   |          |
|-----------------------------------|----------|
| Actual                            |          |
| - Walls                           | See text |
| - Floors, Ceiling or Roof         | See text |
| - Fixed Openings                  | See text |
| - Penetrations                    | See text |
| - Doors (Fire-rated Class/Zone #) | See text |

### CONSTRUCTION

The cooling towers are constructed with concrete end walls, concrete dividing walls between sections, and a concrete basin. The spray diffuser frames are metal and the diffuser fill material is plastic. The switchgear house is constructed of sheet metal on a wood frame over a concrete slab. Since this is an open yard area not important to safe shutdown and located away from other plant areas, penetrations are not sealed.

### FIRE PROTECTION

There is no suppression system for fire protection in this area. The switchgear house is equipped with smoke detectors and portable CO<sub>2</sub> and dry chemical fire extinguishers. Both local and MCR alarms are provided to indicate detection system actuation to ensure prompt response by the plant fire brigade. In addition, hydrants are provided near this area for manual firefighting.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

This area contains no safe shutdown equipment and does not present an exposure fire hazard to any other plant areas. There are no radioactive materials in the area which could be released in the event of a fire. The installed detection is expected to promptly notify the plant operators and the plant fire brigade to extinguish any fires which might occur. The open area around the towers and the numerous hydrants provided enhance the ability of the plant fire brigade to manually fight any fires. A fire in this area is not expected to impair the ability to safely shut down the plant or to result in any radioactive release.

FIRE AREA 2804

This area is not considered safety related.

DESCRIPTION

Unit 2 Turbine Building Back Entrance (Frisker Building)  
Immediately Outside the U2 Turbine Building Southeast Entrance

DRAWING NUMBER(S)

H-11802

AREA

615 ft<sup>2</sup>

COMBUSTIBLES

|                     |      |
|---------------------|------|
| Oil & Grease        | None |
| Cable               | None |
| Class A             | Wood |
| Charcoal            | None |
| Plastics            | None |
| Miscellaneous       | None |
| Miscellaneous Gases | None |

DESIGN BASIS FIRE

|                          |                            |
|--------------------------|----------------------------|
| Combustible Loading      | Low                        |
| Max. Permissible Loading | 20,000 Btu/ft <sup>2</sup> |
| Fire Duration            | Less than 1 h              |

FIRE PROTECTION (AVAILABLE)

|                        |                                                        |
|------------------------|--------------------------------------------------------|
| Suppression (type)     | None                                                   |
| Hose Stations          | None - hydrants nearby                                 |
| Portable Extinguishers | Dry chem fire extinguisher located on inside East wall |
| Detectors (type)       | None                                                   |

FIRE RESISTANCE RATING

|                                     |          |
|-------------------------------------|----------|
| Actual                              |          |
| - Walls                             | See text |
| - Floors, Ceiling or Roof           | See text |
| - Fixed Openings                    | See text |
| - Penetrations                      | See text |
| - Doors (Fire-rated Class/Zone no.) | See text |

### CONSTRUCTION

The fire area consists of a precast, nonrated, concrete modular structure with a concrete slab foundation. The structure is located adjacent to the Unit 2 turbine building east wall, south end. Since this is an outside yard building not important to safe shutdown, penetrations are not required to be sealed.

### FIRE PROTECTION

There is no suppression or detection system in this area. Hose stations and portable fire extinguishers are provided locally and in the adjacent turbine building. A hydrant is located nearby to the east of this area.

### APPENDIX "R" EXEMPTIONS

None.

### CONSEQUENCES OF DESIGN BASIS FIRE

The design basis fire for this area is considered insignificant due to the low combustible loading and separation of this area from all other plant areas. In the unlikely event of a significant fire in this area due to the introduction of transient combustibles, there may be a propagation hazard to the adjacent turbine building. However, propagation to the turbine building is not considered credible since:

- 1) This is an outside area; any heat generated would be rapidly dissipated.
- 2) The turbine building wall is substantial, reinforced concrete containing only one small penetration within 30 ft of this area.
- 3) Radiant and convected heat entering the turbine building would be rapidly dissipated in the large, open volume of the turbine building.

In addition, if propagation does occur, only one safe shutdown path will be affected. A design basis fire in this area will therefore not affect the ability to achieve safe shutdown and will not result in any radioactive release.



FIRE AREA 2807

This area is not considered safety related.

DESCRIPTION

Unit 2 helper cooling tower  
South of Unit 2 cooling tower no. 2A

DRAWING NUMBER(S)

H-11802

AREA

31,000 ft<sup>2</sup>

COMBUSTIBLES

|                     |                  |
|---------------------|------------------|
| Oil & grease        | None             |
| Cable               | Cable insulation |
| Class A             | None             |
| Charcoal            | None             |
| Plastics            | PVC              |
| Miscellaneous       | None             |
| Miscellaneous gases | None             |

DESIGN BASIS FIRE

|                          |                             |
|--------------------------|-----------------------------|
| Combustible loading      | Low                         |
| Max. permissible loading | 100,000 Btu/ft <sup>2</sup> |
| Fire duration            | Less than 1 h               |

FIRE PROTECTION AVAILABLE

|                        |                        |
|------------------------|------------------------|
| Suppression (type)     | None                   |
| Hose stations          | None - hydrants nearby |
| Portable extinguishers | None                   |
| Detectors (type)       | None                   |

FIRE RESISTANCE RATING

|                                     |           |
|-------------------------------------|-----------|
| Actual                              |           |
| - Walls                             | See text. |
| - Floors, ceiling or roof           | See text. |
| - Fixed openings                    | See text. |
| - Penetrations                      | See text. |
| - Doors (Fire-rated Class/Zone no.) | See text. |

## CONSTRUCTION

The Unit 2 helper cooling tower is a concrete structure assembled from precast or prestressed concrete components. The structural framing is precast reinforced concrete. The fan deck consists of concrete panels. The tower wall is constructed of concrete panels extending down from the fan deck to the top of the air inlet. The cooling tower is divided into 12 cells separated by concrete panels with concrete windscreens on the end cells.

The heat exchanger consists of formed plastic sheets in modules supported from below by structural members and covering the entire interior plan area of the tower. The water distribution piping is PVC. The fan stacks are constructed of heavy, ribbed fire-retardant fiberglass panels bolted together.

The electrical equipment building is a small structure housing the cooling tower MCCs and is a separate building from the cooling tower. The electrical equipment building has a metal structural frame, as well as metal siding and roof. The floor is concrete.

## FIRE PROTECTION

There is no automatic fire detection or suppression at this building. A hydrant is located approximately 40 ft to the north and 90 ft to the west. Other hydrants are in the area nearby.

## CONSEQUENCES OF DESIGN BASIS FIRE

This area contains no safe-shutdown or safety-related equipment, and presents no exposure fire hazard to any safe-shutdown or safety-related equipment. A fire in this area is not expected to propagate toward any other plant structures due to its noncombustible concrete construction. Since the combustible loading of this area is low and no safety-related components are resident, a design basis fire is not expected to have any adverse effect on the ability to achieve and maintain safe shutdown.

## **13.0 Historical Material**

### **13.1 Exemption Request Submittals and Safety Evaluation Reports**

SECTION 9.3

APPENDIX C

EXEMPTION REQUEST SUBMITTALS  
AND SAFETY EVALUATION REPORTS

## SECTION 9.3 APPENDIX C

### TABLE OF CONTENTS

#### GPC Submittals

- |                    |                                                                             |
|--------------------|-----------------------------------------------------------------------------|
| July 1, 1982       | - "Response to 10 CFR 50.48 and Appendix R"                                 |
| April 28, 1983     | - Clarification of requests for exemptions from 10 CFR 50.48 and Appendix R |
| May 27, 1983       | - Revision to "Response to 10 CFR 50.48 and Appendix R"                     |
| November 30, 1983  | - Revision 1 of "Response to 10 CFR 50.48 and Appendix R"                   |
| December 20, 1983  | - Revision 2 of "Response to 10 CFR 50.48 and Appendix R"                   |
| May 16, 1986       | - Additional exemption requests and clarifications                          |
| September 23, 1986 | - Additional information related to Appendix R exemptions                   |
| October 31, 1986   | - Requests for Additional Information: Appendix R Exemption Requests        |
| November 14, 1986  | - Exemption request clarification                                           |

#### NRC Safety Evaluation Reports and Exemptions

- |                   |                                                                            |
|-------------------|----------------------------------------------------------------------------|
| October 4, 1978   | - Appendix A SER                                                           |
| November 16, 1981 | - Exemption: Intake Structure Barriers and Control Room Suppression System |
| February 11, 1983 | - Alternative Shutdown Capability SER                                      |
| April 18, 1984    | - Appendix R (III.G.2) SER and Exemptions                                  |
| January 2, 1987   | - May 16, 1986 Exemption SER                                               |
| March 24, 1987    | - Corrections to January 2, 1987 SER                                       |

|        |       |
|--------|-------|
| REV 0  | 06/86 |
| REV 2  | 07/87 |
| REV 4  | 07/89 |
| REV 8C | 04/93 |

Georgia Power Company  
333 Piedmont Avenue  
Atlanta, Georgia 30308  
Telephone 404-526-6526

Mailing Address:  
Post Office Box 4545  
Atlanta, Georgia 30302

**Georgia Power**  
*the southern electric system*

July 1, 1982

G F. Head

Director of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

NRC DOCKETS 50-321, 50-366  
OPERATING LICENSES DPR-57, NPF-5  
EDWIN I. HATCH NUCLEAR PLANT UNITS 1, 2  
SUPPLEMENTAL RESPONSES TO 10 CFR 50.48 AND APPENDIX R TO 10 CFR 50

Gentlemen:

The NRC's letter of February 20, 1981, requested certain information relative to 10 CFR 50.48 and Appendix R to 10 CFR 50. Georgia Power Company (GPC) submitted portions of the requested information on March 19, 1981 and May 18, 1981. The remaining information and GPC's detailed submittal on compliance with and requested exemption from 10 CFR 50.48 and Appendix R to 10 CFR 50 are attached as Enclosures 1 through 4 to this letter.

One of the exemptions requested is an exemption from the schedule imposed by 10 CFR 50.48. While we recognize that certain of our proposed modifications (i.e., cable wrapping) could be performed prior to receipt of NRC approval, we also recognize that NRC could reject certain of our exemption requests. Under these conditions, the work performed prior to NRC approval may be in vain. It is for this reason, as well as those stated in Section 2.6 of Enclosure 3, that GPC is requesting an exemption from not only the schedule of 10 CFR 50.48, but, from the concept in 10 CFR 50.48 C.5 that work should proceed prior to NRC approval.

The proposed schedule in Enclosure 3 is based upon the performance of only the proposed modifications. Also, since Plant Hatch presently has an approved fire protection plan, the implementation of the proposed modifications does not warrant a special outage to accomplish. Should additional work be mandated by the NRC, the schedule may require modifications.

The preparation of the attached reports on Appendix R to 10 CFR 50 has constituted a major engineering effort within GPC and our architect engineers. As the engineering design proceeds, it is possible that new information and insights will be obtained concerning fire safety at Plant Hatch. Should such new data become available, the attached analyses will be revised as necessary in a timely manner.

# Georgia Power

Director of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555  
July 1, 1982  
Page Two

GPC recognizes the complexity of the task facing the NRC staff in reviewing this submittal. To facilitate the review and avoid unnecessary misunderstanding, GPC management is prepared to meet with the management of the NRC staff to clarify our positions and settle any difficulties that may exist.

Should you have any questions or comments with regard to this submittal, please contact this office.

G. F. Head states that he is a Senior Vice President of Georgia Power Company and is authorized to execute this oath on behalf of Georgia Power Company, and that to the best of his knowledge and belief the facts set forth in this letter are true.

GEORGIA POWER COMPANY

By: \_\_\_\_\_  
G. F. Head

Sworn to and subscribed before me this 1st day of July, 1982

Notary Public, Georgia, State at Large

Mae H. Battle

My Commission Expires Sept. 20, 1983

Notary Public

JAE/RLK/mb

- Enclosure (1) Supplemental Response to NRC Letter of February 20, 1981,  
Enclosure 1, Section 8.
- (2) Response to Enclosure 2 of NRC Letter of February 20, 1981.
- (3) Response to 10 CFR 50.48 and Appendix R to 10 CFR 50.
- (4) Fire analysis for Hatch Unit 2 Vital DC cabinets.

xc: H. C. Nix  
R. F. Rogers, III  
J. P. O' Reilly (NRC-Region II)

|            |            |           |            |           |            |
|------------|------------|-----------|------------|-----------|------------|
| Office:    | Lic. Engr. | P-G Engr. | Chief N.E. | Legal     | Plant Mgr. |
| Surname:   | Edwards    | Burns     | Gucwa      | Rosenberg | Nix        |
| Signature: |            |           |            |           |            |
| Date:      | 07/01/82   | 07/01/82  | 07/01/82   | 07/01/82  | 07/01/82   |



Georgia Power Company  
333 Piedmont Avenue  
Atlanta, Georgia 30308  
Telephone 404-526-6526

Mailing Address:  
Post Office Box 4545  
Atlanta, Georgia 30302

L. T. Guewa  
Chief Nuclear Engineer  
Power Generation Department

**Georgia Power**  
*the southern electric system*

NED-83-275

April 28, 1983

Director of Nuclear Reactor Regulation  
Attention: Mr. John F. Stolz, Chief  
Operating Reactors Branch No. 4  
Division of Licensing  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

NRC DOCKETS 50-321, 50-366  
OPERATING LICENSES DPR-57, NPF-5  
EDWIN I. HATCH NUCLEAR PLANT UNITS 1, 2  
CLARIFICATION OF REQUESTS FOR EXEMPTIONS  
FROM 10 CFR 50.48 AND APPENDIX R

Gentlemen:

The draft Safety Evaluation Report (SER) transmitted with your letter dated January 20, 1983, denied seven Georgia Power Company (GPC) exemption requests. A meeting with the NRC staff was held on March 30, 1983, to discuss the denied exemptions and other aspects of the Appendix R compliance program at GPC. The Staff requested that any additional submittals to be made by GPC be transmitted to the NRC within 28 days of that meeting. This letter is submitted pursuant to that request.

As discussed with the NRC project manager for Plant Hatch, the material in this letter has not been developed in the detail of that contained in the "Response to 10 CFR 50.48 and Appendix R" submitted to the NRC by letter dated July 1, 1982. GPC will submit a revised version of that response by May 30, 1983. The revised response will contain those details that cannot be fully developed within the 28-day time restriction.

Reactor Building Exemption Requests:

Six of the denied requests were for exemption from the separation criteria of paragraph III.G.2 of Appendix R for three elevations of the Unit 1 reactor building and the corresponding areas of Unit 2. In denying the exemptions, the draft SER noted that these areas were not equipped with area-wide fire suppression systems, that only the 130-foot elevation is equipped with a fire detection system, and that redundant divisions are neither separated by 20 feet with no intervening combustible material nor protected by a 1-hour fire rated barrier. The draft further noted:

"The fire protection requirements of Section III.G represent an aggregate, comprised of active and passive

# Georgia Power

Director of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555  
April 28, 1983  
Page 2

components. The two forms of protection work synergistically to provide reasonable assurance that one train of the safe shutdown systems is free of fire damage. With the exception of the partial smoke detection systems on elevation 130 feet, these zones have no active fire protection. The partial smoke detection systems will provide reasonable assurance of early fire awareness in the immediate areas where the detectors are installed, but not in the unprotected locations. Consequently, a fire could occur and propagate for a significant period of time until discovered and efforts to suppress it begin.”

During the March 30 meeting the NRC staff acknowledged the difficulty in achieving full compliance in a boiling water reactor facility such as Plant Hatch. The Staff proposed two alternatives for attaining an acceptable degree of compliance:

- (a) Wrapping of one complete train of equipment with a 1-hour fire rated barrier, installing barriers around major components that cannot be wrapped, and providing partial smoke detection for the area.
- (b) Division of the reactor building into fire areas by utilizing a water curtain system - defined by the NRC staff as an open head water spray system initiated by a cross-zoned smoke detection system.

The difficulties in the installation and maintenance of a barrier system have led GPC to favor a definition of fire area boundaries utilizing a water system to prevent the spread of fire across the boundary.

As noted in the draft SER, the fire area definition in GPC's July 1, 1982, submittal utilized five fire sectors on elevation 130 of the reactor building. To some extent the NRC staff's objections to the submittal involved the number of fire sectors. At this time, the reactor buildings are undergoing a reanalysis to redefine the fire areas. The redefined fire areas will divide the reactor building along its east-west centerline with the southern half designated as a pathway 1 fire area and the northern half designated as a pathway 2 area for Unit 1. Unit 2 is approximately a mirror image of Unit 1 with the pathways reversed. It is GPC's intent that each reactor building be divided into a minimum of two fire areas. If such a division should prove impossible, GPC will make other appropriate fire area subdivisions. Such new subdivisions will be subject to the same boundary definition criteria that are applied to the two areas currently being developed.

# Georgia Power

Director of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555  
April 26, 1983  
Page 3

The water suppression systems to be utilized to separate the fire areas will cover the areas of the building in which two trains of redundant safe-shutdown equipment are located. The coverage area will extend from the east-west centerline of the reactor building into each fire area to a distance of 20 feet beyond the last redundant opposite train component - for instance, from the east-west centerline northward (into the pathway 2 area) a minimum of 20 feet beyond the redundant pathway 1 component that extends farthest into the area. The shutdown panels are not considered in the selection of the "opposite train equipment" as they are not utilized for shutdown following a reactor building fire. In those areas where the system serves only as an area boundary and no opposite train equipment exists, the area of coverage shall be at least 20 feet wide. The sprinkler systems will not cover the electrical switchgear and panels that could be damaged by inadvertent actuation of the sprinklers. Draft curtains will be installed at the ceilings as required to limit the spread of smoke across the area boundary prior to system initiation. Existing support members will be utilized if possible to constitute all or part of these draft curtains.

The present intent is to separate the entire building into a minimum number of fire areas, such that open hatchways between floors will not constitute penetrations of fire area boundaries. Should it be determined by analysis to be necessary to utilize a floor as a fire area boundary, a water suppression system may be proposed to provide the fire area definition at the hatchway.

The possibility of an inadvertent actuation of the water curtain has been investigated by GPC. The potential problems associated with such an incident include local flooding, a backlog of water to be processed by radwaste, and possible unit shutdown to complete radwaste processing of the water. Since a closed head sprinkler system will reduce the potential for inadvertent actuation, GPC intends to utilize a closed head sprinkler design.

GPC has analyzed the impact of a closed head system with respect to three concerns expressed by the NRC staff:

- (a) The ability of electrical cables to withstand elevated temperatures prior to sprinkler head opening;
- (b) The effect of smoke on opposite train equipment;
- (c) The effect of smoke from the fire area on the ability of plant operators to take required action in the adjacent area.

Regarding the effect of heat on the cables, the temperature at which the sprinkler head will open will be fifty or more degrees Fahrenheit lower than the temperature the cables can withstand for an extended time without loss of insulation integrity.

# Georgia Power

Director of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555  
April 28, 1983  
Page 4

The effect of smoke on opposite train equipment will not be significant because the potentially sensitive equipment is located in metal cabinets or is similar to equipment that is part of the environmental qualification program under I6E Bulletin 79-01B. The smoke protection afforded by these cabinets is substantial and is judged to be superior to that which would be afforded by a radiant heat barrier which would be employed in the wrapping alternative as proposed by the NRC staff in the March 30, 1983, meeting.

The operator actions for plant shutdown following a fire in the reactor building are primarily taken from the control room. Those manual valve operations which may be required are either not needed for a period of several hours after unit trip or the manual action is taken outside the reactor building. While GPC acknowledges that obscuration due to smoke is a potential problem, the portable smoke removal equipment already provided as part of our response to APCSB 9.5-1, Appendix A will be adequate for smoke removal prior to entry into the area by an operator.

Both acceptable alternatives outlined by the NRC staff require the utilization of a smoke detection system. Georgia Power Company proposes to install a partial smoke detection system on the 158 foot elevation. The system will cover the entire area covered by the proposed sprinkler system and will include detectors on both sides of the proposed draft curtain.

A fire detection system is proposed for the two sprinklered areas of the torus room. The proposed system will extend throughout the sprinklered areas. The environment in the torus area is such that smoke detectors cannot be used. The torus area is subjected to conditions of high humidity that would cause a very high incidence of false alarms for a smoke detection system. Therefore, a fire detector system is proposed for the sprinklered areas of the torus.

To summarize the reactor building exemption request, GPC proposes to redefine the fire areas in the reactor building such that the north half of each building is one fire area and the south half is another. The division between the building halves will be via a closed head wet pipe sprinkler system on the east side of the 158 elevation (Units 1 and 2), the east side of the 130 elevation (Units 1 and 2), outside the labyrinth entrances to the steam chase (Unit 1), and on the east and west sides of the torus area (Units 1 and 2). Further, GPC proposes to install a partial smoke detection system on the 158 foot elevation and a partial fire detection system in the torus area.

# Georgia Power

Director of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555  
April 28, 1983  
Page 5

## Control Building Corridor Exemption Request

The July 1, 1982, submittal requested an exemption from the requirement for a 1-hour barrier and suppression system for two Direct Current (D.C.) distribution panels located in the D.C. switchgear hallway of Unit 2. This request was denied in the January 20, 1983, draft SER. Since the time of the July 1, 1982, submittal, the newly developed design for the Analog Trip Transmitter System (ATTS) modification includes two new D.C. distribution cabinets to be installed to supply power to the new ATTS cabinets. In order to meet the design requirements of ATTS and resolve the Appendix R exemption, the two D.C. distribution panels presently located in the Unit 2 hallway will be used to supply one division of ATTS and the two new cabinets will be used to supply the redundant division of ATTS. These new cabinets will be located in a separate area from the D.C. switchgear hallway to meet the separation requirements of Appendix R. With this modification, an exemption to Appendix R, Section III.G.2 will not be required for the D.C. switchgear hallway of Unit 2 associated with protection of the redundant divisions of D.C. distribution panels. However, further analysis is underway to determine if an exemption to Section III.G.2 will be required to allow use of the existing water suppression system to obtain the necessary separation between pathway 1 and 2 cables. This request for exemption will be included in the May 30, 1983, update of the Plant Hatch response to 10 CFR 50.48 and Appendix R.

## Schedule Exemption Request:

An exemption from the implementation schedule of 10 CFR 50.48 was requested by GPC in the July 1, 1982, submittal. A detailed justification of the proposed schedule will be provided as a separate correspondence.

## Scaffolding:

The installation of the proposed sprinkler and smoke detection systems and the wrapping of cables in the reactor building will necessitate the installation of large amounts of scaffolding around or over safety-related equipment with the unit in operation. While GPC has concluded that this work can be performed safely, concerns about this practice have been raised by the NRC field inspectors. GPC is not requesting an exemption from any regulations for the scaffold installation, but we request NCR's concurrence in our conclusion that the scaffolding usage is an acceptable approach to the timely installation of Appendix R related modifications.

# Georgia Power

Director of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555  
April 28, 1983  
Page 6

## Corrections to Draft SER:

GPC has reviewed the draft SER for accuracy and has noted the following:

1. SER Section 3.2.2 - Page 10
  - a. The smoke detection system provided for the reactor building 130 foot elevation is provided throughout the area rather than partial coverage as indicated.
  - b. The proposed 1-hour fire barrier to be provided for one safe shutdown pathway in the reactor building 130 foot elevation and torus area for both Units 1 and 2 is intended to cover the required raceways throughout the analyzed fire areas rather than limiting the barrier to that portion of the raceway that is within 20 feet of its redundant counterpart.
2. SER Section 3.2.5 - Page 12  
Remarks concerning Section 3.2.2 above apply.
3. SER Section 4.2 - Page 15  
The safe shutdown equipment located in the Unit 2 station battery room consists of one safety division of station batteries and redundant circuits for the drywell air system rather than the service air system.
4. SER Section 6.1 - Page 22  
This section provides clarification of Appendix R issues and states that GPC has relied upon partial fire detection and fire suppression systems to achieve compliance with Section III.G.2 and has assumed that IEEE qualified cable is noncombustible. It is GPC's position that the insulation on IEEE qualified cable is nonpropagating rather than noncombustible.

## Corrections to July 1, 1982, Submittal

During the March 30 meeting GPC notified the Staff that certain corrections to the July 1, 1982, submittal were needed. These are:

1. July 1, 1982, Submittal - Enclosure 3 - Section 4.2.5

During the continued review of the status of the fire protection at Plant Hatch, it has been noted that the July 1, 1982, Appendix R exemption

# Georgia Power

Director of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555  
April 28, 1983  
Page 7

request contained a request for an exemption of the "submarine-type" door on the Unit 2 station battery room 28. There are actually three additional battery rooms which also have "submarine-type" water-tight doors. The Control Building Station Battery Rooms 2A (for Unit 2), 1A, and 1E (for Unit 1) are all completely enclosed by three-hour rated walls with the exception of the watertight door. Rooms 1A and 2A contain only shutdown path 1 equipment of the respective units while room 1B contains only shutdown path 2 equipment. The combustible loading for these rooms is approximately 26, 000 Btu/sq ft for cable insulation, 3.6 Btu/sq ft per hour for hydrogen gas, and 2450 Btu/sq ft for battery casings. Replacing these doors with a fire-rated door would degrade plant safety because the water-tight doors are necessary to protect the station batteries from a circulating water flood. Therefore, the exemption requested in Section 4.2.5.5 from the requirement of Section III.G.2.A for the water-tight door will be expanded to include these three additional water-tight doors.

## 2. July 1, 1982, Submittal - Enclosure 3 - Sections 4.1.1 and 4.1.2

The July 1, 1982, Appendix R exemption request stated that the walls surrounding the Unit 1 4160-volt Transformer Room and the Unit 1 west 600-volt Switchgear Room on elevation 130 feet were constructed for 3-hour fire resistance. Further investigation has shown that these walls, as well as walls associated with the East 600-volt Switchgear Room, the East D.C. Switchgear Room, and the West D.C. Switchgear Room, are of at least a 2-hour fire resistance construction, but cannot be classified as 3-hour fire resistance construction. The walls for the corresponding rooms for Unit 2 are also of minimum 2-hour fire resistance construction. The affected walls are indicated on Figures 4-1 and 4-9 from the July 1, 1982, submittal. The combustible loading in these rooms is relatively small and ranges from negligible in the 4160-volt transformer rooms to 47,520 Btu/sq ft in the West D.C. Switchgear Rooms for both units. These combustible loadings would result in a fire severity rating of less than 1 hour. In addition, these rooms are provided with full smoke detection. Therefore, an exemption from the requirements of 10 CFR 50.48 Appendix R, Section III.G.2.A will be requested for the 2-hour fire resistant walls in the Control Building. The wall between the Unit 2 Oil Conditioner Room and the West D.C. and 600-volt Switchgear Rooms is presently a 2-hour wall and will be upgraded to a 3-hour fire resistance construction.

## 3. July 1, 1982, Submittal - Enclosure 2

Enclosure 2 to the July 1, 1982, submittal stated that GPC anticipated the completion of the physical and procedural modifications required to provide isolation of the high pressure-low pressure boundary valves from their power feeds during plant power operation by December 30, 1983. Further design work has indicated that all of the physical



# Georgia Power

Director of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555  
April 28, 1983  
Page 8

modifications will not be completed by this date. These modifications will be completed on a schedule consistent with the Appendix R modifications for the affected fire areas.

## 4. July 1, 1982, Submittal - General Comments

The proposed additional fire detection and suppression systems will be installed at Plant Hatch following the "Special Hazards" design basis technique allowed by the National Fire Protection Codes. This technique will utilize a combination of NFPA 13, 15, 72A, 72B, 72C, 72D, and 72E to ensure the maximum effectiveness of the system to limit the fire hazard at Plant Hatch and to take into account the unique structural configuration and protection problems inherent in a power plant. These codes and regulations are basically tailored for protection of rooms or areas with relatively regular surfaces and features.

This is a situation seldom realized in the highly congested conditions encountered in the majority of the rooms in a power plant. In recognition of such conditions and of the special hazards encountered in a nuclear power plant, sound engineering judgment must be exercised in the design and installation of its fire protection systems rather than routine, absolute compliance with rules which are not always appropriate to the situation.

Occasionally, minor deviations from the codes, principally in sprinkler head or detector placement relative to the ceiling, must be taken because of congestion, consisting of cable trays, piping, ducting, etc., in the area of a suppression system. Such deviations are taken only when they will result in equal or superior protection to that which would result from an inflexible conformance to codes or regulations, if such were possible.

Additional revisions to the July 1, 1982, response to 10 CFR 50.48 and Appendix R to correct minor errors and figure revisions will be incorporated into the submittal document in the May 30 update.

## Clarification of Compliance

Finally, GPC was notified in the March 30 meeting that those areas of the plant which GPC deemed in compliance with Appendix R will be inspected against criteria to be issued by the Staff. One portion of these criteria addresses the extent of suppression system coverage necessary to meet Appendix R. Certain fire areas were analyzed based upon a fire area boundary that was consistent with the general philosophy outlined in our submittal.



# Georgia Power

Director of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555  
April 28, 1983  
Page 9

Since the Staff did not accept GPC's fire area boundary criteria, a reanalysis of the entire plant to locate other areas requiring an exemption request is underway. While the detailed justification for the exemption requests cannot be prepared until the May 30 submittal, Enclosure 1 provides a listing of fire areas that do not meet the Staff's criteria for full compliance with Appendix R, a brief description of the reason for noncompliance, and as much justification information as could be completed in the limited time available.

If you should have any questions concerning this information, please contact this office.

Yours very truly,

L. T. Gucwa

WEE/JNM/mb

Enclosure

xc: H. C. Nix, Jr.  
J. P. O'Reilly (NRC Region II)  
Senior Resident Inspector

Enclosure to letter to NRC dated April 28, 1983  
Subject: Clarification of Requests for Exemptions  
from 10 CFR 50.48 and Appendix R

## ENCLOSURE 1

### ADDITIONAL EXEMPTION REQUESTS

The following exemption requests were identified as a result of the reevaluation performed following the March 30 meeting. A detailed justification of each request will be included in the May 30, 1983, revision to Georgia Power Company's July 1, 1982, submittal.

#### UNIT 1

##### 1.1 East Cableway 130' E1. - Unit 1

Exemption is requested for the non-3-hour fire wall between the east cableway and condenser bay and the open end between the east cableway and the turbine working floor.

##### 1.2 Reactor Building E1. 164' Units 1 and 2

A 3-hour wall exists between the reactor building and turbine building. However, this wall is constructed with blow-out panels which are not fire rated. The blow-out panels were installed for the purpose of steam venting. Exemption is requested for these panels.

##### 1.3 Control Building Working Floor E1. 112' - Unit 1

This area is surrounded by 3-hour rated walls except for the elevator shaft and stairwell walls which are 2-hour rated with 1-1/2 hour rated doors. An exemption for these walls and doors is requested.

##### 1.4 Control Building East Corridor E1. 112' - Unit 1

This area is surrounded by 3-hour rated walls except for the south end which is open to the turbine building (passageway, pipes and cables). There is a staircase located in this zone with a ceiling slab-mounted ionization smoke detector. An exemption for this wall and open stairway is requested.

##### 1.5 Turbine Building East Cableway E1. 130' - Unit 1

This area is surrounded by 3-hour rated walls except for a portion of the west wall and the north wall separating this zone from the condenser area. An exemption for these walls is requested.

Enclosure to letter to NRC dated April 28, 1983  
Subject: Clarification of Requests for Exemptions  
from 10 CFR 50.48 and Appendix R

## UNIT 2

### 2.1 Control Building Corridor E1. 130'

This area is surrounded by 3-hour fire rated walls except for the east portion of the south wall of the zone which is open to the Unit 2 control building switchgear hallway. The north side of the west end of this zone is separated from a freight elevator and an enclosed stairwell by 2-hour fire rated walls with 1-1/2 hour fire doors on the openings. An exemption for these walls and doors is requested. General area sprinkler coverage is excluded from the corridor area in H.P. bathrooms area, H.P. decon room area and HVAC room. An exemption from area wide fire suppression is requested for these areas.

### 2.2 Turbine Building Passageway E1. 112' - Unit 2 (Below East Cableway)

This area is surrounded by 3-hour rated walls except the west side of this zone which is separated from the main condenser area with a concrete wall and the south end which is not enclosed by a 3-hour rated wall. There is a stairwell located in the south end of this zone which is enclosed by a 2-hour fire rated wall and a 1-1/2 hour fire rated door on the opening. An exemption for these walls and door is requested.

### 2.3 Turbine guiding West Cableway E1. 112' - Unit 2

The northeast portion of this zone separating the control building has a 3-hour rated wall. All other areas of this zone are not protected by 3-hour rated walls. An exemption for these walls is requested.

### 2.4 Turbine Building Main Condenser Area E1. 112' - Unit 2

This zone is protected with a 3-hour fire rated wall separating the control building. All other areas of this zone are not protected with 3-hour rated walls. Bordering the southeast wall of this zone is a stairwell enclosed by a 2-hour fire rated wall with a 1-1/2 hour fire rated door on the opening. An exemption for these walls and door is requested.

### 2.5 Turbine Building Switchgear Area E1. 130' - Unit 2

This zone is not protected by a 3-hour fire rated wall. This zone is separated from an enclosed stairwell by 2-hour fire rated walls with a 1-1/2 hour fire rated door. An exemption for these walls and doors are requested.

### 2.6 Reactor Building Standby Gas Treatment and HVAC Room E1. 185' - Unit 2

This zone is surrounded by 3-hour fire rated walls except the north wall separating the heating and ventilating room from the stairway. An exemption for these walls is requested.

Georgia Power Company  
333 Piedmont Avenue  
Atlanta, Georgia 30308  
Telephone 404-526-6526

Mailing Address:  
Post Office Box 4545  
Atlanta, Georgia 30302

L. T. Guewa  
Chief Nuclear Engineer  
Power Generation Department

**Georgia Power**  
*the southern electric system*

NED-83-318

May 27, 1983

Director of Nuclear Reactor Regulation  
Attention: Mr. John F. Stolz, Chief  
Operating Reactors Branch No. 4  
Division of Licensing  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

NRC DOCKETS 50-321, 50-366  
OPERATING LICENSES DPR-57, NPF-5  
EDWIN I. HATCH NUCLEAR PLANT UNITS 1, 2  
DETAILED CLARIFICATION OF REQUESTS FOR EXEMPTIONS  
FROM 10 CFR 50.48 AND APPENDIX R

Gentlemen:

Georgia Power Company's letter dated April 28, 1983, documented our supplemental commitments related to certain requests for exemptions from 10 CFR 50.48 and Appendix R. Those commitments reflected our understanding of an acceptable compliance method provided by the NRC staff in a March 30, 1983, meeting. As noted in our April 28, 1983, letter, the NRC staff requested in the March 30, 1983, meeting that within twenty-eight days we submit a revision to our July 1, 1982, document, "Response to 10 CFR 50.48 and Appendix R". Since twenty-eight days did not allow sufficient time for development of the revision, an agreement was reached with the NRC Hatch Licensing Project Manager that a response supplemental to the April 28, 1983 letter of commitment would be provided by May 30, 1983. That response was to be in the format of a revision to the July 1, 1982, document and developed to the same level of detail as the original requests for exemption. That revision is enclosed herein.

The revision fully and accurately reflects those positions which, as a result of our March 30, 1983, meeting with the NRC staff, we understand to be acceptable compliance with 10 CFR 50.48 and Appendix R and responsive to the concerns raised in the NRC's draft Safety Evaluation Report transmitted by your letter dated January 20, 1983. If for any reason, our July 1, 1982, "Response to 10 CFR 50.48 and Appendix R", as revised by the enclosure to this letter, along with our commitments contained in the April 28, 1983, letter, do not support the granting of the requested exemptions, we then hereby request a meeting with NRC management prior to the issuance of any denial of the requested exemptions.

# Georgia Power

Director of Nuclear Reactor Regulation  
Attention: Mr. John F. Stolz, Chief  
Operating Reactors Branch No. 4  
May 27, 1983  
Page two

Should you have any questions regarding this letter or its enclosure, please contact this office.

Yours very truly,

L. T. Gucwa

WEB/mb  
Enclosure

xc: J. T. Beckham, Jr.  
H. C. Nix, Jr.  
J. P. O'Reilly (NRC - Region II)  
Senior Resident Inspector

Georgia Power Company  
333 Piedmont Avenue  
Atlanta, Georgia 30308  
Telephone 404-526-6526

Mailing Address:  
Post Office Box 4545  
Atlanta, Georgia 30302

L. T. Gucwa  
Chief Nuclear Engineer  
Power Generation Department

**Georgia Power**  
*the southern electric system*

NED-83-590

November 30, 1983

Director of Nuclear Reactor Regulation  
Attention: Mr. John F. Stolz, Chief  
Operating Reactors Branch No. 4  
Division of Licensing  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

NRC DOCKETS 50-321, 50-366  
OPERATING LICENSES DPR-57, NPF-5  
EDWIN I. HATCH NUCLEAR PLANT UNITS 1, 2  
DETAILED CLARIFICATION OF REQUESTS FOR EXEMPTION  
FROM 10 CFR 50.48 AND APPENDIX R

Gentlemen:

Georgia Power Company's letter dated November 16, 1983, documented our clarification of certain requests for exemption from the requirements of 10 CFR 50.48 and Appendix R. These clarifications provided additional information to address the NRC staff's concerns with the requests for exemption. The enclosure to this letter provides replacement pages to reflect revised sections of our July 1, 1982, "Response to 10 CFR 50.48 and Appendix R".

Should you have any questions regarding this letter or its enclosure, please contact this office.

Yours very truly,

L. T. Gucwa

RK/eb

Enclosure

xc: J. T. Beckham, Jr.  
H. C. Nix, Jr.  
J. P. O'Reilly  
Senior Resident Inspector

Georgia Power Company  
333 Piedmont Avenue  
Atlanta, Georgia 30308  
Telephone 404-526-6526

Mailing Address:  
Post Office Box 4545  
Atlanta, Georgia 30302

L. T. Gucwa  
Chief Nuclear Engineer  
Power Generation Department

**Georgia Power**  
*the southern electric system*

NED 83-625

December 20, 1983

Director of Nuclear Reactor Regulation  
Attention: Mr. John F. Stolz, Chief  
Operating Reactors Branch No. 4  
Division of Licensing  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

NRC DOCKETS 50-321, 50-366  
OPERATING LICENSES DPR-57, NPF-5  
EDWIN I. HATCH NUCLEAR PLANT UNITS 1, 2  
REVISION TO REQUESTS FOR EXEMPTION  
FROM 10 CFR 50.48 AND APPENDIX R

Gentlemen:

Pursuant to discussions with members of the NRC staff, Georgia Power Company (GPC) hereby withdraws from review our requested exemption from the performance of an annual sprinkler/spray system main drain test as specified by National Fire Protection Association (NFPA) Codes 13 and 15. This exemption is not germane to your consideration of GPC's submittal on compliance with 10 CFR 50 Appendix R and 10 CFR 50.48. It will be resubmitted under a more appropriate format, if future circumstances warrant such consideration.

Enclosed are the appropriate revision pages for insertion into our July 1, 1982, "Response to 10 CFR 50.48 and Appendix R" as revised by our letters of May 27, 1983 and November 30, 1983.

Should you have any questions regarding this letter or its enclosure, please contact this office.

Yours very truly,

L. T. Gucwa

WEB/blm  
Enclosure

xc: J. T. Beckham, Jr.  
H. C. Nix, Jr.  
J. P. O'Reilly  
Senior Resident Inspector

Georgia Power Company  
333 Piedmont Avenue  
Atlanta, Georgia 30308  
Telephone 404-526-6526

Mailing Address:  
Post Office Box 4545  
Atlanta, Georgia 30302

L. T. Gucwa  
Manager Nuclear Safety  
and Licensing

**Georgia Power**  
*the southern electric system*

SL-502  
0435C

May 16, 1986

Director of Nuclear Reactor Regulation  
Attention: Mr. D. Muller, Project Director  
BWR Project Directorate No. 2  
Division of Boiling Water Reactor Licensing  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

NRC DOCKETS 50-321, 50-366  
OPERATING LICENSES DPR-57, NPF-5  
EDWIN I. HATCH NUCLEAR PLANT UNITS 1 AND 2  
DETAILED CLARIFICATION OF REQUESTS FOR EXEMPTION  
10 CFR 50.48 AND APPENDIX R EXEMPTION REQUESTS

Gentlemen:

As mentioned in previous correspondence, a reanalysis was to be performed to confirm the original safe shutdown analysis contained in the Georgia Power Company (GPC) "Response to 10 CFR 50.48 and Appendix R" originally submitted in July 1982. This reanalysis was performed to incorporate additional guidance from the NRC contained in Generic Regional Workshops held in the spring required to resolve other NRC concerns not CFR 50.48 and Appendix R. This reanalysis is now complete and represents an extension of the analysis beyond that which was performed for the original submittal. The results of this reanalysis are being incorporated into an updated Fire Hazards Analysis (FHA). This updated FHA is currently in a review stage and will be submitted on July 22, 1986, coincident with the updated FSAR submittal date. The purpose of this letter is to request additional exemptions needed as a result of the reanalysis.

The "Response to 10 CFR 50.48 and Appendix R" submittal for Plant Hatch will be superseded when the updated FHA is issued. For the review of this submittal, Chapters 1, 2, and 5 are unchanged by the reanalysis. Chapter 3, which is the safe shutdown pathway evaluation, has been slightly revised as a result of the reanalysis. The revised safe shutdown pathway evaluation is detailed in the safe shutdown analysis and will be summarized in the updated

0435C



# Georgia Power

Director of Nuclear Reactor Regulation  
Attention: Mr. D. Muller, Project Director  
BWR Project Directorate No. 2  
May 16, 1986  
Page Two

FHA. The safe shutdown analysis presented in Chapter 4 remains generally the same. The area descriptions and fire protection systems for each fire area will be detailed in the updated FHA. The safe shutdown analysis and modifications required for compliance are detailed in the actual analysis for each fire area. The exemptions previously requested and granted have been reviewed to ensure that their basis is still valid. The enclosure to this letter discusses the significant changes which have been made to the information presented in Chapter 4. In some cases, modifications which were identified in Chapter 4 have changed. The modifications which are required for compliance are detailed in the actual analysis for each fire area and are not specifically addressed in this letter.

For the Appendix R Fire Protection reanalysis, General Electric Company was requested to reevaluate the performance of the plant and the systems required for safe shutdown and to incorporate the addition of the low-low set relief logic to the Safety Relief Valve (SRVs), the lowering of the water level trip for the Main Steam Isolation Valves (MSIVs) from level 2 to level 1, the logic modifications for the automatic depressurization system, and the raising of the setpoint for level 1.

Changes have also been made to the safe shutdown systems and the components list previously submitted. The changes to this list have been made for various reasons as a result of the Appendix R reanalysis and plant modifications. The methodology used to determine which components should appear on this list has not changed from that in the July 1982 submittal. However, more recent NRC guidance has necessitated the assumption of various additional scenarios which have resulted in the need to add and delete components from this list.

All of the fire area boundaries were reevaluated with respect to their fire ratings, the pathway in each area used for shutdown, the location of safe shutdown components, and general fire protection safety. As a result, some of the fire area boundaries have changed from previous submittals. Also, boundaries which are not completely sealed, which are not floor-to-ceiling 3-hour-rated barriers, and for which exemptions have not been previously requested have been identified.

## TECHNICAL EXEMPTIONS

The reanalysis has identified new technical exemptions which are needed. These technical exemption requests are discussed in Section 1 of the enclosure to this letter. Because of conflicts between Generic Letter 83-33 and the draft guidance contained in Generic Letter 85-01 regarding fire area boundaries, GPC is requesting a generic exemption for fire area boundaries

# Georgia Power

Director of Nuclear Reactor Regulation  
Attention: Mr. D. Muller, Project Director  
BWR Project Directorate No. 2  
May 16, 1986  
Page Three

which are not currently rated but can be justified as being adequate by a fire hazards analysis. This exemption request is discussed in Section 1.1 of the enclosure to this letter. Drawings which show the fire areas and their boundaries are also enclosed. A review of previously granted exemptions identifies areas which could be misunderstood or misinterpreted. These exemptions are discussed in Section 2. We have attempted to identify the area needing clarification, explain the reason for the clarification and restate the exemption in a more specific manner. This is being done to avoid any misunderstandings at a later date.

## SCHEDULAR EXEMPTIONS

Section 3 is a request for scheduler extension under 10 CFR 50.12 for specific pieces of equipment which may not be installed before our currently scheduled implementation deadline of November 30, 1986. All of the modifications which can be completed before November 30, 1986, will be completed. However, circumstances beyond GPC's control may prevent the completion of some modifications in both units.

## TECHNICAL REVISIONS

The combustible fire loadings for all fire areas have also been reevaluated. The combustible loadings for some areas have changed. Most of the changes in the combustible loadings are not significant. In Table 4.2-1 of the enclosure to this letter, the new fire loadings for all areas with previously granted exemptions are compared to the fire loadings listed in previous submittals. For areas where an exemption was granted on the basis of a low combustible loading but the calculated combustible loading has increased, the effect of the increase has also been addressed in Section 4.

The control room and cable spreading room have also been reanalyzed for the Appendix R fire as part of the overall plant reanalysis. Additional technical exemptions associated with the remote shutdown system are also being requested in Section 1. As a result of the extensive modifications performed for the installation of the analog transmitter trip system (ATTS), the shutdown for a fire in the computer room will now be performed from the remote shutdown panels. This need was not originally anticipated. However, because of the extensive circuit routing through this room, the protection of one pathway of shutdown circuits within the computer room is not practical. Shutdown using the remote shutdown system will now be accomplished for a fire in the control room, the cable spreading room, or the computer room.

# Georgia Power

Director of Nuclear Reactor Regulation  
Attention: Mr. D. Muller, Project Director  
BWR Project Directorate No. 2  
May 16, 1986  
Page Four

There is one modification area which is being changed and is addressed in Section 4. The change is related to the specific type of fire detection device to use in a given area. The previous GPC submittals and NRC-issued Safety Evaluation Reports (SERB) indicated the particular type of fire detection devices to be installed in certain areas of the plant. However, because of deficiencies cited in the existing detection systems and the increasing unavailability of parts for the existing systems, a complete reevaluation of the plant fire detection systems was performed. This reevaluation was performed utilizing a design philosophy which considered current state-of-the-art fire detection technology and an analysis of each fire area at Plant Hatch to determine the most appropriate type of detector to use and the most appropriate placement of the detectors. Therefore, the particular type of detector used in a given area may be different from that previously identified. The most appropriate type of detector, as justified by a fire protection engineer, will be used in each area of the plant. The net effect of these changes will be to improve the overall plant fire protection above that which is currently installed or indirectly committed to in previous correspondence.

Because of the major cost and effort involved in complying with 10 CFR 50.48 and Appendix R, your timely review of this letter is requested. Should you have any questions, or require additional information, please contact this office.

Sincerely,

L. T. Gucwa

JDH/lc

Enclosures

c: Georgia Power Company  
Mr. J. P. O'Reilly  
Mr. J. T. Beckham, Jr.  
Mr. H. C. Nix, Jr.  
GO-NORMS

Nuclear Regulatory Commission  
Dr. J. N. Grace, Regional Administrator  
Senior Resident Inspector

Georgia Power Company  
333 Piedmont Avenue  
Atlanta, Georgia 30308  
Telephone 404-526-6526

Mailing Address:  
Post Office Box 4545  
Atlanta, Georgia 30302

L. T. Gucwa  
Manager Nuclear Safety  
and Licensing

**Georgia Power**  
*the southern electric system*

SL-1283  
0749C

September 23, 1986

Director of Nuclear Reactor Regulation  
Attention: Mr. D. Muller, Project Director  
BWR Project Directorate No. 2  
Division of Boiling Water Reactor Licensing  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

NRC DOCKETS 50-321, 50-366  
OPERATING LICENSES DPR-57, NPF-5  
EDWIN I. HATCH NUCLEAR PLANT UNITS 1 AND 2  
ADDITIONAL INFORMATION RELATED TO APPENDIX R EXEMPTIONS

Gentlemen:

The enclosed information is submitted in response to your informal requests for additional information relative to Georgia Power Company's Appendix R Exemption Request, dated May 16, 1986.

If you have additional questions in this regard, please contact this office at any time.

Sincerely,

L. T. Gucwa

JDH/ac

c: Georgia Power Company  
Mr. J. P. O'Reilly  
Mr. J. T. Beckham, Jr.  
Mr. H. C. Nix, Jr.  
GO-NORMS

U.S. Nuclear Regulatory Commission  
Dr. J. N. Grace, Regional Administrator  
Mr. P. Holmes-Ray, Senior Resident  
Inspector-Hatch

ENCLOSURE TO GPC LETTER SL-1283

RESPONSE TO NRC CONCERNS  
RELATIVE TO GEORGIA POWER COMPANY SUBMITTAL RELATED TO  
EDWIN I. HATCH NUCLEAR PLANT UNITS 1 AND 2  
10 CFR 50.48 AND APPENDIX R EXEMPTION REQUESTS  
DATED MAY 16, 1986

Question 1:

Section 1.1  
1.1.2.1 - 1.1.2.6

- (1) In accordance with Generic Letter 86-10 the requested relief from the 3-hour barrier requirement is not an exemption. However, the licensee must perform an evaluation on all fire boundaries in its plant and retain these evaluations for NRC audit.

Response 1:

Evaluations and justifications will be available for audit.

Question 2:

Section 1.2

- (2) Will the reroute or 1-hour barrier protection of the pathway 2 circuits be accomplished by the end of this outage?

Response 2:

All work needed to protect or reroute the required circuits, with one exception, is scheduled to be complete prior to the Appendix R completion date of November 30, 1986.

The circuit identified as needing protection is associated with the control power transfer switch which is scheduled for installation in Diesel Building Switchgear Room 1F after November 30, 1986. (Refer to Section 2.2 of the May 16, 1986, exemption request letter.) This circuit will not be rerouted or wrapped. The control power transfer switch will provide the protection needed.

Question 3:

Section 1.2

- (3) What is the arrangement of the combustible cable insulation in relation to the pathway 2 circuits?

ENCLOSURE TO GPC LETTER SL-1283 (Continued)

APPENDIX R EXEMPTION REQUEST

Response 3:

The raceways located in Fire Areas 1408 and 1412, which are required to be wrapped, are highlighted on the enclosed preliminary drawings:

|                 |                 |
|-----------------|-----------------|
| H-40144, Rev. 1 | H-40152, Rev. 1 |
| H-40145, Rev. 1 | H-40154, Rev. 1 |

As shown in the drawings, the following circuits:

|             |                    |                     |
|-------------|--------------------|---------------------|
| PUED41C02-B | RTED09C01-B        | R22-S006-ES8-C09-B  |
| PUED41C05-B | RTED09C03-B        | R22-S006-ES8-C11-B  |
| RTED01C07-B | RTED16C02-B        | R22-S006-ES7-C05-2  |
| RTED01E01-B | RTED16C04-B        | R22-S027-ESB-C53A-B |
| RTED05C01-B | R22-S006-ESB-C08-B | R22-S027-ESB-C53B-B |

in raceways:

|            |              |           |           |
|------------|--------------|-----------|-----------|
| 2ESB168-B  | PB1-18-7     | TB1-673-8 | ESA-6-B   |
| 2ESB167-B  | ESS-II-249-B | TB1-629-8 | ESA-108-B |
| ESS-I-62-B | ESS-II-380-B | PB1-18    | TLA7-13-B |
| ES8-156-B  |              |           |           |

generally run in a north-south direction through a congested area, across and beside numerous other circuits. Although many of the circuits in close proximity to the required circuits are contained in metal enclosures (conduit, walker duct, etc.), exposed cables may also be located near the required cables.

These two exemption requests are similar to the exemption already granted in Section 10.0 of the April 18, 1984, Safety Evaluation Report.

Question 4:

Section 1.3

(4) How are the outside security lights powered? Can the security lights be readily switched on to the emergency diesel generators?

Response 4:

As discussed in our August 27th telephone conversation, portable lighting, other than flashlights, is available, if necessary, to allow the operators to traverse between buildings and to perform any necessary manual actions in the yard area. Additional details related to this security safeguards lighting can be provided, if required. It is GPC's position that only minimal lighting is necessary to traverse between buildings and to close the valve in the plant service water valve pits. Therefore, any additional lighting, other than that normally available during a LOSP, probably will not be needed.

ENCLOSURE TO GPC LETTER SL-1283 (Continued)

APPENDIX R EXEMPTION REQUEST

Question 5:

- Section 1.4 (5) State that all of the equipment located within the water curtain zone will not be damaged by continuous exposure to the water spray.

Response 5:

For those components required to remain operable in the water spray, spray protection is provided where needed, and exposure to the water spray will not render the equipment inoperable.

Question 6:

- Section 1.4.1.1.1 (6) Are any combustibles located within 20 feet of the RHR valves E11-F015A and E11-F017A?

Response 6:

Valves E11-F015A and E11-F017A are located within the piping penetration room. Combustibles consisting of cable insulation are located within 20 ft of the subject valves. A conservative estimate of the fire loading located within 20 ft of these valves is approximately 69,000 BTU/ft<sup>2</sup>, which is equivalent to a 0.83-hour fire. Valves E11-F015A and E11-F017A are located totally within the water curtain zone and an area-wide fire detection system.

Because of the low fire loading, the protected circuits should not be damaged, and the suppression system should contain and suppress any fire that would develop in the area of the subject valves.

Question 7:

- Section 1.4.1.1.7 (7) The last paragraph of this exemption request is unclear. Please describe in more detail the location of the shutdown panel relative to the water curtain and the significance of extending the curtain 5 feet north of the panel.

Response 7:

As explained in our July 1, 1982 submittal, "Response to 10 CFR 50.48 and Appendix R," page 4-17, and in Section 4.2.1 of the April 18, 1984, Safety Evaluation Report, GPC committed to install an automatic sprinkler system to protect against the spread of fire from one half of the Reactor Building to the other where there was no physical barrier. We proposed

## ENCLOSURE TO GPC LETTER SL-1283 (Continued)

### APPENDIX R EXEMPTION REQUEST

that the sprinkler system extend from the east-west centerline of the Reactor Building into each fire area a minimum distance of 10 ft, or to a distance of 20 ft beyond the last redundant opposite train component, whichever is greater.

Panel 2H21-P173 contains a control cable for a pathway 2 component and is located on the side of the Reactor Building where pathway 2 is used for shutdown. Therefore, to meet the proposed separation criteria by locating a sprinkler system within this area, the system should extend 20 ft beyond panel 2H21-P173, or 5 to 10 ft beyond its present actual location. However, the steam chase, shown as Zone 2205H on the Fire Hazards Analysis drawings, provides a substantial, but unrated, physical barrier between the Reactor Building halves in this area. Therefore, the sprinkler system is not necessary to separate the Reactor Building halves.

The primary purpose of this particular sprinkler zone is to protect the remote shutdown panels. This sprinkler zone would not be required to meet the water curtain criteria because of the physical separation provided by the steam chase.

There are no required active components contained in panel 2H21-P173, and the loss of the control cable can be compensated for by a manual operator action. therefore, extending the sprinkler system north to a distance of 20 ft beyond the panel would not materially enhance fire protection safety in this area.

In order to adequately document these statements, the following exception to a GPC commitment is also requested.

#### Requested Exception:

An exception to the water curtain separation criteria stated in Section 4.2.1 of the April 18, 1984, Safety Evaluation Report is requested. Specifically, GPC requests that the water curtain criteria be revised to extend only beyond remote shutdown panel 2H21-P173.

#### Justification:

Physical separation of the Reactor Building halves is provided in this zone by the steam chase (designated as Fire Zone 2205H). The substantial, but unrated, reinforced concrete walls of the steam chase should provide adequate separation of the Reactor Building for a fire occurring on the west side. The circuit located in panel 2H21-P173 should be adequately protected by the existing suppression system located between column lines R15 and R18 and the area-wide fire detection system.

The detection and suppression provided inside remote shutdown panel 2C82-P001, and the physical protection provided by the panels themselves should prevent a fire occurring in either panel (2C82-P001 or 2H21-P173)



ENCLOSURE TO GPC LETTER SL-1283 (Continued)

APPENDIX R EXEMPTION REQUEST

from damaging the other panel. The sprinkler system located at ceiling level should prevent a fire occurring outside the vicinity of these panels from damaging either of the remote shutdown panels.

Therefore, it is GPC's position that extending the existing sprinkler system north to a distance of 20 ft beyond panel 2H21-P173 would not materially enhance fire protection safety in this area.

Question 8:

Section 1.4.1.1.15

- (8) The exemption request is not clear. Figure 25 of the FHA indicates that MCC 2R24-S018B is already within the water curtain.

Response 8:

Motor Control Center 2R24-S018B is already located within the water curtain, but because of the proposed water curtain separation of the Reactor Building, as explained in our response to Question 7, the water curtain criteria is not strictly met for this component. In this case, the extending of the sprinkler system a distance of 20 ft north of the subject MCC is not possible. This is because of the open hatchway located in the ceiling immediately north of the subject MCC, as shown on the enclosed sketch, 8-1. Because of this open hatchway, the fixed combustible loading in the location of the hatch is essentially zero, and transient combustibles are administratively controlled.

The spray protection provided to MCC 2R24-S018B consists of two spray nozzles located approximately 2 ft above the MCC. The location of these heads will ensure that a fire occurring in the MCC will not spread, and a fire occurring outside the MCC should not damage it. The specific suppression system arrangement for this panel is shown on enclosed sketches SM83-248-105 and SM83-248-106.

As in our response to Question 7, GPC would like to request an exception to the water curtain separation criteria.

Requested Exception:

An exception to the water curtain separation criteria stated in Section 4.2.1 of the April 18, 1984, Safety Evaluation Report is requested. This exception is requested to the extent that the water curtain criteria used to separate the Reactor Building halves must only extend beyond MCC 2R24-S018B, thus exempting the 20-ft criteria in this case.

## ENCLOSURE TO GPC LETTER SL-1283 (Continued)

### APPENDIX R EXEMPTION REQUEST

#### Justification:

Motor Control Center 2R24-S018B is located against the reinforced concrete wall on the north side of the piping penetration room. The north and south halves of the Reactor Building are separated by a suppression system which is approximately 55 ft wide at this point. However, the suppression system only extends approximately 6 ft north and 2 1/2 ft west beyond MCC 2R24-S018B. The MCC contains a pathway 2 motor starter and is located on the side of the Reactor Building where pathway 2 would be used for shutdown.

The suppression system cannot be extended a distance of 20 ft north of MCC 2R24-S018B due to an open hatchway in the ceiling immediately north of the MCC. The MCC is protected by the water curtain system and the area-wide early warning fire detection system. The Reactor Building separation is provided by a suppression system which is approximately 55 ft wide. Extension of the suppression system to a distance 20 ft beyond the MCC would not materially enhance the separation of the Reactor Building and is not practical because of the open hatchway. Protection of the cables and the motor starter contained within the MCC is provided by: (1) the suppression system located above the MCC, (2) the metal enclosure of the MCC itself, and (3) the area-wide fire detection system.

#### Question 9:

##### Section 2.1

- (9) Provide a drawing clearly showing the location and height above floor level of the automatic fire suppression system and detection system (if any) in the intake structure. Describe any significant deviations from applicable NFPA codes.

#### Response 9:

Enclosed drawing H-11847, Rev. D shows the location of the smoke detectors located within the Intake Structure. These detectors are located at ceiling level.

Enclosed drawings H-11321, Rev. 5; 5-50509, Rev. 7; and S-50510, Rev. 4, along with the enclosed sketch, show the location of the automatic fire suppression system. Each pump motor has two spray nozzles rated at 135°F, with 65 deflectors placed at 35° angles. This arrangement provides full sprinkler coverage of the fire hazard, which is the pump motor.

The NFPA Code deviations, as described in Chapter 5 of our "Response to 10 CFR 50.48 and Appendix R" and in Appendix H of the FHA, all apply to the Intake Structure. Within the Intake Structure, there are no significant deviations from the applicable NFPA codes.

ENCLOSURE TO GPC LETTER SL-1283 (Continued)

APPENDIX R EXEMPTION REQUEST

Question 10:

Section 2.2

(10) Provide a drawing clearly showing the layout of automatic fire suppression and detection systems in the Turbine Building and east cableway Unit 2.

Response 10:

Enclosed drawings H-11821, Rev. E; SM-084-020-010, Rev. B; S-60012, Rev. 7, and S-60013, Rev. 6 indicate the layout of the automatic fire suppression and detection systems in the Turbine Building and the East Cableway for Unit 2.

Question 11:

Section 1.7

(11) What are the estimated times required to perform the Manual Operator Actions (MOAs)? Also, how long after the plant scram will it be before these MOAs must be performed?

Response 11:

Section 1.7 of our May 16, 1986, submittal discusses the following types of MOAs which entail opening links and installing jumpers:

- RHR pump room cooler
- RCIC pump room cooler
- Diesel-generator voltage regulator (one for each diesel-generator)
- Diesel-generator local ammeters (one for each diesel-generator)

The time required to perform the MOAs is:

- 20 minutes from the time the Plant Equipment Operator (PEO) is notified until the cooler is in operation
- 20 minutes from the time the PEO is notified until the cooler is in operation
- 15 minutes from the time the PEO is notified until the MOA is complete
- 10 minutes from the time the PEO is notified until the MOA is complete

ENCLOSURE TO GPC LETTER SL-1283 (Continued)

APPENDIX R EXEMPTION REQUEST

The diesel-generator MOAs must be performed on each diesel-generator required for operation; however, only one diesel-generator is needed per unit for hot shutdown.

The time following shutdown when the MOAs must be performed is:

- 4 hours following a scram, after the RHR pumps are started.
- (See Section 1.7.1.2.) 40 minutes following a reactor scram. RCIC is needed within 10 minutes of a scram. RCIC coolers are needed within 30 minutes of starting RCIC. This is a very conservative calculation. Work is in progress because of the proposed station blackout rule to either provide dc-powered room coolers or to justify no cooling for a period of 4 hours.
- 30 minutes following a reactor scram.(a)
- 30 minutes following a reactor scram.(a)

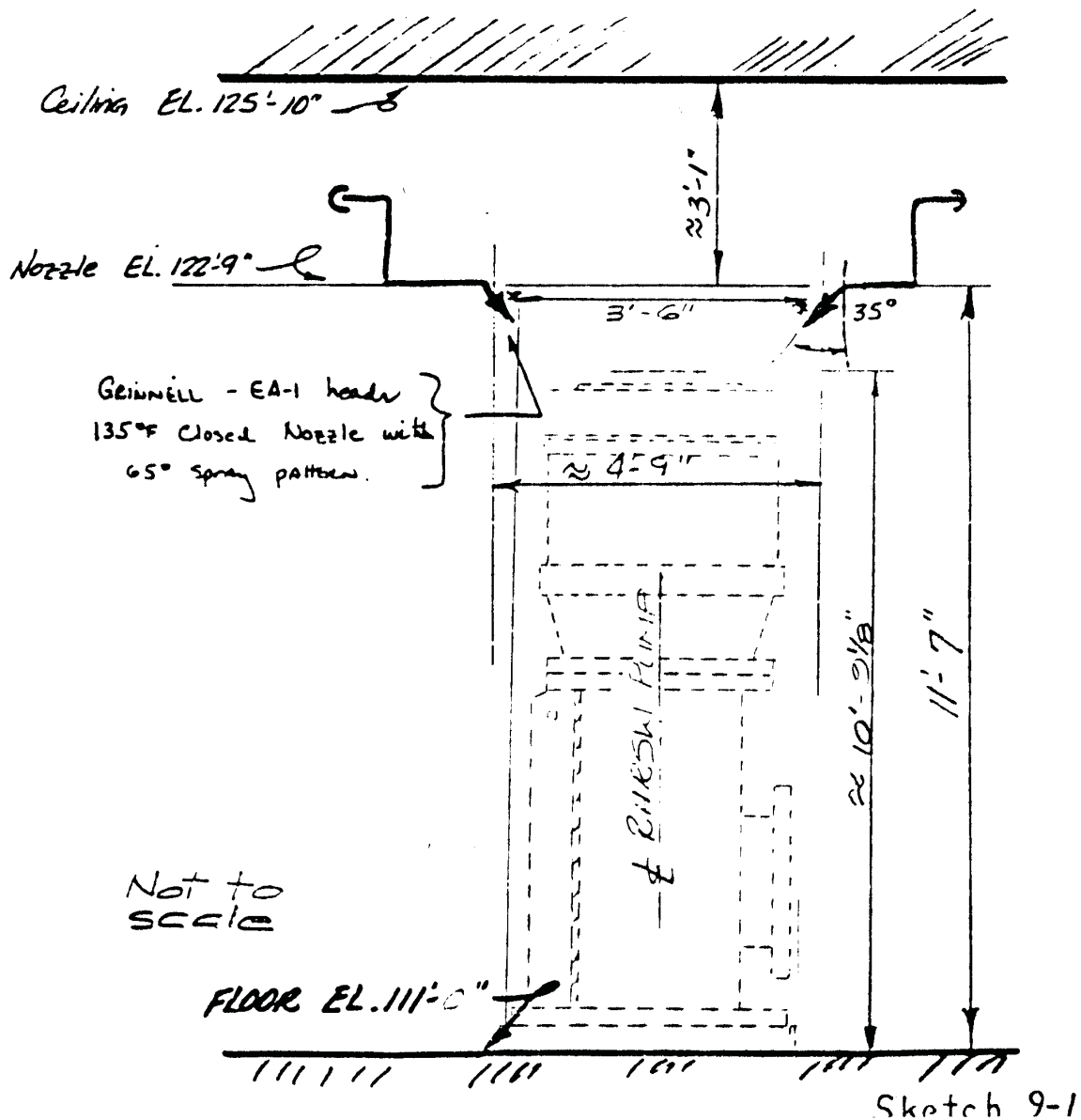
---

a. The limiting factor for needing the diesel-generators is the RCIC room coolers.





# E.I HATCH - FIRE PROTECTION - at Intake Structure (TYPICAL TWO UNITS)



Georgia Power Company  
333 Piedmont Avenue  
Atlanta, Georgia 30308  
Telephone 404-526-6526

Mailing Address:  
Post Office Box 4545  
Atlanta, Georgia 30302

L. T. Gucwa  
Manager Nuclear Safety  
and Licensing

**Georgia Power**  
*the southern electric system*

SL-1483  
0851C

October 31, 1986

Director of Nuclear Reactor Regulation  
Attention: Mr. D. Muller, Project Director  
BWR Project Directorate No. 2  
Division of Boiling Water Reactor Licensing  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

NRC DOCKETS 50-321, 50-366  
OPERATING LICENSES DPR-57, NPF-5  
EDWIN I. HATCH NUCLEAR PLANT UNITS 1 AND 2  
REQUESTS FOR ADDITIONAL INFORMATION:  
APPENDIX R EXEMPTION REQUESTS

Gentlemen:

Enclosed please find Georgia Power Company's responses to the NRC's informal request for additional information relative to our May 16, 1986, Appendix R Exemption Requests.

If you have questions in this regard, please contact this office at any time.

Sincerely,

L. T. Gucwa

JDH/lc

Enclosure

c: Georgia Power Company  
Mr. J. P. O'Reilly  
Mr. J. T. Beckham, Jr.  
Mr. H. C. Nix, Jr.  
GO-NORMS

U.S. Nuclear Regulatory Commission  
Dr. J. N. Grace, Regional Administrator  
Mr. P. Holmes-Ray, Senior Resident  
Inspector-Hatch



ENCLOSURE

NRC DOCKETS 50-321, 50-366  
OPERATING LICENSES DPR-57, NPF-5  
EDWIN I. HATCH NUCLEAR PLANT UNITS 1 AND 2  
REQUESTS FOR ADDITIONAL INFORMATION:  
APPENDIX R EXEMPTION REQUESTS

NRC Request No. 1:

(Reference Section 1.2 of GPC's May 16, 1986, Appendix R Exemption Requests.)

Provide a diagram showing the rerouting of pathway 2 circuits that now pass through the diesel generator switchgear rooms 1E and 1F. If any of these lines are still shown to pass through sections of 1E and 1F having substantial fuel loads, then automatic suppression will be required.

Response:

There is no proposed additional circuit rerouting of any safe shutdown circuits which currently pass through switchgear rooms 1E or 1F.

Safe shutdown circuits, which are routed through switchgear rooms 1E and 1F and are required in the event of a fire, will be protected with a 1-hour rated fire barrier system which is now complete and in place.

The addition of automatic suppression in rooms 1E and 1F is not desirable, since numerous 4160-Volt switchgear banks located in these rooms would require protection from water spray due to the suppression system.

We maintain that the 1-hour rated fire barrier, coupled with the area-wide fire detection systems, the CO<sub>2</sub> hose reels, and the portable fire extinguishers located in these rooms, affords adequate protection and meets the intent of the rule.

## ENCLOSURE

### REQUESTS FOR ADDITIONAL INFORMATION: APPENDIX R EXEMPTION REQUESTS

#### NRC Request No. 2:

(Reference Section 1.3 of GPC's May 16, 1986, Appendix R Exemption Requests.)

How is the control room lighting switched onto the station battery and the emergency diesel generators? If operator action is required, describe the steps and show that the necessary emergency lighting will be available for the actions.

How long will the station batteries power the lights (and other required loads) without the emergency diesels?

Provide an analysis showing that a single fire event cannot sever both offsite and emergency power to the control room.

#### Response:

Normal control room lighting is assumed to be lost following a loss-of-offsite power (LOSP) and is not considered available for any fire event.

The control room emergency lighting consists of two divisions, per unit, of dc-powered incandescent fixtures. Each division is designed to independently supply adequate emergency lighting in each unit's respective side of the control room. The control room emergency lighting is automatically switched on when the normal ac lighting power is lost. The emergency lighting is powered from the station batteries off a 125-Volt-dc bus. After the emergency diesel generators start, the station battery chargers can be re-energized to maintain the required 125-Volt-dc loads. The operator must use local switches on the Control Building 130-ft elevation to re-energize the chargers.

The station batteries have the capability to power the control room emergency lights and other required loads without the emergency diesels for a minimum of 120 minutes.

The evaluation for control room lighting did not consider the routing of the normal ac power circuits to the lights, since offsite power cannot be assumed to be always available. The circuits required to supply power to the emergency lights were evaluated. This evaluation determined that the circuits for Division I and Division II power to the emergency lights were separated, and that a single fire occurring outside of the control complex (fire area 0024) would not disable both divisions of emergency lighting.

For a fire occurring within the control complex (fire area 0024), the alternate shutdown panels will be used to shut down the plant.

ENCLOSURE

REQUESTS FOR ADDITIONAL INFORMATION:  
APPENDIX R EXEMPTION REQUESTS

NRC Request No. 3:

(Reference Section 1.4.1.1.5 of GPC's May 16, 1986, Appendix R Exemption Requests.)

Why are the Unit 1 torus water temperature instruments not completely fire protected with a 1-hour barrier? How are the Unit 2 instruments protected?

Response:

Circuit routing for the Unit 2 torus water temperature instruments is such that, for a fire occurring anywhere within the torus room (fire areas 2203 and 2205), at least one instrument will always be available. For Unit 1, we reevaluated instrument location and circuit routing and concluded that the same situation exists as for Unit 2. Thus, protection of these instruments is not required by Appendix R. However, since some of the torus water temperature instruments are located within the torus room water curtain zone, to not wrap these instruments still represents a deviation to our previous commitment to wrap all safe shutdown-related circuits located within the water curtain zones. (Reference GPC's June 14, 1985, submittal.) This deviation is justified on the basis that a redundant instrument will always be available.

## ENCLOSURE

### REQUESTS FOR ADDITIONAL INFORMATION: APPENDIX R EXEMPTION REQUESTS

#### NRC Request No. 4:

(Reference Section 1.5.1.1.3 of GPC's May 16, 1986, Appendix R Exemption Requests.)

The description of the routing of the HPCI cables in the Unit 2 Reactor Building is inadequate. Provide a more specific description of the location of the cables on the various elevation levels, and where credit is taken for vertical separation, describe the composition of intervening floors and combustibles.

Describe the procedures relative to securing the HPCI system to be followed in the event of a fire and/or alarm in the Turbine Building east cableway. Provide details as to steps taken following 1) initial alarm signals, 2) sprinkler activation, and 3) fire brigade arrival. Include the maximum time required to secure HPCI.

#### Response:

#### I. Description of Cable Routings in the Reactor Building

##### A. HPCI Inboard Steam Isolation Valve

1. Control Cable from the Main Control Room (MCR) to the Motor Control Center (MCC)

This cable is routed in a conduit, which enters the Reactor Building south fire area on el 130 ft, through the south portion of the west wall. Upon entering the Reactor Building, the conduit runs southward along the west wall, penetrates the ceiling (el 164 ft floor slab), and enters the Reactor Building heating, ventilation, and air conditioning (HVAC) room. The conduit located at el 130 ft will be protected with a 3-hour fire protective barrier. Once the conduit enters the HVAC room (also part of the Reactor Building south fire area), it is routed to the MCC where the starter for the valve is housed.

2. Control and Power Cables from the MCC to the Valve

These cables are routed in conduit from the MCC, which is located in the HVAC room on el 164 ft in the Reactor Building, through the floor and enter the north fire area of the Reactor Building where the conduits are then routed to an electrical penetration.

## ENCLOSURE

### REQUESTS FOR ADDITIONAL INFORMATION: APPENDIX R EXEMPTION REQUESTS

#### Response to NRC Request No. 4 (continued):

##### 3. Power Cable for the MCC

This cable is routed in a cable tray, which enters the Reactor Building north fire area on el 130 ft, through the north portion of the west wall. Upon entering the Reactor Building, the cable is routed in trays which turn upward through the ceiling (el 164 ft floor slab) and enters the Reactor Building HVAC room (Reactor Building south fire area) where the cable is then routed into a channel which enters the MCC.

#### B. High Pressure Coolant Injection (HPCI) Outboard Steam Isolation Valve

##### 1. Control Cable from the MCR to the MCC

This cable is routed in a cable tray, which enters the Reactor Building south fire area on el 130 ft, through the south portion of the west wall. Upon entering the Reactor Building, the cable is routed in cable trays, which run in an eastward direction, to the MCC where the starter for the valve is housed. The MCC is located on the east portion of the south wall on el 130 ft.

##### 2. Control Cable from the MCC to the Valve

These cables are routed in a combination of conduit and cable tray from the MCC located on the east portion of the south wall (el 130 ft) to the valve which is located in the pipe penetration room on the east side of the Reactor Building (el 130 ft south of the Reactor Building's center line).

##### 3. Power Cable for the MCC

This cable is routed in a channel, which enters the Reactor Building south fire area on el 130 ft, through the south portion of the west wall. Upon entering the Reactor Building, the channel connects to a tray which routes the cable to the MCC located on the east portion of the south wall (el 130 ft).

## ENCLOSURE

### REQUESTS FOR ADDITIONAL INFORMATION: APPENDIX R EXEMPTION REQUESTS

#### Response to NRC Request No. 4 (continued):

##### C. HPCI Trip Solenoid Valve

Control Cable (to Energize the Valve) from the MCR to the Valve

This cable is routed in a cable tray, which enters the Reactor Building south fire area on el 130 ft, through the south portion of the west wall. Upon entering the Reactor Building, the cable is routed in cable trays, which run in an eastward direction, to near the east portion of the south wall on el 130 ft where the cable enters another tray which runs downward through the floor into the torus room (Reactor Building south fire area, el 87 ft). From the torus room, the cable is routed in conduit through the east portion of the south wall into the HPCI room where the cable is routed in cable tray and conduit to the valve.

##### II. Description of Cable Separation

As may be confirmed from the descriptions of cable routings, the cables for two of the means by which the HPCI system can be isolated are separated by either a 3-hour fire rated barrier, the Reactor Building north and south fire areas, or the non-rated floor slab (el 164 ft). The floor slab is constructed of reinforced concrete, ranging in thickness from 2 to 4 ft, poured onto 4 1/2-in.-deep metal decking and is supported by structural steel beams and columns. This floor should prevent the spread of fire from the HVAC room, which has a fire loading of 82,688 BTU/ft<sup>2</sup>, to the Reactor Building el 130 ft, which has a fire loading of 83,485 BTU/ft<sup>2</sup>. The BTU loading is largely comprised of cable insulation with a lesser percentage of Class A plastics and other miscellaneous combustibles. Our conclusion is that at least one circuit will always be available for any fire which occurs in the Reactor Building.

The procedure for securing HPCI, should the system fail to trip as required following the filling of the reactor vessel, is the same regardless of the reason for failure. All necessary controls are located in the MCR on the same panel. The following note is provided in the Emergency Operating Procedure to assist the operator in the event that the auto-trip function fails during a fire:

ENCLOSURE

REQUESTS FOR ADDITIONAL INFORMATION:  
APPENDIX R EXEMPTION REQUESTS

Response to NRC Request No. 4 (continued):

---

FIRE 1

IF FIRE IN CONTAMINATED AREA, NOTIFY HEALTH PHYSICS TO RESPOND TO FIRE SCENE

IF HPCI IS REQUIRED TO BE TRIPPED THEN ONE OF THE FOLLOWING MEANS OF SECURING HPCI WILL REMAIN AVAILABLE

- HPCI REMOTE TRIP ON PANEL 2H11-P601.
- CLOSE HPCI STEAM SUPPLY ISOLATION VALVES 2E41-F002 OR 2E41-F003 AT PANEL 2H11-P601.

---

HPCI procedures allow the system to be run in the manual or automatic mode. If the operator is manually controlling the system, the problem will not occur. If the system were running unattended, the operator would note the presence of a reactor vessel high level and manually shut down the system. The maximum time required to secure HPCI would be about 60 seconds. With HPCI operating at normal flow, the minimum time for the water level to reach the steam lines from the HPCI auto-trip level would be approximately 2 1/2 minutes, based upon a test conducted on the Hatch 2 MCR simulator.

## ENCLOSURE

### REQUESTS FOR ADDITIONAL INFORMATION: APPENDIX R EXEMPTION REQUESTS

#### NRC Request No. 5:

(Reference Section 1.6 of GPC's May 16, 1986, Appendix R Exemption Requests.)

Provide an analysis which shows that the cable tray supports will be able to withstand the complete combustion of the fuel load which is in close proximity to the cable trays. Provide a cross section of the cable tray supports and describe other dimensions. Supports should be wrapped for at least 18 inches to prevent heat conduction to the cables.

#### Response:

All supports are wrapped for at least the minimum "18-in." rule per the TSI qualified and tested configuration. Some supports are not wrapped beyond the 18-in. criteria. The supports are located in areas covered by automatic sprinkler systems. Our Justification for this deviation is based upon the fact that the supports will reach a certain maximum temperature at which time the suppression system will actuate and limit further temperature rise. This position is based upon an evaluation of the reduction in the yield strength of steel with increasing temperature and the maximum actuation temperature of the sprinkler heads. A more detailed calculation is being prepared to confirm this evaluation. This calculation will consider one or more of the worst-case areas in question based upon the quantity of exposed cables located near the supports, the size of the supports, and the yield strength of steel at elevated temperatures. Data relative to free-burning cable which is located in trays will be based upon the FMRC/EPRI test reports (EPRI NP-1881). Temperature profiles above the burning cable trays will be determined by correlating the test configurations with our worst-case configurations. This analysis is expected to require approximately 3 weeks to complete, and an additional 2 weeks will be needed for verification.



## ENCLOSURE

### REQUESTS FOR ADDITIONAL INFORMATION: APPENDIX R EXEMPTION REQUESTS

#### NRC Request No. 6:

(Reference Section 3.1 of GPC's May 16, 1986, Appendix R Exemption Requests.)

The staff does not agree with the lack of compensatory measures for the schedular exemption related to the installation of new circuit breakers and fuses to ensure coordinated circuits. The staff proposes that the licensee provide a procedure when in the event of an alarm signal in an area containing an affected circuit, an operator is dispatched to the affected circuit breaker locations to open the breakers upon verification of the existence of a fire.

#### Response:

The circuit breaker and fuse coordination study for Plant Hatch identified several areas in which coordination could be improved. The results of the study indicated the need for 12 specific plant design changes. Six of these changes have now been completed. This exemption request involves the remaining six changes. However, the completed changes have corrected all of the most significant problems revealed by the study. Implementation of the remaining six changes will improve coordination only slightly. By November 30, 1986, all Appendix R associated circuits will meet the minimum coordination interval requirements of IEEE 242-1975, Chapter 7, and IEEE 241-1983, page 378.

The low-voltage ac power circuit breakers supplying Appendix R-designated loads are coordinated and selective with downstream molded-case circuit breakers located in the MCCs and distribution panels. The degree of selectivity meets the requirements described in IEEE 242-1975, Chapter 7.

The design changes remaining to be completed after November 30, 1986, will improve coordination for low-voltage control and power circuits. The coordination and selectivity of these circuits are basically good when taking credit for the fault limiting ability of the branch circuit cable. When considering an Appendix R-type fire in which we might lose part of the cable impedance, the possibility exists for the molded-case circuit breakers connected in series to simultaneously trip. This would be considered a loss of selectivity. However, we do not believe that selectivity would be lost, because the cable insulation exposed to a fire is likely to degrade over a period of time and the resulting fault would be far below the value of a bolted fault considered for the study.

ENCLOSURE

REQUESTS FOR ADDITIONAL INFORMATION:  
APPENDIX R EXEMPTION REQUESTS

Response to NRC Request No. 6 (continued):

With the remaining six design changes, we are attempting to achieve coordination and selectivity on Appendix R low-voltage power and control circuits without taking credit for cable impedance lowering the fault current and eliminating the chance that an Appendix R-type fire might cause an overtrip and the temporary loss of a panel.

In reference to establishing a procedure designed to control affected circuits as a compensatory measure, GPC will establish a procedure to cover the following areas until the target changes are complete:

In the unlikely event that a fire occurs in associated circuit faulting which results in the loss of a load center, the procedure will detail how to reestablish power to the affected Appendix R components. This procedure will direct that existing plant procedures (34AB-OPS series) for the loss of dc busses, loss of instrument busses, loss of vital ac busses, and loss of essential ac distribution busses be implemented to reestablish power to the Appendix R components powered by the tripped panel.

We strongly believe that it would be detrimental to plant safety to require or even suggest load stripping prior to an actual problem, especially as a compensatory measure for a problem which we consider to be minor.

ENCLOSURE

REQUESTS FOR ADDITIONAL INFORMATION:  
APPENDIX R EXEMPTION REQUESTS

NRC Request No. 7:

(Reference Section 3.2 of GPC's May 16, 1986, Appendix R Exemption Requests.)

Can the control power for RHR pump E11-C002D be manually transferred to the swing diesel? If not, provide a procedure for manually controlling the pump. If yes, verify that the transfer can be completed in an acceptable time frame. Also, provide a procedure for manually transferring control power from the swing diesel.

Response:

Control power cannot be transferred manually; however, the pump breaker can be operated manually without control power. A procedure will be established relative to manually starting the pump at the breaker until the modification is complete. Since this problem affects only cold shutdown equipment, there is adequate time to take this action.

ENCLOSURE

REQUESTS FOR ADDITIONAL INFORMATION:  
APPENDIX R EXEMPTION REQUESTS

NRC Request No. 8:

(Reference Sections 1.7.1.2 and 1.7.1.7 of GPC's May 16, 1986, Appendix R Exemption Requests.)

The staff does not agree that 30 minutes is adequate time to allow operators to start the RCIC room coolers should the control room circuits be damaged by a fire.

Response:

A reanalysis of the RCIC room temperature rise without coolers has been performed. The RCIC room coolers need not be started for a minimum of 4 hours after the RCIC system has been started. This provides ample time for operators to complete the necessary actions.

ENCLOSURE

REQUESTS FOR ADDITIONAL INFORMATION:  
APPENDIX R EXEMPTION REQUESTS

NRC Request No. 9:

(Reference Sections 1.7.1.3, 1.7.1.4, 1.7.1.8 and 1.7.1.9 of GPC's May 16, 1986, Appendix R Exemption Requests.)

The staff feels that an operator should be immediately dispatched to the Diesel Generator Building upon control room evacuation and dedicated to the purpose of operating the diesel generators during remote shutdown.

Response:

Our procedures for remote shutdown require that an operator be immediately dispatched to the Diesel Generator Building to ensure proper operation of the equipment upon a LOSP which occurs during remote shutdown.

ENCLOSURE

REQUESTS FOR ADDITIONAL INFORMATION:  
APPENDIX R EXEMPTION REQUESTS

NRC Request No. 10:

(Reference Sections 1.7.1.5 and 1.7.1.10 of GPC's May 16, 1986, Appendix R Exemption Requests.)

The staff's position is that if the C-T shorting blocks mentioned in the exemption request are installed, then there is no need for the exemption or deviation in this case.

Response:

Since we are proceeding with the installation of the shorting blocks, the exemption requests described in Sections 1.7.1.5 and 1.7.1.10 of our May 16, 1986, letter are hereby withdrawn.

Georgia Power Company  
333 Piedmont Avenue  
Atlanta, Georgia 30308  
Telephone 404-526-6526

Mailing Address:  
Post Office Box 4545  
Atlanta, Georgia 30302

L. T. Gucwa  
Manager Nuclear Safety  
and Licensing

**Georgia Power**  
*the southern electric system*

SL-1582  
0914C

November 14, 1986

Director of Nuclear Reactor Regulation  
Attention: Mr. D. Muller, Project Director  
BWR Project Directorate No. 2  
Division of Boiling Water Reactor Licensing  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

NRC DOCKETS 50-321, 50-366  
OPERATING LICENSES DPR-57, NPF-5  
EDWIN I. HATCH NUCLEAR PLANT UNITS 1 AND  
APPENDIX R EXEMPTION REQUEST  
RELATIVE TO SPURIOUS OPERATION OF HPCI SYSTEM

Gentlemen:

On November 6, 1986, and November 12, 1986, conference calls were held between Mr. G. R. Rivenbark, et al of the NRC and Mr. J. D. Heidt, et al of Georgia Power Company (GPC). The purpose of the calls was to discuss the status of the Appendix R exemption request for Plant Hatch relative to the spurious operation of the Unit 1 and Unit 2 HPCI systems due to the postulated occurrence of a fire in either Reactor Building or in the Unit 2 East Cableway. (Reference Section 1.5 of GPC's letter to the NRC dated May 16, 1986.)

Based upon the above-mentioned discussions, GPC agreed to withdraw the May 16, 1986, Appendix R exemption request regarding the postulated occurrence of a fire in the Unit 2 East Cableway. However, as discussed and agreed in the conference calls, the exemption is still necessary for the Unit 1 and Unit 2 Reactor Buildings (fire areas 1205 and 2205).

If you have questions or concerns regarding this matter, please contact this office at any time.

Sincerely,

L. T. Gucwa

JDH/lc

# Georgia Power

Director of Nuclear Reactor Regulation  
Attention: Mr. D. Muller, Project Director  
BWR Project Directorate No. 2  
November 14, 1986  
Page Two

c: Georgia Power Company  
Mr. J. P. O'Reilly  
Mr. J. T. Beckham, Jr.  
Mr. H. C. Nix, Jr.  
GO-NORMS

U.S. Nuclear Regulatory Commission  
Dr. J. N. Grace, Regional Administrator  
Mr. P. Holmes-Ray, Senior Resident  
Inspector-Hatch

|            |            |           |       |            |
|------------|------------|-----------|-------|------------|
| Office:    | Lic. Engr. | Sec. Mgr. | Legal | Plant Mgr. |
| Surname:   | Heidt      | Baker     | Domby | Nix        |
| Signature: |            |           |       |            |
| Date:      | 11/86      | 11/86     | 11/86 | 11/86      |



EDWIN I HATCH NUCLEAR PLANT

UNIT 1 AND UNIT 2

10 CFR 50 AND APPENDIX R  
EXEMPTION REQUESTS

MARCH 1986

# 10 CFR 50 AND APPENDIX R EXEMPTION REQUESTS

## TABLE OF CONTENTS

| Section |                                                                                                                                                                                                                                                                  | <u>Page</u> |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 1.0     | New Exemption Requests - Technical                                                                                                                                                                                                                               | 1-1         |
| 1.1     | Fire Area Boundaries<br>Fire Areas: Unit 1, Unit 2, and Common                                                                                                                                                                                                   | 1-1         |
| 1.1.1   | Requested Exemption<br>(Exemption from Separation Criteria)                                                                                                                                                                                                      | 1-1         |
| 1.1.2   | Requested Exemption<br>(Exemption from Separation Criteria)                                                                                                                                                                                                      | 1-2         |
| 1.2     | Fire Areas- Diesel Generator Building<br>1412 - Switchgear Room No. 1E - Unit 1<br>1408 - Diesel Generator Building<br>Switchgear Room No. 1F - Unit 1                                                                                                           | 1-10        |
| 1.2.1   | Requested Exemption<br>(Exemption from Requirements for<br>Automatic Suppression)                                                                                                                                                                                | 1-10        |
| 1.3     | Fire Areas<br>Control Room<br>Yard                                                                                                                                                                                                                               | 1-12        |
| 1.3.1   | Requested Exemption<br>(Exemption from Lighting Criteria)                                                                                                                                                                                                        | 1-12        |
| 1.4     | Fire Areas<br>1205 - Unit 1 Reactor Building<br>North of Column Line R7<br>1203 - Unit 1 Reactor Building<br>South of Column Line R7<br>2203 - Unit 2 Reactor Building<br>North of Column Line R19<br>2205 - Unit 2 Reactor Building<br>South of Column Line R19 | 1-13        |
| 1.4.1   | Exemption from 1-hour Barrier Criteria                                                                                                                                                                                                                           | 1-13        |

## TABLE OF CONTENTS (Continued)

|         |                                                                                     | <u>Page</u> |
|---------|-------------------------------------------------------------------------------------|-------------|
|         | 1.5 Fire Areas<br>1205 - Unit 1 Reactor Building<br>North of Column Line 27         | 1-21        |
|         | 1.5.1 Requested Exemption<br>(Exemption from 1-hour Barrier Criteria)               | 1-21        |
|         | 1.6 Fire Areas<br>Unit 1, Unit 2, and Common                                        | 1-23        |
|         | 1.6.1 Requested Exemption<br>(Exemption from 1-hour Barrier<br>Criteria)            | 1-23        |
|         | 1.7 Remote Shutdown System<br>Unit 1 and Unit 2<br>Fire Area<br>0024 - Control Room | 1-24        |
|         | 1.7.1 Requested Exemption<br>(Exemption from “Repair” Criteria)                     | 1-24        |
| Section | 2.0 Clarification of Previous<br>Exemptions - Technical                             | 2-1         |
|         | 2.1 0501 - Intake Structure<br>(Separation Criteria)                                | 2-1         |
|         | 2.1.1 Existing Exemption                                                            | 2-1         |
|         | 2.1.2 Clarification                                                                 | 2-1         |
|         | 2.1.3 Justification                                                                 | 2-1         |
|         | 2.1.4 Exemption Interpretation                                                      | 2-2         |
|         | 2.2 2104 - Turbine Building East<br>Cableway - Unit 2, el 130 ft                    | 2-3         |
|         | 2.2.1 Existing Exemption                                                            | 2-3         |
|         | 2.2.2 Clarification                                                                 | 2-3         |
|         | 2.2.3 Justification                                                                 | 2-3         |
|         | 2.2.4 Exemption Interpretation                                                      | 2-3         |
|         | 2.3 0007 - Control Building<br>East Corridor, el 112 ft                             | 2-4         |

## TABLE OF CONTENTS (Continued)

|             |                                                                                       | Page       |
|-------------|---------------------------------------------------------------------------------------|------------|
|             | 2.3.1 Existing Exemption                                                              | 2-4        |
|             | 2.3.2 Clarification                                                                   | 2-4        |
|             | 2.3.3 Justification                                                                   | 2-4        |
|             | 2.3.4 Exemption Interpretation                                                        | 2-4        |
|             | 2.4 Control Building Working Floor,<br>el 112 ft                                      |            |
|             | 2.4.1 Existing Exemption                                                              | 2-5        |
|             | 2.4.2 Clarification                                                                   | 2-5        |
|             | 2.4.3 Justification                                                                   | 2-5        |
|             | 2.4.4 Exemption Interpretation                                                        | 2-5        |
|             | 2.5 1104 - Turbine Building East<br>Cableway - Unit 1, el 130 ft                      | 2-6        |
| i           | 2.5.1 Existing Exemption                                                              | 2-6        |
|             | 2.5.2 Clarification                                                                   | 2-6        |
|             | 2.5.3 Justification                                                                   | 2-6        |
|             | 2.5.4 Exemption Interpretation                                                        | 2-6        |
|             | 2.6 2014 - Unit 2 Switchgear Hallway                                                  | 2-7        |
|             | 2.6.1 Clarification                                                                   | 2-7        |
|             | 2.7 Fire Areas<br>Unit 1 and Unit 2 Reactor Buildings                                 | 2-8        |
|             | 2.7.1 Clarification                                                                   | 2-8        |
| Section 3.0 | New Exemption Requests - Scheduler                                                    | 3-1        |
|             | 3.1 Requested Exemption<br>(Scheduler Exemption for<br>Coordination Modifications)    | 3-1<br>3-1 |
|             | 3.1.1 Justification                                                                   | 3-1        |
|             | 3.2 Requested Exemption<br>(Scheduler Exemption for<br>Control Power Transfer Switch) | 3-4        |
|             | 3.2.1 Justification                                                                   |            |

## TABLE OF CONTENTS (Continued)

|             |       |                                                                 | <u>Page</u> |
|-------------|-------|-----------------------------------------------------------------|-------------|
| Section     | 4.0   | Revisions to Previous Statements                                | 4-1         |
|             | 4.1   | Fire Detection System Reevaluation                              | 4-1         |
|             | 4.2   | Changes in Combustible Loadings                                 | 4-1         |
|             | 4.2.1 | Fire Areas                                                      | 4-2         |
|             |       | 4160-V Transformer Room - Unit 1 (1019)                         |             |
|             |       | West 600-V Switchgear Room - Unit 1 (1016)                      |             |
|             |       | East 600-V Transformer Room - Unit 1 (1017)                     |             |
|             |       | 4160-V Transformer Room - Unit 2 (2019)                         |             |
|             |       | West 600-V Switchgear Room - Unit 2 (2016)                      |             |
|             |       | East 600-V Switchgear Room - Unit 2 (2017)                      |             |
|             | 4.2.2 | Control Building Working Team,<br>el 112 ft (0001)              | 4-4         |
|             | 4.2.3 | Control Building HP Zone<br>(0014 A, B, C, D, E, G, H, I, J, N) | 4-4         |
| Section 5.0 |       | Fire Area Boundary Figures                                      | 5-1         |

## TABLE OF CONTENTS (Continued)

### LIST OF TABLES

Table No.

4.2-1          Comparison of Combustible Loadings

## 1.0 NEW EXEMPTION REQUESTS - TECHNICAL

## 1.0 NEW EXEMPTION REQUESTS - TECHNICAL

The following are new exemption requests which have been identified as a result of the reevaluation of existing exemptions, the creation of a new fire hazards analysis which included reevaluation of all fire barriers, and a reevaluation of the shutdown analysis for each fire area.

### 1.1 FIRE AREA BOUNDARIES

FIRE AREAS: UNIT 1, UNIT 2, and COMMON

#### 1.1.1 Requested Exemption

A generic exemption is requested from the requirements of Paragraph III.G.2(a) of Appendix R to the extent that separation of redundant cable and equipment must be accomplished by 3-hour-rated barriers. This requested exemption is limited to fire area boundaries, such as penetrations, floors, walls, and ceilings which are unrated or rated less than 3 hours, but provide protection with margin from the actual fire hazard present.

##### 1.1.1.1 Justification

GPC has reviewed all the fire area boundaries at Plant Hatch. All penetrations in these boundaries which are not sealed to the fire rating required of the boundaries have been identified and documented. A fire protection engineer is considering these penetrations in his evaluation of each of the fire area boundaries to determine whether the boundaries will withstand the hazards associated with the area and protect important equipment within the area from a fire outside the area. Those penetrations which need to be upgraded to the fire rating of the boundary are being upgraded. This exemption will be used to resolve minor deficiencies clearly justifiable by a fire protection engineer.

#### 1.1.2 Requested Exemption

An exemption is requested from the requirements of Paragraph III.G.2 of Appendix R to the extent that separation of redundant cables and equipment must be accomplished by 3-hour-rated barriers.

The following are specific fire area boundary exemption requests needed in addition to the generic exemption request for minor deviations in the boundaries.



#### 1.1.2.1 1023 - Unit I Oil Conditioner Room

#### 2023 - Unit 2 Oil Conditioner Room

Each of these areas is bounded by 3-hour-rated walls, floor, and ceiling, with the exception of a non-rated metal hatch in the ceiling of each room at el 164 ft. (See figure 15). Each of these areas has a high combustible loading consisting of turbine lubricating oil and electrohydraulic control (EHC) fluid. Area 1023 is equipped with full wet pipe sprinkler coverage, and Area 2023 is equipped with a full coverage auto deluge system.

Fire Area 1023 contains one Unit 1 “both pathway” circuit; however, analysis has shown that this circuit does not need to be protected to achieve safe shutdown using pathway 2 for a fire in this area. Area 1023 contains no Unit 2 pathway components.

Fire Area 2023 contains Unit 1 “both pathway” circuits; however, analysis has shown that these circuits do not need to be protected to achieve safe shutdown using pathway 1. Area 2023 contains Unit 2 pathway 2 circuits; however, these circuits do not need to be protected to achieve safe shutdown using pathway 2.

The fire area above these areas is Fire Area 0101, the turbine deck, el 164 ft. This area has low combustible loading overall, and especially in the zones adjacent to the hatches, where the loading is very low (less than 5000 BTU /ft<sup>2</sup>). Fire Area 0101 contains no safe shutdown circuits or components for either unit.

Due to the low combustible loading in Area 0101, a fire in this area will not propagate to Areas 1023 or 2023. Smoke and hot gases from a fire in either Area 1023 or 2023 may propagate through these hatches to Area 0101, but the high ceiling and large volume of the Turbine Building make the transfer of heat by convection insignificant.

Based on the above, the boundaries of these fire areas are adequate to ensure that a fire within either area will not damage redundant systems from both shutdown paths and that a fire that originates outside of these areas will not spread into them and damage vulnerable shutdown systems. Therefore, upgrading the fire area boundaries to a 3-hour rating will not materially enhance fire protection safety.

#### 1.1.2.2 0031 - Control Room Roof

This area is the roof of the Control Building, el 180 ft. (See figure 18). There is no ceiling in this area; it is open to the Turbine Building Area 0101. The walls are approximately 12-ft-high parapets and are non-rated, reinforced concrete with the exception of the wall around the stairwell and elevator (Area 0002) which is 2-hour-rated block.

The floor is reinforced concrete and 3-hour rated, with the exception of the HVAC ducts that penetrate the floor and do not have fire dampers. There are two, 1-1/2-hour doors accessing the stairwell and elevator machinery room.

This area has a low combustible loading (approximately 8680 BTU /ft<sup>2</sup>) consisting primarily of cable insulation, charcoal (in sealed filter units), plastic, and Class A materials.

The area is equipped with automatic deluge systems in the charcoal filters actuated by heat detectors. There is no other detection or automatic suppression system. Manual fire-fighting equipment in this area includes portable CO<sub>2</sub> fire extinguishers and one hose station.

An exemption from the requirements of Appendix R, Paragraph III.G.2 is requested, because the boundaries of this area are not all 3-hour rated. The area contains only one safe shutdown pathway 1 circuit for Unit 1 and no safe shutdown circuits or components for Unit 2. However, the area was analyzed separately from adjacent areas.

Due to the low combustible loading, the construction of the floor, and the high parapet walls, a fire in this area will not propagate to the adjacent Areas 0101 (Turbine Building) and 0024 (Control Room). The walls provide a radiant heat shield for components on the Turbine Building floor; while the high ceiling and large volume of the Turbine Building make the transfer of heat by convection insignificant.

Although there are 11 non-rated HVAC penetrations through the floor of this area into the Main Control Room, a fire that originates on the Control Building roof and propagates into the Control Room is not considered credible due to the very low combustible loading on the roof. A fire that originates in the Control Room and propagates to the roof will have no unacceptable consequences due to the large volume of the Turbine Building and the fact that the only safe shutdown-related circuit on the roof is routed in conduit and is separated from the nearest HVAC penetration by a minimum horizontal distance of about 15 ft with no intervening combustibles.

A fire involving cable and miscellaneous Class A materials is insufficient to cause a breach of the metal charcoal filter housings. An internally generated charcoal fire would burn slowly and would be extinguished by the automatic deluge system. Smoke generated by a fire in this area would be easily detected by plant personnel in the control room.

Based on the above, the boundaries of this fire area are adequate to ensure that a fire within the area will not damage redundant systems from both shutdown paths and that a fire that originates outside of this area will not spread into it and damage vulnerable shutdown systems. Therefore, upgrading the fire area boundaries to a 3-hour rating will not materially enhance fire protection safety.

#### 1.1.2.3 0201 - Refueling Floor - Units 1 and 2

The refueling floor (Area 0201) is located in the Unit 1 and Unit 2 Reactor Buildings at el 228 ft. (See figures 31 and 37). There is no physical barrier separating the Unit 1 side from the Unit 2 side, but for purposes of the FHA, the Unit 1 side is designated Zone 0201A, and the Unit 2 side is designated Zone 0201B.

In the previous analysis presented in the “Response to Appendix R,” each half of the refueling floor was included as part of the same fire area as its respective Reactor Building. In the reanalysis, the refueling floor has been designated as a separate fire area.

The boundaries of the area are the Reactor Building exterior walls which are constructed of structural steel columns supporting prefabricated concrete panels. The portions of the west wall adjacent to the Reactor Building stairwells are 3-hour rated, with the exception of one door, which is 1-1/2-hour-rated and two 7 ft.-6 in. by 5 ft.-0 in. openings to two rooms above the unit 2 stairwell. The lower opening is 19 ft-8 in. above the refueling floor; these rooms are separated from the remainder of the stairwell by a non-rated concrete floor with a metal hatch. There is a plastic smoke damper in the roof. These rooms are not normally accessible and are devoid of combustibles. The refueling floor is not rated but is of substantial, reinforced concrete construction. Penetrations in the floor are not fire rated but are airtight. The floor also includes the spent fuel pools and the dryer/separator storage pools which are constructed of 6-ft-thick concrete.

The floor contains sealed hatches and a stairwell for each unit, each enclosed by a non-rated concrete block enclosure with a non-rated access door.

Fire protection in the area consists of hose stations and portable extinguishers. The area has a low combustible loading (approximately 6400 BTU/ft<sup>2</sup>) and adjacent zones also have low combustible loadings.

Based on the above, the boundaries of these fire areas are adequate to ensure that a fire within this area will not damage systems from both shutdown paths and that a fire that originates outside of this area will not spread into it and damage vulnerable shutdown systems. Therefore, upgrading the fire area boundaries to a 3-hour rating will not materially enhance fire protection safety.

An exemption from the requirements of Paragraph III.G.2 of Appendix R is requested, because the boundaries of Area 0201 are not all 3-hour fire rated (e.g., the non-rated floor, penetrations, stairway enclosures, and 1-1/2-hour-rated door to the main stairwell). Although this area contains cables of only one pathway for Unit 1 and no safe shutdown required cables or equipment for Unit 2, it is adjacent to Unit 1 opposite pathway Areas (1203 and 2205), and it separates areas with opposite pathways for Unit 2 (1205 and 2205).

#### 1.1.2.4 0028 - LPCI Inverter Room - Units 1 and 2

The LPCI Inverter room is located at el 147 ft in the Control Building (See figure 16). It is separated from all other areas of the plant by 3-hour-rated walls, floor, and ceiling, with the exception of the stairway to the turbine deck at el 164 ft (figures 7 and 23) which is enclosed by a non-rated metal enclosure. The area is equipped with full smoke detection coverage that alarms both locally and in the Main Control Room. There are portable fire extinguishers available for manual fire-fighting, and an effective hose stream to this area can be provided from hose stations located in adjacent Areas 0101 (turbine deck) and 0024 (Cable Spreading Room).

An exemption is requested from the requirements of Appendix R, Paragraph III.G.2 in that a portion of the LPCI Inverter room boundary is not 3-hour rated. The LPCI Inverter room is analyzed as a separate fire area from the turbine deck.

A fire in the LPCI Inverter room is expected to activate the available smoke detection to provide an alarm both locally and in the Main Control Room to ensure prompt response by the plant fire brigade. The negligible combustible loading, the substantial or rated room construction (except the stairway as discussed below), the lack of intervening combustibles and the available fire-fighting equipment preclude the propagation of a fire outside this area.

The stairway, with its non-rated enclosure, represents a propagation path to the Turbine Building, el 164 ft. Due to the extremely low combustible loading, only small quantities of heat and smoke will be generated, and that which escapes through the unrated enclosure will dissipate rapidly in the large volume of the Turbine Building. Thus, the design basis fire in this area does not represent an exposure hazard to the Turbine Building (Area 0101).

There are no combustibles on the Turbine Building operating floor in the vicinity of the stairwell. A fire on the operating floor would be either far removed from the stairwell, or would be a small local fire involving transient combustibles. The non-rated metal enclosure will act as an effective radiant shield under these conditions.

Based on the above, the boundaries of the fire area are adequate to ensure that a fire within this area will not damage redundant systems from shutdown paths and that a fire that originates outside of this area will not spread into it and damage vulnerable shutdown systems. Therefore, upgrading the fire area boundaries to a 3-hour rating will not materially enhance fire protection safety.

#### 1.1.2.5 Fire Area: Yard

There are three specific areas in the yard where strict compliance with Appendix R indicates the need for an exemption. One is the Unit 1 and Unit 2 Plant Service Water (PSW) valve pits; the second is the Unit 1 and Unit 2 Liquid Nitrogen Storage Tanks; and the third is the Unit 1 and Unit 2 Condensate Storage Tanks.

##### 1.1.2.5.1 1601, 1602 - Plant Service Water Valve Pits 1A and 1B (Unit 1)

The Unit 1 PSW valve pits 1A and 1B are located east of the Diesel Generator Building. Each of the two valve pits is constructed with reinforced concrete walls and floor, approximately 14 ft below grade. The “roof” is open. The two pits are separated by approximately 28 ft. There are two cable raceways connecting the valve pits. However, these are not considered to be fire propagation paths due to their small size, long length, and the negligible combustible loading in both valve pits. An asphalt road runs between the two pits and is not considered a propagation pathway due to a lack of any ignition sources or combustibles sufficient to transfer enough heat to the asphalt to raise it to its ignition temperature. The largest fixed combustible source presenting a hazard to both pits is the auxiliary boiler fuel oil tank. The maximum probable fire at the nearby auxiliary boiler fuel oil tank will not radiate enough heat to either valve pit to result in damage. Radiant heat is the only feasible mode of heat transfer, due to the dike constructed around the tank to contain the maximum postulated fuel oil spill to the immediate area of the tank. The only transient combustible presenting an exposure fire hazard to both valve boxes is the truck transport of fuel oil to the auxiliary boiler fuel oil tank. The only credible mechanism for a significant spill of fuel oil is human error during refilling operation. Plant security procedures require that offsite transport vehicles be continuously escorted inside the protected area. The auxiliary boiler fuel oil tank is greater than 40 ft from the valve boxes. The grade slopes to a yard drain, located between the fuel oil tank and the valve pits, which would divert any spill away from the pits. Each valve box is protected by a 6-in. curb at the edge of the road to prevent the entrance of liquid combustibles. There are two fire hydrants accessible for manual fire fighting.

Based on the above, the boundaries of these fire areas are adequate to ensure that a fire within either area will not damage redundant systems from both shutdown paths and that a fire that originates outside of these areas will not spread into them and damage vulnerable shutdown systems. Therefore, upgrading the fire area boundaries to a 3-hour rating will not materially enhance fire protection safety.

#### 1.1.2.5.2 2601, 2602 - Plant Service Water Valve Pits 2A and 2B (Unit 2)

The Unit 2 PSW valve pits 2A and 2B are also located east of the Diesel Generator Building. The justification and description given in Section 1.1.2.6.1 also applies to these valve pits. The two pits are located on opposite sides of an asphalt road and are separated by approximately 30 ft.

#### 1.1.2.5.3 1604, 2604 - Unit 1 and Unit 2 Liquid Nitrogen Storage Tanks

The Liquid Nitrogen Storage Tanks are located in the yard adjacent to the east side of the Unit 1 Reactor Building and contain only passive components. These tanks provide a dedicated source of gaseous nitrogen for drywell purging and inerting. Nitrogen gas is also used as the supply to operate various pneumatically operated valves, including SRVs and MSIVs, located in the drywell.

The two tanks are separated by approximately 40 ft, and the railroad air lock is between them. The Unit 2 tank is enclosed separately within the hot machine shop area; however, the "roof" is open. The walls of the Reactor Building railroad airlock are constructed of reinforced concrete of substantial thickness with limited penetrations. The Unit 1 Reactor Building dressout building does present an exposure fire hazard to the Unit 1 Liquid Nitrogen Storage Tank. The design basis fire could result in the loss of the Unit 1 Nitrogen Storage Tank due to propagation of combustion products. However, due to the solid reinforced concrete walls of the Reactor Building railroad airlock between the Unit 1 and Unit 2 nitrogen tanks, and the horizontal separation of approximately 40 ft, it is unlikely that a fire could propagate to the Unit 2 Nitrogen Storage Tank.

If one of the tanks is lost, a manual cross-tie exists in the Reactor Building so that the opposite unit's tank can be used if needed. Sufficient capacity exists to safely shut down both units with one tank. Therefore, a fire in either area will neither affect the capability to achieve safe shutdown nor result in a significant release of radioactivity.

Based on the above, the boundaries of these fire areas are adequate to ensure that a fire within either area will not damage redundant systems from both shutdown paths and that a fire that originates outside of these areas will not spread into them and damage vulnerable shutdown systems. Therefore, upgrading the fire area boundaries to a 3-hour rating will not materially enhance fire protection safety.

#### 1.1.2.5.4 1603, 2603 - Units 1 and 2 Condensate Storage Tanks/Pumps

Each unit's tank and pumps are enclosed in reinforced concrete structure approximately 20 ft high. The floor is a reinforced concrete slab and the "ceiling" is open. Access is via metal stairs on the sides of the enclosures. The fire loading within each enclosure is less than 2000 BTU/ft<sup>2</sup>.

A fire in either area that damages redundant safe shutdown equipment is not considered credible for the following reasons:

- (1) The majority of the combustibles in each fire area is small quantities associated with dressout areas at the tops of the access stairs. These are separated from the nearest safe shutdown components by at least 15 ft.
- (2) Due to the very limited amount of equipment inside the enclosure, there is little likelihood of transient combustibles commonly associated with maintenance and modification activities being introduced. Similarly, there is little likelihood for the introduction of ignition sources.
- (3) The only safe shutdown components are located on opposite sides of the Condensate Storage Tank and are not susceptible to a single-exposure fire. The circuits associated with these components are routed in conduit which provides a sufficient radiant heat shield for the low concentration of combustibles.
- (4) The Condensate Tank enclosure is sufficiently constructed to protect safe shutdown components from a fire external to the enclosure.

In addition, the available manual suppression is adequate to extinguish any fire which may occur.

A fire in either area will not affect the ability to achieve safe shutdown or result in a significant release of radioactivity.

Based on the above, the boundaries of these fire areas are adequate to ensure that a fire within the area will not damage redundant systems from both shutdown paths and that a fire that originates outside of these areas will not spread into them and damage vulnerable shutdown systems. Therefore, upgrading the fire area boundaries to a 3-hour rating will not materially enhance safety.

#### 1.1.2.6 0024 - Control Complex

This area consists of the Cable Spreading Room, the Computer Room, and the Main Control Room and is separated from other areas of the plant by 3-hour-rated fire barriers, with the exception of a 2-hour-rated vertical HVAC shaft extending upwards through the Computer and Main Control Rooms and 11 non-rated HVAC penetrations to the Control Room roof (discussed in Section 1.1.2.2) (Additionally some penetrations are being justified as discussed in Section 1.1.1). This shaft contains a ventilation return duct that runs from Control Building el 112 ft to el 180 ft.

In the event of a fire in Area 0024, the Remote Shutdown System would be used to achieve safe shutdown. The HVAC shaft is a part of area 0014 which utilizes pathway 2 for shutdown for each unit. The duct connects Area 0001, which also utilizes pathway 2, and Area 0031, which utilizes pathway 2 for Unit 1 shutdown and contains no Unit 2 safe shutdown-related circuits or components.



The fire loadings in the subject fire zones are as follows:

| <u>Area/Zone</u>                           | <u>Combustible Loading (BTU/ft<sup>2</sup>)</u> | <u>Fire Severity (hour)</u> |
|--------------------------------------------|-------------------------------------------------|-----------------------------|
| Zone 0024B: Computer Room                  | 170,500                                         | 2.13                        |
| Zone 0024C: Control Room                   | 133,600                                         | 1.67                        |
| Zone 0014L: HVAC Room<br>(including Shaft) | 5,870                                           | 0.07                        |
| Area 0001: CB-112 Working<br>Floor         | 82,210                                          | 1.03                        |
| Area 0031: Control Room Roof               | 8,680                                           | 0.11                        |

The wall of the shaft is adequate to prevent a fire that originates outside of Area 0024 from propagating into the area. A fire that originates in Zone 0024C would not breach the barrier. However, there is a remote possibility that a fire that originates in Zone 0024B may propagate into the HVAC shaft.

The computer room is equipped with full smoke detector coverage and a manually operated CO<sub>2</sub> flood system. The detectors alarm both locally and in the Main Control Room. A hose station and portable fire extinguishers are available for manual fire fighting.

A fire in this zone would involve mostly cable, plastic computer cabinets, and tightly stacked paper. This would result initially in a slow burning fire which is expected to give ample warning to the plant fire brigade via the smoke alarm system. The CO<sub>2</sub> flood system, the available manual fire-fighting equipment, and the rated wall construction make propagation of the fire to other areas or zones unlikely.

If the fire was allowed to burn for a considerable period of time, it is possible that the wall around the vertical HVAC duct could be breached. However, due to the lack of combustibles in the shaft, it is not considered credible that fire would spread to other zones. Smoke and hot gases from the fire could spread to the HVAC room on el 130 ft or to the Control Room roof on el 180 ft through the gap between the walls of the shaft and the duct; however, this would be of no consequence. In order for smoke and hot gases to spread to the Reactor Building roof, the fire would have to breach the HVAC duct subsequent to breaching the fire wall. This is not considered credible.

Based on the above, the boundaries of this fire area are adequate to ensure that a fire within the area will not prevent remote shutdown and that a fire that originates outside of the area will not spread into it and damage vulnerable shutdown systems. Therefore, upgrading the HVAC shaft to a 3-hour rating will not materially enhance fire protection safety.



## 1.2 FIRE AREAS

1412 - DIESEL GENERATOR BUILDING SWITCHGEAR ROOM NO. 1E - UNIT  
1

1408 - DIESEL GENERATOR BUILDING SWITCHGEAR ROOM NO. 1F - UNIT  
1

### 1.2.1 Requested Exemption

An exemption from the requirements of Paragraph III.G.2 of Appendix R is requested to the extent that an automatic suppression system is required in these areas.

### 1.2.1 Justification

#### 1.2.1.1 1412 - Diesel Generator Building Switchgear Room No. 1E

##### Description

This area has a low combustible loading of about 55,000 BTU/ft<sup>2</sup> consisting primarily of cable insulation. The design basis fire is postulated to be a slow burning fire with an equivalent severity of less than 1 hour on the standard time-temperature curve.

The north, south, and east walls of this area are 3-hour rated, reinforced concrete. Two UL Class A doors are provided in the east wall. There is one non-rated double door in the west exterior wall with non-rated dampers in the vent above the door. The west exterior wall is constructed of non-rated, reinforced concrete. The floor and ceiling are non-rated reinforced concrete.

##### Fire Protection

This area is equipped with full area coverage early warning fire detection that alarms both locally and in the Main Control Room to ensure prompt response by the plant fire brigade. The area is also provided with a CO<sub>2</sub> hose reel and portable fire extinguishers to support manual fire fighting.

##### Safe Shutdown Analysis

For this area, it was assumed that all safe shutdown components in pathway 1 were lost, and pathway 2 would be used for cold shutdown. All required pathway 2 circuits in this area will be either rerouted or protected with a 1-hour fire barrier.

## Consequences of Design Basis Fire

This area has a low combustible loading consisting of cable insulation. A fire in this area would be expected to develop slowly, allowing ample time for response by the plant fire brigade. The manual fire-fighting equipment provided is adequate to extinguish a fire in this area. The fire loading of this area is less, with margin, than the 1-hour protection provided the opposite pathway circuits. A fire in this area will not affect the capability to achieve or maintain safe shutdown or result a significant release of radioactivity.

### 1.2.1.1.2 1408 - Diesel Generator Building Switchgear Room No. 1F

This area has a low combustible loading of about 48,000 BTU/ft<sup>2</sup> consisting primarily of cable insulation. The same justification given in Section 1.2.2.1 also applies to this area.

## 1.3 FIRE AREAS

### CONTROL ROOM

### YARD

#### 1.3.1 Requested Exemption

An exemption from the requirements of Paragraph III.J of Appendix R is requested for these areas to the extent that 8-hour battery-powered emergency lights are required.

##### 1.3.1.1 Justification

##### 1.3.1.1.2 0024 - Control Room

The emergency lights in the Control Room are designed to be powered initially from the station batteries and later transferred to the emergency diesels after they are started. The emergency lights are designed so that a fire in any area outside of the Control Room or Cable Spreading Room would not result in the loss of both divisions of emergency lighting. These feeder circuits outside of the Control Room or Cable Spreading Room are designed with divisional separation equivalent with the separation requirements of Paragraph III.G.2 of Appendix R. Therefore, 8-hour battery-powered emergency lighting is not necessary in the Control Room.

##### 1.3.1.1.2 Yard

Strict interpretation of Appendix R would require 8-hour battery-powered emergency lighting in the yard areas. The safe shutdown procedures being developed sometimes require traversing the yard between buildings. There is also one manual action identified for alternate shutdown to close a valve located in the PSW valve pits. These types of actions do not require more than minimal lighting levels. It is Georgia Power Company's (GPC) position that the minimal available natural lighting, will be sufficient for traversing the yard. However, in addition to the available natural lighting, security lights provide general area lighting, and the operators required to perform manual actions in the yard, after dark, will have available portable lighting which should be sufficient to change a valve position.

Furthermore, the Life Safety Code (NFPA 101) does not require emergency lighting in outside areas, and there is no commercially available waterproof, NEMA-4 enclosed, 8-hour battery-powered lighting that is feasible to use with the lead-acid-type batteries needed to meet the 8-hour requirements.

## 1.4 FIRE AREAS

1205 - UNIT 1 REACTOR BUILDING NORTH OF COLUMN LINE R7

1203 - UNIT 1 REACTOR BUILDING SOUTH OF COLUMN LINE R7

2203 - UNIT 2 REACTOR BUILDING NORTH OF COLUMN LINE R19

2205 - UNIT 2 REACTOR BUILDING SOUTH OF COLUMN LINE R19

### References

- (1) Response to 10 CFR 50.48 and Appendix R, Amendment 3, Sections 4.1.5, 4.1.6, 4.2.6, and 4.2.7.
- (2) NRC Safety Evaluation, dated 4/18/84, Section 4.

#### 1.4.1 Requested Exemption

An exemption from the 1-hour barrier requirements of paragraph III.G.2 of Appendix R is requested to the extent that certain equipment located in the suppression system/water curtain boundary of the Unit 1 and 2 Reactor Buildings must be protected.

##### 1.4.1.1 Justification

###### 1.4.1.1.1 E11-F015A (Pathway 1, RHR Inboard Valve) - Unit 1

###### E11-F017A (Pathway 1, RHR Outboard Valve) - Unit 1

Both of these valves are motor-operated Residual Heat Removal (RHR) isolation valves. These valves are located approximately 13 ft south of column line R7 on el 130 ft of the Unit 1 Reactor Building (See figure 27). Cables for these valves will be protected with 1-hour fire protection wrapping within the suppression system boundary. No protection is proposed for the valve operators since complete enclosure could jeopardize their operability and would, therefore, be detrimental to overall plant safety. Both of these valves are located within the piping penetration room which is located totally within the water curtain zone and is covered by an early-warning fire detection system. There are no unprotected pathway 2 components located within 20 ft of these valves.

#### 1.4.1.1.2 E11-F065D (Pathway 2, RHR Suppression Pool Suction Valve) - Unit 1

This is an air-operated RHR suppression pool suction valve. This valve is required for shutdown using pathway 2 and is located in the Unit 1 Reactor Building east side on el 87 ft, approximately 15-1/2 ft north of column line R7 (See figure 26). Cables for this valve will be protected with 1-hour fire protective wrapping. No protection is proposed for the valve operator since complete enclosure could jeopardize its operability and would, therefore, be detrimental to overall plant safety. This valve is located within the water curtain zone which is provided with an early-warning fire detection system. The fire loading in this zone is less than 12,000 BTU/ft<sup>2</sup> and consists almost entirely of cable insulation.

There are four torus water temperature instruments located on this same elevation at 90-degree intervals around the torus. One of these instruments is located approximately 12-1/2 ft from this valve and is 3 ft north of column line R7.

See Section 1.4.1.1 5 for a discussion of these instruments.

There are no other unprotected pathway 1 components required for safe shutdown located within 20 ft of this valve.

#### 1.4.1.1.3 E41-F006 (Pathway 2, HPCI Pump Discharge Valve) - Unit 1

This is a pathway 2 motor-operated HPCI pump discharge valve located on the west side of the Unit 1 Reactor Building, el 87 ft, approximately 17 ft north of column line R7 (See figure 26). This valve is located within the water curtain zone which is provided with early-warning fire detection. Cables for this valve will be protected with 1-hour fire protective wrapping. No protection is proposed for the valve operator since complete enclosure could jeopardize its operability and would, therefore, be detrimental to overall plant safety. The fire loading in this zone is less than 12,000 BTU/ft<sup>2</sup> and consists almost entirely of cable insulation.

The only other unprotected equipment within 20 ft required for shutdown with a fire in this area is a torus water temperature instrument which is discussed in Section 1.4.1.1.5.

#### 1.4.1.1.4 E51-F013 (Pathway 1, RCIC Pump Discharge Valve) - Unit 1

This is a motor-operated RCIC pump discharge valve used in shutdown by pathway 1. This valve is located on the west side of the Unit 1 Reactor Building, el 87 ft, approximately 4 ft south of column line R7 (See figure 26). Cables for this valve will be protected with a 1-hour fire barrier. No protection is proposed for the valve operator since complete enclosure could jeopardize its operability and would, therefore, be detrimental to overall plant safety. This valve is located within the water curtain zone which is provided with an early-warning fire detection system. The fire loading in this zone is less than 12,000 BTU/ft<sup>2</sup> and consists almost entirely of cable insulation.

The only other unprotected equipment within 20 ft required for shutdown with a fire in this area is a torus water temperature instrument which is discussed in Section 1.4.1.1.5.

1.4.1.1.5 T48-N009A (Torus Water Temperature Instrument) - Unit 1

T48-N009C (Torus Water Temperature Instrument) - Unit 1

There are four torus water temperature instruments located in the Unit 1 Reactor Building on el 87 ft which are required for shutdown (See figure 26). These instruments are located 90 degrees apart. Any two of these instruments located on opposite sides of the torus are sufficient for shutdown using either pathway. T48-N009A is located on the west side of the Reactor Building approximately on column line R7. T48-N009C is on the east side of the Reactor Building approximately 3 ft north of column line R7. Both of these instruments are located in a water curtain zone which is provided with early-warning fire detection, and the cable for these two detectors is wrapped with a 1-hour fire protective wrapping. The combustible loading in this fire zone is less than 12,000 BTU/ft<sup>2</sup> consisting almost entirely of cable insulation. There is unprotected equipment required for shutdown of either pathway located within 20 ft of each of these two instruments (See Sections 1.4.1.1.2, 1.4.1.1.3, and 1.4.1.1.4 of this letter).

However, because of the low combustible loading, the wrapping of the cable leading to and from both of these instruments with a 1-hour barrier, the water curtain located over each of these two instruments with its early-warning fire detection system, and the fact that any two of these instruments will give adequate water temperature detection for either pathway, it is unlikely that a fire on this level would cause the loss of these instruments and a piece of unprotected equipment from each shutdown pathway.

1.4.1.1.6 R24-S018A (Pathway 1, Motor Control Center) - Unit 1

R24-S018B (Pathway 2, Motor Control Center) - Unit 1

These two motor control centers (MCCs) are located in the Unit 1 Reactor Building south side el 130 ft, along the east wall (column line RL) between column lines R7 and R9 (See figure 27). Both MCCs are located in the water curtain zone, and the entire elevation is provided with early-warning fire detection. MCC R24-S018A is required for shutdown using pathway 1, which is the pathway assumed lost for a fire on the south side of column line R7. The cables required for safe shutdown are protected with a 1-hour barrier within the water curtain zone up to the MCC. No protection is proposed for the cables and components within each MCC except for that protection provided by the MCCs themselves. The loss of MCC R24-S018B does not impact shutdown using pathway 2 for a fire in this area.

There are no required unprotected pathway 2 components within 20 ft of these MCCs; therefore, it is unlikely that a fire could cause the loss of both pathway 2 and MCC R24-S018A.

#### 1.4.1.1.7 2H21-P173 (Pathway 2, Remote Shutdown Panel) - Unit 2

This panel is a NEMA 12 enclosure located in a suppression zone on the north side of the Unit 2 Reactor Building, el 130 feet (See figure 33). This panel is located approximately 12 ft east of column line RA and 12 ft north of column line R17. A control cable for the pathway 2 PSW pump 2P41 -C001B is routed through this area and this panel. All raceways in this area containing this cable will be protected with 1-hour fire protective wrapping up to this panel. However, no protection will be provided for the cable inside panel 2H21-P173. Postulated failure of the cable for a fire will be compensated for by a manual operator action to de-energize the pump control circuit prior to cable failure. For a fire inside the panel, pathway 1 will be available for shutdown.

Therefore, because all of the pathway 2 safe shutdown required cable is wrapped with a 1-hour fire protective barrier within this area and because there is area-wide early-warning fire detection on this elevation, it is unlikely that a fire in this vicinity could cause the loss of pathway 1 and this unprotected pathway 2 panel.

GPC realizes that this does not meet the design criteria for the water curtain system separating the two shutdown pathways in the Reactor Building. However, the suppression system in this zone extends about 15 ft in all directions around this panel. Extending the suppression system another 5 ft north of this panel would not materially enhance fire protection safety in this area.

#### 1.4.1.1.8 2E51-F013 (Pathway 1, RCIC Pump Discharge Valve) - Unit 2

This is a motor-operated RCIC pump discharge valve. The valve is located in the torus area on the west side of the Unit 2 Reactor Building, el 87 ft. It is located within the water curtain zone approximately 8 ft north of column line R19 and 20 ft east of column line RA (See figure 32). There are no unprotected pathway 2 components located within 20 ft of this valve. The fire loading in this area is less than 25,000 BTU/ft<sup>2</sup>.

All cables in both pathways required for safe shutdown will be protected with a 1-hour fire protective wrapping in the water curtain zone. No protection is proposed for the valve operator, since complete enclosure could jeopardize its operability and would, therefore, be detrimental to overall plant safety. The water curtain zone is provided with early-warning fire detection.

Therefore, because of the low fire loading, the fact that all the safe shutdown required cable will be protected with a 1-hour fire protective barrier within the water curtain, there is early-warning fire detection within the water curtain, and there are no unprotected pathway 2 components within 20 ft of this operator, it is unlikely that a fire in this vicinity could cause the loss of pathway 2 and this unprotected pathway 1 motor operator located within the water curtain zone.

#### 1.4.1.1.9 2P41-F066 (Pathway 1, Plant Service Water Inlet Valve) - Unit 2

This is a solenoid valve located on the east side of the Unit 2 Reactor Building in the torus area and within the water curtain zone approximately 8 ft north of column line R19 and 6 ft west of column line RL (See figure 32). There are no unprotected pathway 2 components within 20 ft of this solenoid-operated valve. The fire loading in this area is less than 25,000 BTU/ft<sup>2</sup>, and the water curtain zone is provided with early-warning fire detection.

All cables in both pathways required for safe shutdown will be protected with a 1-hour fire protective wrapping in the water curtain zone. However, no protection is proposed for the valve operator since complete enclosure could jeopardize its operability and would, therefore, be detrimental to overall plant safety.

Therefore, because the valve is located within the water curtain zone, low fire loading in this area, all safe shutdown required cable will be protected with a 1-hour fire protective barrier within the water curtain, there is early-warning fire detection within the water curtain, and there are no unprotected pathway 2 components within 20 ft of this operator, it is unlikely that a fire in this vicinity could cause the loss of pathway 2 and this unprotected pathway 1 solenoid valve within the water curtain zone.

#### 1.4.1.1.10 2E11-F015A (Pathway 1, RHR Inboard Valve) - Unit 2

#### 2E11-F017A (Pathway 1, RHR Outboard Valve) - Unit 2

These two valves are located in the piping penetration room on el 130 ft of the Unit 2 Reactor Building. Both of these valves are RHR motor-operated isolation valves and are located approximately 16 ft north of column line R19 and 29 ft and 24 ft, respectively, west of column line RL (See figure 33). The piping penetration room is located totally within the water curtain zone. Full-coverage early-warning fire detection is provided on this elevation.

Cables for these valves will be protected with 1-hour fire protective wrapping within the water curtain zone. No protection is proposed for the valve operators, since complete enclosure could jeopardize their operability and would, therefore, be detrimental to overall plant safety. There are no unprotected pathway 2 components located within 20 ft which are required for shutdown with a fire in this area (See also Section 1.4.1.1.14).



#### 1.4.1.1.11 2E41-F006 (Pathway 2, HPCI Pump Discharge Valve) - Unit 2

This is a pathway 2 motor-operated HPCI pump discharge valve. It is located on the west side of the Unit 2 Reactor Building in the torus area approximately 15 ft south of column line R19 and 25 ft east of column line RA, in the water curtain zone on el 87 ft (See figure 32).

The cables to 2E41-F006 will be protected with 1-hour fire protective wrapping in the water curtain zone up to the valve operator. No protection is proposed for the valve operator since complete enclosure could jeopardize its operability and would, therefore, be detrimental to overall plant safety. There are no unprotected pathway 1 components located within 20 ft which are required for shutdown with a fire in this area. The combustible loading in this area is less than 25,000 BTU/ft<sup>2</sup>.

#### 1.4.1.1.12 2R24-S012B (Pathway 1, RCIC Steam Supply Valve MCC) - Unit 2

This MCC contains the valve motor starter for the RCIC steam supply valve 2E51-F007. The MCC is located in the Unit 2 Reactor Building, el 164 feet, in the chiller room approximately 6 ft west of column line RB and 2 ft north of column line R21 (See figure 34). The entire chiller room is protected with an automatic fire suppression system and fire detection. The cables for the valve starter will be protected with 1-hour fire protective wrapping. However, the control cables and starter for the valve are not proposed to be protected inside the MCC, except for the level of protection afforded by the structure itself. The combustible loading in this zone is approximately 83,000 BTU/ft<sup>2</sup>.

Valve 2E51-F007 is considered a passive component required to remain open. Loss of operability of this valve would have no effect on a safe shutdown. However, a very specific energized conductor-to-energized conductor fault in the seven-conductor control cable, with no other faults, would cause spurious closure. This event is not considered credible due to the very low probability of occurrence compared to the fire-induced shorts which would result in inoperability.

Since this MCC is located in a room with detection and suppression, the fire loading is low, and a very specific conductor-to-conductor fault is required for spurious actuation, it is considered unlikely that a fire would cause this valve to change position. Pathway 1 shutdown capability is, therefore, maintained. The suppression zone extends for more than 20 ft past this MCC to the south. There is a substantial concrete shield wall to the east, which, although unrated, should protect this component from a fire in the rest of the Reactor Building. Extending the suppression system east on the other side of the concrete wall will not enhance the fire protection safety of this MCC.

#### 1.4.1.1.13 E41-N071 A & B (Pathway 2, HPCI Steam Line Leak RTDs) - Unit 1

#### 2E41-N071 A & B (Pathway 2, HPCI Steam Line Leak RTDs) - Unit 2

These instruments are the pipe penetration room high ambient temperature resistance temperature detectors (RTDs) which will be located in both the Unit 1 and Unit 2 Reactor Buildings on el 130 ft (See figures 27 and 33). These RTDs will be located on the pathway 2 side of this room, and are designed to sense a HPCI steam line break, but could possibly respond to the heat of a fire and cause isolation of the HPCI system. The HPCI system is used for pathway 2 shutdown, which is assumed lost for a fire on this side of the Reactor Building. There are no unprotected pathway 1 components within 20 ft of these RTDs. The piping penetration room is located totally within the water curtain zone and will have area-wide early-warning fire detection. These instruments are part of the analog transmitter trip system (ATTS) additions and are not yet completely installed. Once these RTDs are installed, the cables to the RTDs will be protected with a 1-hour fire protective wrapping within the water curtain zone. This work must be coordinated with the ATTS installation which is ongoing. Therefore, the wrapping of these cables may not be complete before November 30, 1986.

Wrapping or relocation of these RTDs is not feasible, since this would eliminate the safety functions of the leak detection system. No protection is proposed for the RTDs, since complete enclosure could jeopardize their operability and would, therefore, be detrimental to overall plant safety. Due to the physical separation, the suppression system, the limited accessibility, and the low combustible loadings, it is unlikely for a fire to cause the loss of pathway 1 and the pathway 2 components.

(See Section 1.4.1.1.14 for an additional Unit 2 pathway 2 unprotected component in this vicinity.)

#### 1.4.1.14 2E11-F017B (Pathway 2, RHR Outboard Valve) - Unit 2

This is an RHR motor-operated outboard isolation valve. It is located in the Unit 2 Reactor Building piping penetration room on el 130 ft, approximately 2 ft west of column line RJ and 14 ft south of column line R19 (See figure 33). This room is located completely within the water curtain zone and full-coverage early-warning fire detection will be provided throughout this elevation. Cables for this valve operator will be protected with a 1-hour fire barrier. No protection is proposed for the valve operator, since complete enclosure could jeopardize its operability and would, therefore, be detrimental to overall plant safety. There are no unprotected pathway 1 components located within 20 ft of this valve.

The other train of RHR is located in this room (Section 1.4.1.1.0) and the valve operators are the opposite pathway and are also unprotected. However, the two trains are separated by approximately 30 ft and there is full suppression within this room, with limited intervening combustibles. This room will also be provided with an area-wide early-warning fire detection system. Therefore, it is highly unlikely that a fire in this room would cause the loss of both pathways of RHR motor-operated isolation valves.

#### 1.4.1.15        2R24-S018B (Pathway, 2, RHR Minimum Flow Bypass Valve (MCC) - Unit 2

The MCC is located in the Unit 2 Reactor Building, el 130 ft on column lines R17 and RJ (See figure 33). The motor starter for the pathway 2 RHR minimum flow bypass valve 2E11-F007B is located in this MCC. All cables to the MCC for valve 2E11-F007B's motor starter will be protected with 1-hour fire protective wrapping up to the MCC. However, the control cables inside the MCC and the motor starter for the valve are not protected except for the level of protection afforded by the structure itself. MCC 2R24-S018B is a NEMA 1 enclosure and will offer some resistance against exposure fire damage. The entire elevation is provided with early-warning fire detection. Local automatic fire suppression will be provided for the MCC. There are no other required pathway 1 or pathway 2 components located within this MCC.

Although minimum flow bypass valve 2E11-F007B is considered an active component, loss of operability of the valve will be compensated for by a manual operator action. Spurious closure due to a fire-induced fault is more critical but would require a very specific conductor-to-conductor fault in a seven-conductor control cable with no other faults occurring in this cable. This event is not considered credible due to the very low probability of occurrence compared to the fire-induced shorts which would result in valve inoperability.

For a fire in the vicinity of this MCC, all pathway 2 required systems are protected with a 1-hour fire barrier; pathway 1 systems are assumed lost. The wrapping of pathway 2 systems and the local automatic suppression provided for the outside of this panel should provide adequate protection from a fire in the north half of the Reactor Building. For a fire originating in this MCC, the local suppression and area-wide detection should prevent it from spreading and causing the loss of the unprotected pathway 1 systems.

GPC realizes that this does not meet the design criteria for the water curtain system separating the two shutdown pathways in the Reactor Building. Extending the suppression system for 20 ft beyond this component into the north half of the Reactor Building is not feasible because of an open hatchway located in the ceiling immediately north of this MCC.

## 1.5. FIRE AREAS

1205 - UNIT 1 REACTOR BUILDING NORTH OF COLUMN LINE R7

2205 - UNIT 2 REACTOR BUILDING SOUTH OF COLUMN LINE R19

2104 - UNIT 2 TURBINE BUILDING EAST CABLEWAY

### References

- (1) Response to 10 CFR 50.48 and Appendix R, Amendment 3, Sections 4.1.5 and 4.2.7.
- (2) NRC Safety Evaluation Report, dated 4/18/84, Section 4.

### 1.5.1 Requested Exemption

An exemption from the barrier requirements of Paragraph III.G.2 of Appendix R is requested to the extent that a fire may lead to loss of control of the HPCI system which could possibly inhibit safe shutdown using pathway 1 or pathway 2.

#### 1.5.1.1 Justification

For a fire in these areas, the HPCI system is not required to be operable but may be automatically or manually initiated on Reactor Low Level 2. Subsequent fire-induced cable failures can be postulated to prevent the system from being automatically or manually shut down. This would require the failure of the three redundant cables controlling the outboard HPCI steam isolation valve, the inboard steam isolation valve, and the HPCI turbine trip valve (TTV). The failure could cause the reactor to overfill potentially compromising the operability of the high-pressure makeup system.

##### 1.5.1.1.1 Unit 1 Reactor Building

In the Unit 1 Reactor Building, two of the three methods discussed above to shut down HPCI are separated by approximately 50 ft at their closest point. The components and power supplies for all three methods are separated by either the drywell or at least 90 ft of horizontal distance. The cables for the inboard isolation valve and the TTV are separated by 50 ft of horizontal distance at their closest point. Because of the limited combustibles in the torus areas, the area-wide fire detection on el 130 ft and the installed suppression systems, it is unlikely that all three methods to shut down HPCI could fail due to a single fire.

#### 1.5.1.1.2 Unit 2 Reactor Building

In the Unit 2 Reactor Building, the equipment for these three methods to shut down HPCI are all located within the same fire area; however, they are separated by significant horizontal and/or vertical distances. The TTV is located on el 87 ft, the power supplies and controls for the outboard steam isolation valve are located on el 130 ft, and the power supply and controls for the inboard isolation valve are located in the HVAC room on el 164 ft.

However, on el 130 ft, in the southwest corner of this area, all the cables for the above listed components come within close proximity of each other. GPC will wrap the cable for the inboard isolation valve in this zone with a 3-hour fire protective wrapping throughout el 130 ft. Therefore, because of the proposed 3-hour fire protective barrier, the area-wide fire detection, and the horizontal separation of at least 50 ft for two of the shutdown methods, it is unlikely that a single fire in this area could cause the loss of all three methods to shut down the HPCI system.

#### 1.5.1.1.3 Unit 2 Turbine Building East Cableway

For a fire in the Unit 2 Turbine Building east cableway, HPCI is not required to be operable; however, the power and control cables for the three methods of securing HPCI are routed in separate raceway with minimal (0 - 4 ft) horizontal separation. Vertical separation between opposite divisions of cables used in diverse methods of securing HPCI is a minimum of 3 ft.

The control cable for the inboard isolation valve is routed in conduit for its entire length. Power for the inboard and outboard isolation valves is routed in separate runs of 4-in aluminum channel. These power cables are enclosed in armored jacket material. All subject raceway is located a minimum of 9 ft above the floor. The entire east cableway is protected with area-wide early-warning fire detection and automatic suppression systems.

The safe shutdown procedure for a fire in this area will identify these different methods available to manually shut down HPCI from the Main Control Room. Additionally, once HPCI is secured, the operators will be instructed to verify RCIC operability and to remove power from the HPCI turbine controls, thereby preventing HPCI from restarting.

Because of the area-wide early-warning fire detection and automatic suppression systems in this area, in addition to the physical separation and protection provided by conduit or armored cable and aluminum channel, it is unlikely that a fire could cause the loss of all three methods to secure HPCI before the operator would take action to maintain the system in a shutdown condition.

## 1.6 FIRE AREAS

### UNIT 1, UNIT 2, AND COMMON

This exemption is requested for all fire areas where cable trays and conduits are protected with a 1-hour fire barrier and are located beneath a fire suppression system.

#### 1.6.1 Requested Exemption

An exemption is requested from the implied requirements of 10 CFR 50.48 and Appendix R to the extent that when one pathway of redundant safe shutdown raceway is protected with a fire protective barrier, the cable tray supports and conduit supports are also required to be enclosed within a 1-hour fire protective barrier. The exemption is to exclude the wrapping of these supports in areas protected by automatic suppression systems.

##### 1.6.1.1 Justification

In every fire area in the plant where redundant pathways of required safe shutdown-related cables are located, one pathway is protected with a fire protective barrier, and automatic fire suppression and detection systems are available, or exemptions have been requested. The NRC has stated in various informal guidance that the cable tray and conduit supports should also be protected with a fire barrier if the cable tray or conduit that it is supporting is protected.

The need to enclose one pathway of cable is obvious; the cable insulation will degrade at a relatively moderate temperature and may ignite if contacted by flame. However, the supports which are made of structural steel do not degrade significantly until they reach a much higher temperature.

The suppression systems at Plant Hatch are designed with standard sprinkler heads with a rating of 212°F; some heads have a lower temperature rating. The basic design philosophy of a sprinkler system is to limit the spread of flame, smoke, and heat and to protect the surrounding structures. With a sprinkler system having sprinkler heads rated at 212°F and designed for the specific fire hazard of the area, it is doubtful that the average steel temperature of a required cable tray or conduit support located under the system would reach damaging levels during the fire.

Therefore, for those raceways under automatic suppression systems, the wrapping of cable tray or conduit supports with a 1-hour fire barrier is not proposed. It is GPC's position that the wrapping of these cable tray and conduit supports would not materially enhance the fire protection safety of the plant.

## 1.7 REMOTE SHUTDOWN SYSTEM - UNITS 1 AND 2

### FIRE AREA

#### 0024 - CONTROL ROOM

These exemptions are requested for a fire in the Control Room fire area which includes the Cable Spreading Room and the Computer Room.

#### References

- (1) Response to 10 CFR 50.48 and Appendix R, Amendment 3, Enclosures 1 and 2 (Response to Generic Letter 81-12).
- (2) NRC Safety Evaluation Report, dated 5/3/83.

#### 1.7.1 Requested Exemption

An exemption is requested from the requirements of 10 CFR 50.48 and Appendix R to the extent that repairs should not be used to maintain hot shutdown. This exemption is not required for the plant to reach hot shutdown, but is needed to allow greater flexibility and to ensure reliable, long-term maintainability of hot shutdown conditions.

##### 1.7.1.1 RHR Pump Room Cooler T41-B003B

A fire-induced fault in Fire Area 0024 on cables R42-S012-ES8-C22 and/or R24-S012-ES8-C22C could prevent RHR Pump Room cooler T41-B003B from starting and/or service water isolation valve P41-F036B from opening. Room cooler operation is required to ensure reliable, long-term operation of the "B" RHR pump motor and related equipment located in the area. An operator action from outside the Main Control Room is necessary to allow the RHR Pump Room cooler to operate properly with a fault on the subject cables. This manual operator action requires the following to be performed within the room cooler MCC:

- (1) Open the breaker in MCC R24-S012, Compartment 5A.
- (2) Isolate the subject control cable by opening five sliding links.
- (3) Add one jumper across two terminals.
- (4) Close the breaker in MCC R24-S012, Compartment 5A.

This operator action will be accomplished prior to or immediately following starting RHR pump E11-C002B in the Suppression Pool or Shutdown Cooling modes of operation.

Tools and jumpers required to perform this action will be maintained in a controlled manner in an accessible location identified in plant procedures. Upon completion of the operator action, room cooler operation and valve position will be verified locally. Based on the above, an exemption is requested from the requirements of 10 CFR 50 Appendix R for this action on the basis that it can be performed safely prior to, or concurrent with, the start of the equipment whose operation it must support, and that, upon its completion, room cooler operation and valve position will be verified.

#### 1.7.1.2 RCIC Pump Room Cooler T41-B004A

A fire-induced fault in Fire Area 0024 on cables R24-S012-ES8-C05 and/or R24-S012-ES8-C05C could prevent RCIC Pump Room cooler T41-B004A from starting and/or service water isolation valve P41-F040A from opening. Room cooler operation is required to ensure reliable, long-term operation of the RCIC. An operator action from outside the Main Control Room is necessary to allow the RCIC Room Cooler to operate properly with a fault on the subject cables. This operator action requires the following to be performed within the RCIC Room Cooler MCC:

- (1) Open the breaker in MCC R24-S012, Compartment 1C.
- (2) Isolate the subject control cable by opening five sliding links.
- (3) Add one jumper across two terminals.
- (4) Close the breaker in MCC R24-S012, Compartment 1C.

This operator action will be accomplished within 30 min of initiating RCIC system operation from the Remote Shutdown Panel (RSDP).

Tools and jumpers required to perform this operator action will be maintained in a controlled manner in an accessible location identified in plant procedures. Upon completion of this operator action, room cooler operation and valve position will be verified locally.

Based on the above, an exemption is requested from the requirements of 10 CFR 50 Appendix R for this operator action on the basis that the action can be performed safely within 30 min of RCIC system initiation from the RSDP and that upon its completion, room cooler operation and valve position will be verified.

#### 1.7.1.3 Diesel Generator 1A Voltage Regulator Transfer Circuits

A fire-induced fault in Fire Area 0024 on cable H11-P652-ESA-C45 could cause a loss of power to Diesel Generator R43-S 001A voltage regulator transfer circuits. This loss of power will prevent voltage regulation from outside the Main Control Room. An operator action from outside the Main Control Room is necessary to allow automatic voltage regulation independent of the fire area. This operator action is to be accomplished as follows:



- (1) Open one sliding link in panel R43-P001A
- (2) Place one jumper between two terminals in panel R43-P001A.

This operator action will be accomplished prior to or immediately following the local manual start of Diesel Generator R43-S 001A or, if required, following a Diesel Generator auto-start. Verification of the success of this operator action will be accomplished via the local voltage indication.

Tools and jumpers required to accomplish this operator action will be maintained in a controlled manner in an accessible location identified in the plant procedures.

Based on the above, an exemption is requested from the requirements of 10 CFR 50 Appendix R for this operator action on the basis that it can be safely accomplished prior to the local manual start of the Diesel Generator or, if required, following a Diesel Generator auto-start, and that upon its completion, its success will be verified.

#### 1.7.1.4 Diesel Generator 1C Voltage Regulator Transfer Circuits

A fire-induced fault in Fire Area 0024 on cable H11-P652-ESC-C47 could cause a loss of power to Diesel Generator R43-S 001C voltage regulator transfer circuits. This loss of power will prevent voltage regulation from outside the Main Control Room. An operator action from outside the Main Control Room is necessary to allow automatic voltage regulation independent of the fire area. This operator action is to be accomplished as follows:

- (1) Open one sliding link in panel R43-P001C.
- (2) Place one jumper between two terminals in panel R43-P001C.

This operator action will be accomplished prior to or immediately following the local manual start of Diesel Generator R43-S001C or, if required, following a Diesel Generator auto-start. Verification of the success of this operator action will be accomplished via the local voltage indication.

Tools and jumpers required to accomplish this operator action will be maintained in a controlled manner in an accessible location identified in plant procedures.

Based on the above, an exemption is requested from the requirements of 10 CFR 50 Appendix R for this operator action on the basis that it can be safely accomplished prior to the local manual start of the Diesel Generator or, if required, following a Diesel Generator auto start, and that upon its completion, its success will be verified.

#### 1.7.1.5 Diesel Generator 1A and 1C Local Ammeters

A fire-induced fault in Fire Area 0024 on cables H21-P200-ESA-RM03C and H21-P202-ESC-RM03C could prevent local ammeters for Diesel Generators R43-S001A (1A) and R43-S001C (1C) from functioning. These ammeters are required to enable the operators to reliably load or load shed the essential buses, as appropriate. An operator action from outside the Main Control Room is necessary to allow the local ammeters to operate properly with a fault on the above mentioned cables.

This operator action will require closing shorting blocks or adding jumpers in panels R43-P001A and R43-P001C for Diesel Generators 1A and 1C, respectively. These operator actions will be accomplished prior to or immediately following manually loading Diesel Generators 1A and 1C, or upon arrival in the respective Diesel Generator Room, if the diesel(s) are running.

Tools and jumpers required to perform these operator actions will be maintained in a controlled manner in an accessible location identified in plant procedures. Verification of the success of this operator action will be accomplished via the local current indication.

Based on the above, an exemption is requested from the requirements of 10 CFR 50 Appendix R for this operator action on the basis that it can be safely accomplished prior to the local, operator start of each Diesel Generator or, while a Diesel Generator(s) is running, if necessary, and that upon its completion, its success will be verified.

#### 1.7.1.6 RHR Pump Room Cooler 2T41-B002B

A fire-induced fault in Fire Area 0024 on cables TBE806C01, TBE806C02, TBE806C06, and/or TBE806C07 could prevent RHR Pump Room cooler 2T41-B002B from starting and/or service water isolation valve 2P41-F036B from opening. Room cooler operation is required to ensure reliable, long-term operation of the "B" RHR pump motor and related equipment located in the area. An operator action from outside the Main Control Room is necessary to allow the RHR Pump Room cooler to operate properly with a fault on the subject cables. This operator action requires the following to be performed within the room cooler MCC:

- (1) Open the breaker in MCC 2R24-S012, Compartment 1C.
- (2) Isolate the subject control cable by opening five sliding links.
- (3) Add one jumper across two terminals.
- (4) Close the breaker in MCC 2R24-S012, Compartment 1C.

This operator action will be accomplished prior to or immediately following starting RHR pump 2E11-C00B in the Suppression Pool or Shutdown Cooling modes of operation.

Tools and jumpers required to perform this operator action will be maintained in a controlled manner in an accessible location identified in the plant procedures. Upon completion of the operator action, room cooler operation and valve position will be verified locally.

Based on the above, an exemption is requested from the requirements of 10 CFR 50 Appendix R for this operator action on the basis that it can be performed safely prior to, or concurrent with, the start of the equipment whose operation it must support, and that, upon its completion, room cooler operation and valve position will be verified.

#### 1.7.1.7 RCIC Pump Room Cooler 2T41-B004A

A fire-induced fault in Fire Area 0024 on cables TBE709C01 and/or TBE709C02 could prevent RCIC Pump Room cooler 2T41-B004A from starting and/or service water isolation valve 2P41-F040A from opening. Room cooler operation is required to ensure reliable, long-term operation of the RCIC. An operator action from outside the Main Control Room is necessary to allow the RCIC Room cooler to operate properly with a fault on the subject cables. This operator action requires the following to be performed within the RCIC room cooler MCC:

- (1) Open the breaker in MCC 2R24-S011, Compartment 4C.
- (2) Isolate the subject control cable by opening five sliding links.
- (3) Add one jumper across two terminals.
- (4) Close the breaker in MCC 2R24-S011, Compartment 4C.

This operator action will be accomplished within 30 min of initiating RCIC system operation from the RSDP.

Tools and jumpers required to perform this operator action will be maintained in a controlled manner in an accessible location identified in the plant procedures. Upon completion of this operator action, room cooler operation and valve position will be verified locally.

Based on the above, an exemption is requested from the requirements of 10 CFR 50 Appendix R for this operator action on the basis that the operator action can be performed safely within 30 min of RCIC system initiation from the RSDP and that upon its completion, room cooler operation and valve position will be verified.

#### 1.7.1.8 Diesel Generator 2A Voltage Regulator Transfer Circuits

A fire-induced fault in Fire Area 0024 on cable RSE715C03 could cause a loss of power to Diesel Generator 2R43-S001A voltage regulator transfer circuits. This loss of power will prevent voltage regulation from outside the Main Control Room. An operator action from outside the Main Control Room is necessary to allow automatic voltage regulation independent of the fire area. This operator action is to be accomplished as follows:

- (1) Open one sliding link in panel 2R43-P001A.
- (2) Place one jumper between two terminals in panel 2R43-P001A.

This operator action will be accomplished prior to or immediately following the local operator start of Diesel Generator 2R43-S001A or, if required, following a Diesel Generator auto-start. Verification of the success of this operator action will be accomplished via the local voltage indication.

Tools and jumpers required to accomplish this operator action will be maintained in a controlled manner in an accessible location identified in the plant procedures.

Based on the above, an exemption is requested from the requirements of 10 CFR 50 Appendix R for this operator action on the basis that it can be safely accomplished prior to the local operator start of the Diesel Generator or, if required, following a Diesel Generator auto-start and that upon its completion, its success will be verified.

#### 1.7.1.9 Diesel Generator 2C Voltage Regulator Transfer Circuits

A fire-induced fault in Fire Area 0024 on cable RUE814C02 could cause a loss of power to Diesel Generator 2R43-S001C voltage regulator transfer circuits. This loss of power will prevent voltage regulation from outside the Main Control Room. An operator action from outside the Main Control Room is necessary to allow automatic voltage regulation independent of the fire area. This operator action is to be accomplished as follows:

- (1) Open one sliding link in panel 2R43-P001C.
- (2) Place one jumper between two terminals in panel 2R43-P001C.

This operator action will be accomplished prior to or immediately following the local operator start of Diesel Generator 2R43-S001C or, if required, following a Diesel Generator auto-start. Verification of the success of this operator action will be accomplished via the local voltage indication.

Tools and jumpers required to accomplish this operator action will be maintained in a controlled manner in an accessible location identified in plant procedures.

Based on the above, an exemption is requested from the requirements of 10 CFR 50 Appendix R for this operator action on the basis that it can be safely accomplished prior to the local operator start of the Diesel Generator or, if required, following a Diesel Generator auto-start, and that upon its completion, its success will be verified.

#### 1.7.1.10 Diesel Generator 2A And 2C Local Ammeters

A fire-induced fault in Fire Area 0024 on cables RSE722F07 and RUE821F06 could prevent local ammeters for Diesel Generators 2R43-S001A (2A) and R43-S001C (2C) from functioning. These ammeters are required to enable the operators to reliably load or load shed the essential buses, as appropriate. An operator action from outside the Main Control Room is necessary to allow the local ammeters to operate properly with a fault on the above mentioned cables.

This operator action will require closing shorting blocks or adding jumpers in panels 2R43-P001A and 2R43-P001C for Diesel Generators 2A and 2C, respectively. These operator actions will be accomplished prior to manually loading Diesel Generators 2A and 2C, or upon arrival in the respective Diesel Generator Room, if the diesel(s) are running.

Tools and jumpers required to perform these operator actions will be maintained in a controlled manner in an accessible location identified in plant procedures. Verification of the success of this operator action will be accomplished via the local current indication.

Based on the above, an exemption is requested from the requirements of 10 CFR 50 Appendix R for this operator action on the basis that it can be safely accomplished prior to or immediately following the local operator start of each Diesel Generator or, while a Diesel Generator(s) is running, if necessary, and that upon its completion, its success will be verified.

## 2.0 CLARIFICATION OF PREVIOUS EXEMPTIONS - TECHNICAL

## 2.0 CLARIFICATION OF PREVIOUS EXEMPTIONS - TECHNICAL

The following are not new exemptions, but are clarification of existing approved exemptions. The wording is being clarified to ensure that our understanding of the existing exemption is clear.

### 2.1 0501 - INTAKE STRUCTURE

#### References:

- (1) Response to 10 CFR 50.48 and Appendix R, Amendment 3, Section 4.3.5.
- (2) NRC Safety Evaluation, dated 4/18/84, Section 12.
- (3) GPC Letter from L. T. Gucwa to John F. Stolz, dated September 4, 1984.

#### 2.1.1 Existing Exemption

An exemption was granted in Reference 2 from the requirements of Paragraph III.G.2 to the extent that it requires the installation of a complete area-wide automatic fire suppression system.

#### 2.1.2 Clarification

The above exemption should also include an exemption from the 20-ft separation requirement for cable in conduit and cable in wrapped cable trays.

#### 2.1.3 Justification

The existing exemption is based on the partial automatic suppression around the pumps and the fact that all cable trays and exposed cable are wrapped with Kaowool, providing a nominal 1-hour (Reference 3) fire barrier and reducing the combustible loading of the area to a negligible level. All other cable is routed in conduit or other metal enclosures. Redundant Unit 2 conduit is separated by a minimum of 8 ft outside the suppression areas, with the exception of one conduit which is wrapped with Kaowool.

The above statement implies that the approved exemption also applies to the lack of 20 ft minimum separation for redundant cable in conduit and other metal enclosures.

Separation of cable was not specifically exempted in the approved exemption, but it was implied in the basis. It is GPC's interpretation that 20 ft minimum separation is not required in this area for the redundant cable in conduit or other enclosures. The justification for the original exemption and the above clarification is that combustible loadings are reduced to a negligible level, and there exists partial suppression and area-wide detection.

#### 2.1.4 Exemption Interpretation

An exemption has been granted in Reference 2 from the requirements of Paragraph III.G.2 to the extent that it requires the installation of a complete, area-wide automatic fire suppression system and that it requires separation of redundant cable in conduit greater than the existing minimum separation.



## 2.2 2104 - TURBINE BUILDING EAST CABLEWAY - UNIT 2, el 130 ft

### References:

- (1) Response to 10 CFR 50.48 and Appendix R, Amendment 3, Sections 4.2.9 and 4.3.6.
- (2) NRC Safety Evaluation, dated 4/18/84, Sections 9 and 13.

### 2.2.1 Existing Exemption

An exemption was granted in Reference 2, Section 9 from the requirements of Paragraph III.G.2 to the extent that it requires the installation of a 3-hour-rated fire barrier between redundant trains of safe shutdown-related cable and equipment.

### 2.2.2 Clarification

The above exemption was specifically granted for the openings to the Turbine Building and the non-rated wall between the cableway and the Turbine Building condenser bay. The exemption should also have specifically included an open stairwell to el 112 ft at the north end (figures 11 and 14), a stairwell protected by a 2-hour fire wall and a 1-1/2-hour fire door to el 112 ft and 147 ft at the south end (figures 21 and 22), and the non-rated floor and ceiling which are of reinforced concrete construction.

### 2.2.3 Justification

There is an approved exemption for this same open stairwell for the fire area on the lower elevation (Reference 2, Section 13). The basis for this exemption is the fire detection and suppression system in the Turbine Building east cableway. Therefore, this open stairwell is already exempted but not specifically for the Turbine Building east cableway.

The stairwell at the south end is enclosed in 2-hour walls with a 1-1/2-hour fire door. There are specific exemptions for the non-rated wall and opening to the Turbine Building. This stairwell is in the corner formed by the opening and non-rated wall. Therefore, since the fire loading in the enclosed stairwell is negligible, a significant fire propagating through the stairwell is not considered credible.

### 2.2.4 Exemption Interpretation

An exemption has been granted in Reference 2 from the requirements of Paragraph III.G.2 of Appendix R for the opening to the Turbine Building at the south end, the non-rated wall between the cableway and the Turbine Building condenser bay at the west end, the open stairwell to elevation 112 ft at the north end, the stairwell protected by a 2-hour fire wall and a 1-1/2-hour fire door to el 112 ft and 147 ft at the south end, and the non-rated reinforced concrete floor and ceiling.

## 2.3 0007 - CONTROL BUILDING EAST CORRIDOR, el 112 ft

### References:

- (1) Response to 10 CFR 50.48 and Appendix R, Amendment 3, Section 4.3.6.
- (2) NRC Safety Evaluation, dated April 18, 1984, Section 13.0.

### 2.3.1 Existing Exemption

An exemption was granted in Reference 2 from the technical requirements of Paragraph III.G.2 of Appendix R to the extent that it requires redundant shutdown divisions to be separated by complete 3-hour fire-rated barriers.

### 2.3.2 Clarification

An exemption was granted for the open stairway to the Unit 2 east cableway (Area 2104), as well as for the non-rated walls of the unit 2 condensate condenser bay at el 112 ft and the west cableway. Due to the redesignation of fire area boundaries in the latest analyses, the exemptions for these walls are no longer needed. However, clarification of the Safety Evaluation Report (SER) area discussion is desired in order to support the stairway exemption. It is noted that the SER incorrectly states that area-wide detection is provided in the east corridor on el 112 ft. The only detection which exists is in the proximity of the open stairwell and contained within Fire Zone 0007A. This does not alter the original exemption request or justification but is stated to correct an error in the SER.

### 2.3.3 Justification

Reference 2, Section 13.2 states: "The area is bounded by 3-hour fire rated walls, floor and ceiling..." The floor and ceiling are, in fact, not rated. The floor is the Control Building base slab which does not separate this area from other fire areas and, therefore, is not required to be rated. The ceiling is constructed of reinforced concrete, and although there are non-rated penetrations, the area-wide suppression systems in the east cableway above will prevent the spread of fire through these penetrations. The spread of smoke into the cableway would be of no consequence, since the only safe shutdown components in the cableway are cables.

### 2. 3. 4 Exemption Interpretation

An exemption was granted in Reference 2 from the 3-hour boundary requirements of Paragraph III.G.2 of Appendix R for the open stairway to the east cableway and the non-rated floor and ceiling.

## 2.4 0001 - CONTROL BUILDING WORKING FLOOR, el 112 ft

### References

- (1) Response to 10 CFR 50.48 and Appendix R, Amendment 3, Section 4.1.4.
- (2) NRC Safety Evaluation, dated April 18, 1984 Section 3.0.

### 2.4.1 Existing Exemption

An exemption was granted in Reference 2 to the extent that Paragraph III.G.2 requires redundant shutdown divisions to be separated by complete 3-hour-rated barriers.

### 2.4.2 Clarification

Reference 2 states: "Openings in the walls are protected by 3-hour-rated doors, dampers, or penetration seals." The rating of the doors to the elevator shaft and stairwell are 1-1/2-hour rated. This rating was specifically stated in Reference 1. It is GPC's position that this was not made clear in the SER.

### 2.4.3 Justification

The fire loading in this area is approximately 1 hour, and there are negligible quantities of combustibles in the stairwell or elevator shaft. Therefore, it is unlikely that a fire could spread from the Control Building el 112 ft working floor through the elevator shaft or stairwell to another area.

### 2.4.4 Exemption Interpretation

An exemption was granted in Reference 2 from the 3-hour boundary requirements for the Control Building el 112-ft working floor for the 2-hour-rated walls and the 1-1/2-hour-rated doors to the elevator shaft and stairwell.

## 2.5 1104 - TURBINE BUILDING EAST CABLEWAY - UNIT 1, el 130 ft

### References

- (1) Response to 10 CFR 50.48 and Appendix R, Amendment 3 Section 4.3.4.
- (2) NRC Safety Evaluation, dated April 18, 1984, Section 9.0.

### 2.5.1 Existing Exemption

An exemption was granted in Reference 2 from Paragraph III.G.2 to the extent that the installation of a 3-hour-rated fire barrier is required between redundant trains of safe shutdown-related cable and equipment.

### 2.5.2 Clarification

The existing area description in Reference 2 is not quite accurate, and the exemption failed to include the non-rated reinforced concrete constructed floor and ceiling.

### 2.5.3 Justification

The area discussion in Reference 2 states: "The area is bounded on three sides by reinforced concrete and masonry block walls having a 3-hour fire rating. The fourth side is open to an adjoining plant location." Actually, the south and east walls are 3-hour rated, and the north end is open to the Turbine Building working floor. The west wall is 3-hour rated next to the Control Building, 2-hour rated with a 1-1/2 hour-rated door around the turbine northeast stairwell, and non-rated but of substantial construction next to the condenser bay. The floor and ceiling are non-rated but are constructed of reinforced concrete. The basis given in Reference 1 is still valid for this exemption.

### 2.5.4 Exemption Interpretation

An exemption has been granted in Reference 1 from the 3-hour boundary requirements of Paragraph III.G.2 for the north and west walls and the non-rated floor and ceiling of Fire Area 1104.

## 2.6 2014 - UNIT 2 SWITCHGEAR HALLWAY

### References

- (1) Response to 10 CFR 50.48 and Appendix R, Amendment 3, Section 4.2.3.
- (2) NRC Safety Evaluation, dated April 18, 1984, Section 6.0.

### 2.6.1 Clarification

An exemption was granted for the opening in the common wall between Fire Areas 2014 and 0014 based on the automatic sprinkler system in the Control Building south corridor on el 130 ft. In Reference 1, the sprinklered corridor was to be separated from the Health Physics area by a 3-hour wall. However, the corridor is now in the same fire area as the Health Physics lab, and the wall is no longer designated as a 3-hour wall. The wall is constructed of materials adequate to provide a 3-hour rating, with the exception of the penetrations. Due to the presence of the suppression system in the corridor and the low combustible loading there, it is not considered likely that fire would propagate to the Health Physics area. Additionally, the only safe shutdown-related equipment in the Health Physics rooms are cables above the suspended ceiling. These cables will be completely protected by a partial-coverage suppression system (Reference 2, Section 5), and both areas have complete fire detection coverage.

## 2.7 FIRE AREAS

### UNIT 1 AND UNIT 2 REACTOR BUILDINGS

1205 - Unit 1 Reactor Building North

2203 - Unit 2 Reactor Building North

2205 - Unit 2 Reactor Building South

0201 - Reactor Vessel Refueling Floor

1210 - Recirculation M-G Set Room A-Unit 1

1211 - Recirculation M-G Set Room B-Unit 1

2210 - Recirculation M-G Set Room A-Unit 2

2211 - Recirculation M-G Set Room B-Unit 2

### References

- (1) Response to 10 CFR 50.48 and Appendix R, Amendment 3, Sections 4.1.5, 4.1.6, 4.2.6, and 4.2.7.
- (2) NRC Safety Evaluation, dated April 18, 1984, Section 4.0.

#### 2.7.1 Clarification

Exemptions were granted for the separation of the Reactor Building into two separate areas, each bounded by the water curtain system or by existing shield walls and the drywell. Since the submittal of the "Response to Appendix R" (Reference 2), the boundaries of these areas have changed slightly (Compare figures 26 through 37 of this letter with figures 4-3, 4-4, 4-5, 4-6, 4-7, 4-8, 4-15, and 4-16 of the "Response to Appendix R."). These changes are minor and, for the most part, do not affect the exemption. These changes are highlighted below.

##### 2.7.1.1 Unit 1

El 130 ft - The area boundary on the west side is now along R7 instead of the north steam tunnel wall; no effect on exemption.

In addition to the steam blowout panels in the west wall of the HVAC room on el 164 ft (Reference 1), there is another blowout panel in the west wall of the steam chase leading to the condenser bay at el 147 ft. The justification for the HVAC room blowout panels presented in Reference 1 also applies to this blowout panel.

El 158 ft/164 ft - The HVAC room is now considered to be totally included in the north area (1205). The east wall of this room will be 3-hour-rated from column line R5 to the south wall. Also, the south half of the floor of the HVAC room is now an area boundary. However, due to the substantial construction of the floor and the automatic suppression systems installed above and below the floor, the fire is not considered capable of breaching this barrier. There are steam vent openings in the floor to the main steam chase below; however, these are required for steam venting in the event of a pipe break. Due to the negligible combustible loading in the steam chase and the suppression system in the HVAC room, they are not required to be rated.

The floor of the south Reactor Water Cleanup (RWCU) pump room is an area boundary. However, like the exempted walls, it is of substantial construction and a fire is not considered capable of breaching this barrier.

Reference 2 states: "On elevation 185 ft, the area south of column R7 will be sprinklered except for the decontamination room." This is true except that the corridor south of the spent fuel pool (Zone 1205W) will not be sprinklered. This is considered acceptable due to the low combustible loading in the zone, the low combustible loadings in the adjacent (sprinklered) zones on el 185 ft, and the fact that the floor, while non-rated, is of substantial construction with sealed penetrations. The rooms below this zone are equipped with automatic suppression systems.

## 2.7.1.2 Unit 2

El 87 ft - The area boundary is along column R19; no effect on exemption.

El 130 ft - The area boundary at the east side is along column R19 through the piping penetration room; no effect on exemption.

The area boundary at the west side is now along the north wall of the steam tunnel; no effect on exemption.

The north half of the steam tunnel (part of Area 2205) is open to the north half of the torus (part of Area 2203) via grating in the floor. However, based on the low combustible loading in both zones and the presence of the water curtain below the steam tunnel floor, a fire is not considered capable of spreading from one area to the other.

El 158 ft/164 ft - The floor of the chiller room, which is north of the steam tunnel walls below, is now an area boundary. Due to the automatic suppression systems installed above and below this floor and the substantial construction of the floor, it is not considered credible that the fire could breach this boundary.

The floor of the north RWCU pump room is an area boundary. However, like the exempted walls, it is of substantial construction and a fire is not considered capable of breaching this barrier.

El 185 ft - The SER reads: "On elevation 185 ft the area south of column line R19 will be sprinklered, except for the decontamination room." This should read: "On el 185 ft, the area north of column line R19 will be sprinklered, except for the zone north of the spent fuel pool (Zone 2205)." This zone is not required to be sprinklered due to its very low (near zero) combustible loading, the low combustible loading in the adjacent (sprinklered) zone on el 185 ft, and the fact that the floor, while non-rated, is of substantial construction with sealed penetrations. The rooms below this zone are equipped with automatic suppression systems.



### 3.0 NEW EXEMPTION REQUESTS - SCHEDULAR

### 3.0 NEW EXEMPTION REQUESTS - SCHEDULAR

The following are new schedular exemption requests as allowed under 10 CFR 50.12. This schedular exemption is not requested for the entire Appendix R effort at Plant Hatch, but merely for specific pieces of equipment which may not be installed before the end of GPC's Appendix R implementation schedule of November 30, 1986. The delay in the installation of these pieces of equipment is beyond GPC's control. Outlined in the Generic Letter 85-01 are four criteria which the NRC staff have stated should be met before a schedular - exemption should be granted. For these specific pieces of equipment, GPC will demonstrate the need for a schedular exemption.

#### 3.1 REQUESTED EXEMPTION

An exemption from the schedular requirements of 10 CFR 50.48 and Appendix R is requested under 10 CFR 50.12. This exemption is for the installation of new circuit breakers and fuses identified as being needed to be installed to ensure coordinated circuits from the standpoint of conservative interpretation of Enclosure 2 to Generic Letter 81-12. A schedular extension is requested for each unit until the end of its next scheduled refueling outage commencing after November 30, 1986, for these specific pieces of equipment.

##### 3.1.1 Justification

There are four criteria listed in Generic Letter 85-01 for justification in granting schedular extensions. These four criteria and GPC's response to each are:

Criterion 1: The utility has since the promulgation of Appendix R in 1980 proceeded expeditiously to meet the Commission's requirements.

Response: GPC has proceeded expeditiously to meet the Commission's requirements in Appendix R. As of this time, all work required for Appendix R is scheduled and anticipated to be complete before the November 30, 1986, completion date, except for the installation of a limited number of new components.

The detailed coordinated circuit breaker analysis could not have been started until virtually all other design and analysis work required for Appendix R was essentially complete. This is because each and every Appendix R safe shutdown circuit must be identified, and then all other circuits electrically associated with each Appendix R circuit must be identified. Nevertheless, this detailed coordinated circuit breaker analysis was completed in September 1985.

The results of this detailed analysis verified GPC's previous statements on coordinated breakers.

The results of the study indicated that:

- (1) All Appendix R circuits and other electrically associated circuits are protected with circuit breakers or fuses.
- (2) All these circuits are electrically coordinated as defined by IEEE and historical good engineering practice.
- (3) All high- and medium-voltage circuits are electrically coordinated even from the standpoint of a conservative interpretation of Enclosure 2 to Generic Letter 85-01.
- (4) All low-voltage circuits are electrically coordinated for a fault at the equipment.
- (5) For a bolted fault at the (MCC or distribution panel (which is more severe than required by IEEE), there are 23 cases for both units where replacement of the existing low-voltage circuit breakers is needed to ensure that these circuits are electrically coordinated.
- (6) There are approximately 250 125-V non-current limiting control fuses which will be replaced with current limiting control fuses. Even though fuses are generally faster acting than circuit breakers, if the fuse is not current-limiting, there is not 100-percent assurance that the upstream circuit breaker and the downstream fuse will not trip at the same time. The type of fault which would result in this situation has a very low probability, and the existing protection is adequate for realistic-type faults. However, due to a conservative interpretation of Enclosure 2 to Generic Letter 81-12, these fuses will also be replaced.

GPC has proceeded on an expedited schedule to specify and procure all those replacement circuit breakers and fuses.

Criterion 2: The delay is caused by circumstances beyond the utility's control.

Response: The delay in installing these circuit breakers and fuses is being caused by the selection, qualification, and delivery of these components. Many of the original Plant Hatch equipment suppliers no longer supply Nuclear Class 1E - qualified equipment. This has resulted in GPC having to identify other vendors with qualified equipment and add them to the list of qualified suppliers for the Hatch Nuclear Plant.

After these new suppliers' quality assurance programs have been verified, their delivery schedule is not always adequate for GPC to ensure that the equipment will be delivered in time for installation during a scheduled outage before November 30, 1986.

Criterion 3: The proposed schedule for completion represents a best effort under the circumstances.

Response: The proposed completion schedule is to allow one more refueling outage for installation of these circuit breakers and fuses. The breakers and fuses will be installed before November 30, 1986, if they are received in time to allow for their installation during a refueling outage. However, all Appendix R circuits and Appendix R electrically associated circuits at Plant Hatch are currently coordinated with respect to the requirements set forth in the IEEE standards and from the standpoint of historic good engineering practice considering realistic faults. Therefore, the marginal increase in safety gained by installing these components does not warrant a special outage for their installation, or even the marginal decrease in safety which would result if they were replaced with the unit operating.

Considering the current coordinated breaker status at Plant Hatch and the very marginal increase in safety which will be gained by replacing these breakers and fuses, the proposed schedule represents a best effort.

Criterion 4: Adequate interim compensatory measures will be taken until compliance is achieved.

Response: No interim compensatory measures are proposed for the following reasons:

- (1) All high- and medium-voltage Appendix R and electrically associated circuits are currently coordinated for the worst-case fault occurring anywhere between the electrical source and the load.
- (2) All analyzed circuits are currently coordinated for a fault at the load. This is a realistic fault and the only type of fault historically considered for low-voltage circuits.
- (3) Most low-voltage Appendix R and electrically associated circuits are currently coordinated even from a conservative interpretation of the guidance given in Enclosure 2 to Generic Letter 81-12.
- (4) The low-voltage Appendix R and electrically associated circuits which are not currently coordinated for a bolted fault at the power source, and need to be, have been identified. The process to upgrade the coordination of these circuits is underway with a high priority.

- (5) There are delays being caused in the installation of the new circuit breakers and fuses which are beyond the control of GPC.
- (6) The most likely type of fault resulting from a fire is one in which the insulation is gradually degraded. This would result in a relatively low initial fault current which would increase as the insulation degrades. The Appendix R and electrically associated circuits at Plant Hatch are currently coordinated for this type of fault.
- (7) There are no reasonable interim compensatory measures that could be proposed for this schedule extension which would increase the level of safety currently associated with the coordinated circuits at Plant Hatch.

### 3.2 Requested Exemption

An exemption from the schedular requirements of 10 CFR 50.48 and Appendix R is requested under 10 CFR 50.12. This exemption is for the installation of a control power transfer switch in the Diesel Building switchgear room 1F. A schedular extension is requested for Unit 1 until the end of its next scheduled refueling outage after November 30, 1986, for this specific piece of equipment.

#### 3.2.1 Justification

This modification is to allow alternate control power for a Division I RHR pump which is normally supplied from Division I batteries and control panel to be supplied from the swing diesel 1B. RHR pump E11-C002D is a Division I pump used for shutdown by pathway 2. The emergency power for this pump is supplied from diesel 1B, but because it is a Division I pump, the control power is supplied by the diesel 1A's batteries. The 125-V-dc distribution panel for control power is located in the diesel switchgear room 1E. A fire in the 1A battery room or the 1E switchgear room could cause the loss of control power to this pump. Due to other considerations required in the Appendix R analysis, this is the only RHR pump which we have analyzed as available for shutdown using pathway 2. The proposed change is to install a transfer switch to allow control power for this pump to be automatically supplied from the 13 diesel battery room if Division I control power is lost.

GPC's response to the four criteria listed in Generic Letter 85-01 for justification in granting schedular extensions is:

Criterion 1: The utility has, since the promulgation of Appendix R in 1980, proceeded expeditiously to meet the Commission's requirements.

Response: GPC has proceeded expeditiously to meet the Commission's requirements in Appendix R. As of this time, all work required for Appendix R is scheduled and anticipated to be complete before the November 30, 1986, completion date, except for the installation of a limited number of new components.

The original shutdown analysis performed for Appendix R did not require the use of this RHR pump to maintain hot shutdown. Therefore, repairs or manual actions could have been done to start this pump. But because of specific plant modifications which have been installed for other regulatory requirements, the Appendix R safe shutdown analysis now requires that this pump be available early on in an event.

There are basically two modifications made which resulted in this change to the safe shutdown analysis. These two modifications were the raising of water level setpoints and the installation of Automatic Depressurization System (ADS) logic modifications. Both of these modifications increase the possibility of initiating the ADS, which would require an RHR pump to restore reactor water level. The need for this pump and control power modifications was identified in the Appendix R reanalysis which was completed in November 1985.

GPC has proceeded on an expedited schedule to specify and procure qualified transfer switches, since this need was identified.

Criterion 2: The delay is caused by circumstances beyond the utility's control.

Response: The delay in installing this transfer switch has been a direct result of the difficulties encountered in the selection, qualification, and delivery of this switch. Several different manufacturers who regularly supply nuclear-qualified electric components have been contacted. However, because this is a 125-V-dc transfer switch, with limited installation space available, none of these manufacturers had a qualified switch which was adequate.

A transfer switch which appears to be suitable has now been located, but it needs to be seismically retested. Because of the need for retesting and normal delivery lead time, this component cannot be installed in a scheduled Unit 1 outage before November 30, 1986.

Criterion 3: The proposed schedule for completion represents a best effort under the circumstances.

This transfer switch could possibly be installed with the unit operating, but there would be concurrent LCOs imposed and a personnel life safety hazard of working around energized high-voltage components would exist. Therefore, it is GPC's position that this type of modification should only be performed during a refueling outage.

Since the transfer switch cannot be procured and delivered in time for installation during a Unit 1 refueling outage before November 30, 1986, the proposed schedule represents a best effort under the circumstances.

Criterion 4: Adequate interim compensatory measures will be taken until compliance is achieved.

Response: Both fire areas of concern are currently provided with ionization-type smoke detection which alarms locally and in the control room. The fire loading in the 1A battery room (1410) is less than 32,000 BTU/ft<sup>2</sup> and that in the 1E switchgear room(1412) is less than 55,000 BTU/ft<sup>2</sup>.

Because of the early-warning fire detection and the low fire loadings in the two fire areas, there are no compensatory measures being proposed.

Additionally, there is no reason that a loss-of-offsite-power(LOSP) should realistically be associated with a fire in either of these areas. If offsite power is not lost, then another RHR pump will be available. Therefore, the probability of a LOSP event in conjunction with a fire in either of these rooms, and the loss of control power to RHR pump Ell-C0023, is very small.

#### 4.0 REVISIONS TO PREVIOUS STATEMENTS



#### 4.0 REVISIONS TO PREVIOUS STATEMENTS

The following discussions are not exemption requests but are areas where information has been submitted that now need updating. Section 4.1 discusses the reevaluation of the entire fire detection program which has been performed at Plant Hatch. This reevaluation was done to improve the overall plant fire detection capability and to use a design philosophy consistent with NFPA guidelines, state-of-the-art fire detection capability, and realistic plant configurations of interferences. The level of fire detection will be improved over that which is currently installed and which has been committed to in various correspondence. However, the specific type and placement of fire detectors may be different from that given previously.

Section 4.2 is a comparison of the combustible loadings for all areas which were listed in the "Response to 10 CFR 00.48 and Appendix R" as amended and the comparable areas in the updated FHA which have recently been completed but are currently in review (Reference Table 4.2.1). All the fire areas which have existing exemptions granted on the basis of low combustible loadings have been evaluated to ensure that the basis is still adequate. The combustible loadings for the other areas are given for information. Detailed information on how these new combustible loadings were determined for each fire area and zone will be included in the updated FHA.

##### 4.1 Fire Detection System Reevaluation

In the July 1982 Appendix R submittal and subsequent correspondence, GPC has committed to upgrade the early-warning fire detection systems at Plant Hatch. The modifications committed to have included extending existing systems and installing new fire detection systems. Additionally, in the Appendix R submittal and the SER dated April 18, 1984, it was noted that various specific types of fire detection existed in many parts of the plant. In many places in this earlier correspondence, specific types of fire detection, such as ionization-type smoke detection or linear heat detection, were mentioned.

However, because of the increasing difficulties in obtaining parts for the existing detection systems and because of numerous deficiencies cited by fire detection inspectors in the placement of the current fire detectors, GPC has reevaluated the entire fire detection system at Plant Hatch. A fire protection consultant was contracted to evaluate the potential hazards and specific geometry of all the major fire areas and specify the most appropriate type of detector to use and its placement.

Early-warning fire detection will be installed everywhere GPC has made a commitment to have it installed, but the particular type and placement of the detectors may vary from what was mentioned in previous correspondence. This is not a change in our commitment to install early-warning fire detection, but the particular type of detector installed may be different and more appropriate than the type mentioned earlier.

In fact, the same general area of each unit may have a different type of detector specified. An example of this is the area on the east of column line RH in the Unit 1 and Unit 2 Reactor Buildings on el 130 ft. Unit 2 has mostly smoke detection specified for this area. Unit 1 also has smoke detection except for the congested area between column lines R3 and R8. The majority of this area has linear heat detectors specified. The justification given for proposing linear heat detectors is that this area has a structural steel deep beam pocket ceiling configuration with an approximate ceiling height of 27 ft. The HVAC system air flow rate is approximately 14,000 ft<sup>3</sup>/min. The primary fire hazards are cable insulation and transient combustible material. In the area above, the ceiling is congested and obstructed with piping, conduit, cable trays, HVAC ducts, and seismic supports.

Most existing detectors are ionization-type smoke detectors. Most of these are positioned on the bottom flange of the deep beams, while the deep beam pockets are void of detectors. Because of the high ceiling, numerous obstructions in the upper half, the possibility of stratification occurring, and the high air flow rates, ceiling level smoke detectors may not be effective in detecting incipient fires. A well-developed fire having a thermal plume would be needed to transport combustion products to near the ceiling. Additionally, ionization detectors located in congested areas would be generally inaccessible and very difficult to maintain.

The proposed change is to replace some of the existing ionization detectors with linear thermal detectors. Basically the open corner areas will contain smoke detectors in the deep beam pockets. The linear thermal detectors will be provided at the ceiling area to comply with NFPA No. 72E. Linear thermal detectors will be placed in the congested areas where their application is more appropriate. However, Unit 2 does not have the extreme congestion in this same area; so smoke detectors are being specified.

Generally, in the areas of high congestion, linear heat detectors have been specified. In the less congested areas, ionization-type smoke detectors have been specified. Changes in detector types have been made to provide better fire detection from an overall plant standpoint.

The fire detection being installed in each fire area will be shown in our updated FHA. Until our existing Technical Specifications are changed, there will effectively be two fire detection systems in some areas - the current system which was approved as adequate in the SER, dated April 18, 1984, and this new system which is being installed.

## 4.2 CHANGES IN COMBUSTIBLE LOADINGS

Table 4.2-1 is a comparison of the combustible loadings which were contained in Amendment 3 to the “Response to 10 CFR 50.48 and Appendix R” and to those which will be submitted in the updated FHA. The differences in all areas where existing exemptions have been based on low combustible loadings were evaluated. Those areas which had exemptions based on low combustibles, and the combustible loading for the area as calculated in the updated FHA is higher, are discussed in the following three sections.

### 4.2.1 Fire Areas

4160-V Transformer Room - Unit 1 (1019)

West 600-V Switchgear Room - Unit 1 (1016)

East 600-V Switchgear Room - Unit 1 (1017)

4160-V Transformer Room - Unit 2 (2019)

West 600-V Switchgear Room - Unit 2 (2016)

East 600-V Switchgear Room - Unit 2 (2017)

#### 4.2.1.1 Discussion

The transformer oil used in the transformer in these fire areas is a General Electric product called “Pyranol” which is an Askarel fluid. GPC’s original understanding was that Askarel fluids were nonflammable liquids as reflected in the National Electric Code (NEC) (NFPA-70) definition for Askarel. Therefore, these transformer fluids were not included in the original combustible loading calculations. The revised FHA accounts for this fluid.

This particular Askarel fluid has an auto-ignition point of 1200°F, and a heat of combustion of 12,500 BTU/lb. The NEC-1984 Article 100, Chapter 1 defines Askarel as a generic name for nonflammable synthetic chlorinated hydrocarbons used as electric insulating media which give off varying amounts of combustible gases depending upon the type used. Article 450, Paragraph 450-23 permits transformers with this type of fluid to be installed indoors without enclosure vaults or suppression systems due to the nonpropagating nature of this fluid.

Askarel is now classified as a “High Fire Point Fluid” or “Less-Flammable” rather than noncombustible. In light of the reclassification of the Askarel dielectric fluid as “less-flammable” rather than nonflammable, the combustible loading should include this material. Even with the increased combustible loading, it is GPC’s position that the early-warning fire detection system, the nonpropagating nature of the Askarel fluid, and the unlikely ability to maintain an ignition source in excess of 572°F (300°C), is sufficient basis for the current exemptions in these areas.

#### 4.2.2 Control Building Working Floor, el 112 ft (0001)

The new combustible fire loading for this area was calculated to be about 82,000 BTU/ft<sup>2</sup>. This is an increase of over 6000 BTU/ft<sup>2</sup>. There are currently exemptions granted for the 2-hour-rated elevator shaft and stairwell walls, and the 1-1/2-hour door leading to the stairwell.

These exempted boundaries still have ratings greater (with margin) than the approximately 1-hour fire calculated in the updated FHA. Therefore, it is GPC's position that the basis for the existing exemptions is still valid, and no further action is required.

#### 4.2.3 Control Building HP Zone (0014 A, B, C, D, E, G, H, I, J, N)

An exemption from the requirement for full area-wide suppression was granted for this area. The basis for this exemption was that the existing and proposed sprinklers will provide complete coverage for the safe shutdown-related cables, the area is generally free of combustibles except for the cable trays, and the pathway 1 and pathway 2 cables needed for safe shutdown will be separated by approximately 40 ft.

The sprinklers will cover both pathways of required safe shutdown equipment, and the 40 ft of separation will still be there. However, the combustible loading in the area has increased. Because of the local suppression for the cables, the separation between pathways, the early-warning fire detection in the area below the ceiling and local detection above the ceiling for the required cables, and the fact that there is a lot of traffic in this area, it is GPC's position that an area-wide suppression system would not enhance the ability of the plant to shut down with a fire in this area.

TABLE 4.2-1  
COMPARISON OF COMBUSTIBLE LOADINGS

| Description                                        | Section                | E. I. Hatch<br>Response to 10 CFR 50.48<br>and Appendix R |                                               | Area           | Updated FHA                                   |                                               | Comments                                                                                                                                                                                               |
|----------------------------------------------------|------------------------|-----------------------------------------------------------|-----------------------------------------------|----------------|-----------------------------------------------|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                    |                        | Combustible<br>Loading (BTU/ft <sup>2</sup> )             | Combustible<br>Loading (BTU/ft <sup>2</sup> ) |                | Combustible<br>Loading (BTU/ft <sup>2</sup> ) | Combustible<br>Loading (BTU/ft <sup>2</sup> ) |                                                                                                                                                                                                        |
| 4160-V Transformer Room                            | 4.1.1                  | Negligible                                                |                                               | 1019           | 124,615                                       |                                               | Updated FHA includes transformer oil which was previously excluded. Excluding oil, combustible loading is approximately 0. See Section 4.2.1 in this letter for an explanation.                        |
| W. 600-V Switchgear Room                           | 4.1.2                  | 25,533                                                    |                                               | 1016           | 80,180                                        |                                               | Updated FHA includes "noncombustible" transformer oil. which was previously excluded. Excluding oil, combustible loading is approximately 22,000. See Section 4.2.1 in this letter for an explanation. |
| Annunciator Room                                   | 4.1.3                  | 81,852                                                    |                                               | 1015           | 85,264                                        |                                               |                                                                                                                                                                                                        |
| CB 112' Working Floor                              | 4.1.4                  | 35,959                                                    |                                               | 0001           | 82,208                                        |                                               | See Section 4.2.2 in this letter for an explanation.                                                                                                                                                   |
| RB 158' Working Floor-N<br>RB 158' Working Floor-S | 4.1.5.1.1<br>4.1.6.1.1 | 13,635                                                    |                                               | 1205I<br>1203K | 37,825<br>10,907                              |                                               | "Response" uses the average loading for the entire working floor. The equivalent is to use the average of 1205I and 1203K, or approximately 27,000.                                                    |

TABLE 4.2-1  
COMPARISON OF COMBUSTIBLE LOADINGS

| E. I. Hatch<br>Response to 10 CFR 50.48<br>and Appendix R |                        |                   |                   |                    |                                                                                                                                            |          |
|-----------------------------------------------------------|------------------------|-------------------|-------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------|----------|
| Description                                               | Section                | Combustible       |                   | Area               | Updated FHA                                                                                                                                |          |
|                                                           |                        | Loading (BTU/ft²) | Loading (BTU/ft²) |                    | Combustible Loading (BTU/ft²)                                                                                                              | Comments |
| RB 164' HVAC Room                                         | 4.1.5.1.1<br>4.1.6.1.1 | 142,000           | 1205N             | 66,705             | Loading due to cable is approximately equal. Difference is due to quantity of charcoal in filters. Updated FHA uses corrected values.      |          |
| RB 130' Working Floor-N<br>RB 130' Working Floor-S        | 4.1.5.1.2<br>4.1.6.1.2 | 105,262           | 1205F<br>1203F    | 112,703<br>103,558 | "Response" uses the average loading for the entire working floor. The equivalent is to use the average of 1205F and 1203F, or 108,000.     |          |
| Torus Room Below 130'-N<br>Torus Room Below 130'-S        | 4.1.5.1.3<br>4.1.6.1.3 | 47,968            | 1205A<br>1203A    | 11,041<br>8,352    | "Response uses the average loading for the entire torus. The equivalent is to use the average of 1205A and 1203A, or approximately 10,000. |          |
| NE Corner Room<br>SE Corner Room                          | 4.1.5.1.4<br>4.1.6.1.4 | 54,138<br>70,994  | 1205B<br>1203B    | 92,636<br>87,708   |                                                                                                                                            |          |
| NW Corner Room<br>SW Corner Room                          | 4.1.5.1.5<br>4.1.6.1.5 | 39,535<br>55,257  | 1205C<br>1203C    | 19,773<br>88,065   |                                                                                                                                            |          |
| HPCI Room                                                 | 4.1.5.1.6              | 24,122            | 1205Z             | 42,723             |                                                                                                                                            |          |

TABLE 4.2-1  
COMPARISON OF COMBUSTIBLE LOADINGS

| Description              | Section | E. I. Hatch<br>Response to 10 CFR 50.48<br>and Appendix R |                                               | Area                             | Updated FHA<br>Combustible<br>Loading (BTU/ft <sup>2</sup> ) | Comments                                                                                                                                                                                                                           |
|--------------------------|---------|-----------------------------------------------------------|-----------------------------------------------|----------------------------------|--------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                          |         | Combustible<br>Loading (BTU/ft <sup>2</sup> )             | Combustible<br>Loading (BTU/ft <sup>2</sup> ) |                                  |                                                              |                                                                                                                                                                                                                                    |
| W. DC Switchgear Room    | 4.1.7   | 47,520                                                    |                                               | 1018                             | 22,245                                                       |                                                                                                                                                                                                                                    |
| E. DC Switchgear Room    | 4.1.8   | 41,870                                                    |                                               | 1020                             | 33,592                                                       |                                                                                                                                                                                                                                    |
| E. 600-V Switchgear Room | 4.1.9   | 21,384                                                    |                                               | 1017                             | 80,508                                                       | Updated FHA includes "noncombustible" transformer oil which was previously excluded. Excluding oil, combustible loading is approximately 32,000. See Section 4.2.1 in this letter for an explanation.                              |
| Annunciator Room         | 4.2.1   | 81,852                                                    |                                               | 2015                             | 67,847                                                       |                                                                                                                                                                                                                                    |
| Health Physics Area      | 4.2.2   | 5,160                                                     |                                               | 0014A, B, C, D, E, G, H, I, J, N | 84,398                                                       | The fire area/zone configuration was changed due to modifications. Value shown for FHA is an average for the zones listed. FHA is based on a detailed inventory of this area. See Section 4.2.3 in this letter for an explanation. |
| Switchgear Hallway       | 4.2.3   | 333,799                                                   |                                               | 2014                             | 42,573                                                       | Fire area configuration was changed in FHA reanalysis.                                                                                                                                                                             |
| Oil Conditioner Room     | 4.2.4   | 558,006                                                   |                                               | 2023                             | 615,208                                                      |                                                                                                                                                                                                                                    |

TABLE 4.2-1  
COMPARISON OF COMBUSTIBLE LOADINGS

| Description                                          | Section                | E. I. Hatch<br>Response to 10 CFR 50.48<br>and Appendix R |                                               | Area           | Updated FHA                                   |                                               | Comments                                                                                                                                   |
|------------------------------------------------------|------------------------|-----------------------------------------------------------|-----------------------------------------------|----------------|-----------------------------------------------|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
|                                                      |                        | Combustible<br>Loading (BTU/ft <sup>2</sup> )             | Combustible<br>Loading (BTU/ft <sup>2</sup> ) |                | Combustible<br>Loading (BTU/ft <sup>2</sup> ) | Combustible<br>Loading (BTU/ft <sup>2</sup> ) |                                                                                                                                            |
| Station Battery Rooms                                | 4.2.5                  | 28,640                                                    |                                               | 2004<br>2005   | 29,004<br>22,094                              |                                               |                                                                                                                                            |
| RB 158' Working Floor-N<br>RB 158' Working Floor-S   | 4.2.6.1.1<br>4.2.7.1.1 | 34,367                                                    |                                               | 2205I<br>2203K | 29,129<br>27,948                              |                                               | "Response" uses an average loading for the entire floor. The equivalent is to use the average of 2205I and 2203K, or approximately 28,000. |
| HVAC Room                                            | 4.2.7.1.2              | 34,335                                                    |                                               | 2205N          | 82,688                                        |                                               |                                                                                                                                            |
| RB 130' Working Floor-N<br>RB 130' Working Floor-S   | 4.2.6.1.2<br>4.2.7.1.3 | 116,167                                                   |                                               | 2203F<br>2205F | 115,749<br>82,839                             |                                               | "Response" uses an average loading for the entire floor. The equivalent is to use the average of 2203F and 2205F, or approximately 99,000. |
| Torus Room Below 130' -N<br>Torus Room Below 130' -S | 4.2.6.1.3<br>4.2.7.1.4 | 50,631                                                    |                                               | 2203A<br>2205A | 24,978<br>22,752                              |                                               | "Response" uses an average loading for the entire torus. The equivalent is to use the average of 2203A and 2205A, or 24,000.               |
| NE Corner Room<br>SE Corner Room                     | 4.2.6.1.4<br>4.2.7.1.5 | 38,491<br>67,791                                          |                                               | 2203B<br>2205B | 89,474<br>77,156                              |                                               |                                                                                                                                            |



TABLE 4.2-1  
COMPARISON OF COMBUSTIBLE LOADINGS

| Description             | Section   | E. I. Hatch<br>Response to 10 CFR 50.48<br>and Appendix R |                                               | Area           | Updated FHA<br>Combustible<br>Loading (BTU/ft <sup>2</sup> ) | Comments                                                                                                                                                                                                                                                                                |
|-------------------------|-----------|-----------------------------------------------------------|-----------------------------------------------|----------------|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         |           | Combustible<br>Loading (BTU/ft <sup>2</sup> )             | Combustible<br>Loading (BTU/ft <sup>2</sup> ) |                |                                                              |                                                                                                                                                                                                                                                                                         |
| NW Corner Room          | 4.2.6.1.5 | 39,727                                                    |                                               | 2203C          | 78,132                                                       |                                                                                                                                                                                                                                                                                         |
| SW Corner Room          | 4.2.7.1.6 | 39,535                                                    |                                               | 2205C          | 39,347                                                       |                                                                                                                                                                                                                                                                                         |
| HPCI Room               | 4.2.7.1.7 | 24,122                                                    |                                               | 2205Z          | 49,467                                                       |                                                                                                                                                                                                                                                                                         |
| Condenser Bay           | 4.2.8     | 359,738                                                   |                                               | 2101A<br>2101K | 45,013<br>40,808                                             | The "Response" uses a value of 337,694 for the oil spill zone and 22,044 for cable in the entire area. The value for oil was for the oil spill zone and is confined to a much smaller area than the condenser bay, hence the high loading.                                              |
| East Cableway           | 4.2.9     | 223,526                                                   |                                               | 2104           | 198,713                                                      | The "Response" also gives a value of 115,785 for oil in the vicinity of the RFP oil conditioner unit and 223,526 for cable in the entire area. When considering the entire area of the east cableway, there will be only a small increase in the 223,526 value when including this oil. |
| DC Switchgear Room 2G   | 4.2.10    | 53,460                                                    |                                               | 2409           | 45,809                                                       |                                                                                                                                                                                                                                                                                         |
| 4160-V Transformer Room | 4.2.11    | Negligible                                                |                                               | 2019           | 157,943                                                      | Updated FHA includes transformer oil which was previously excluded. Excluding oil, the combustible loading is approximately 0. See Section 4.2. in this letter for an explanation.                                                                                                      |

TABLE 4.2-1  
COMPARISON OF COMBUSTIBLE LOADINGS

| Description              | Section | E. I. Hatch<br>Response to 10 CFR 50.48<br>and Appendix R |                                               | Area              | Updated FHA                                   |                                               | Comments                                                                                                                                                                                  |
|--------------------------|---------|-----------------------------------------------------------|-----------------------------------------------|-------------------|-----------------------------------------------|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                          |         | Combustible<br>Loading (BTU/ft <sup>2</sup> )             | Combustible<br>Loading (BTU/ft <sup>2</sup> ) |                   | Combustible<br>Loading (BTU/ft <sup>2</sup> ) | Combustible<br>Loading (BTU/ft <sup>2</sup> ) |                                                                                                                                                                                           |
| W. DC Switchgear Room    | 4.2.12  | 47,520                                                    |                                               | 2018              | 13,678                                        |                                               |                                                                                                                                                                                           |
| E. DC Switchgear Room    | 4.2.13  | 41,876                                                    |                                               | 2020              | 10,360                                        |                                               |                                                                                                                                                                                           |
| W. 600-V Switchgear Room | 4.2.14  | 25,533                                                    |                                               | 2016              | 90,367                                        |                                               | Updated FHA includes transformer oil which was previously excluded. Excluding; oil, the combustible loading is approximately 19,000. See Section 4.2.1 in this letter for an explanation. |
| E. 600-V Switchgear Room | 4.2.15  | 21,384                                                    |                                               | 2017              | 103,501                                       |                                               | Updated FHA includes transformer oil which was previously excluded. Excluding oil, the combustible loading is approximately 32,000. See 4.2.1 in this letter for an explanation.          |
| LPCI Inverter Room       | 4.3.1   | Negligible                                                |                                               | 0028              | 1,336                                         |                                               |                                                                                                                                                                                           |
| CB 130' Corridor         | 4.3.2   | 333,799                                                   |                                               | 0014P, Q, K, R, L | 43,307                                        |                                               | Updated FHA value is the average of the loadings in the zones indicated. Configuration of the area/zone designations has changed, affecting the average combustible loading.              |

TABLE 4.2-1  
COMPARISON OF COMBUSTIBLE LOADINGS

| Description                  | Section | E. I. Hatch<br>Response to 10 CFR 50.48<br>and Appendix R |                                               | Area                                      | Updated FHA                                   |                                               | Comments                                                                                                                                                                                  |
|------------------------------|---------|-----------------------------------------------------------|-----------------------------------------------|-------------------------------------------|-----------------------------------------------|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                              |         | Combustible<br>Loading (BTU/ft <sup>2</sup> )             | Combustible<br>Loading (BTU/ft <sup>2</sup> ) |                                           | Combustible<br>Loading (BTU/ft <sup>2</sup> ) | Combustible<br>Loading (BTU/ft <sup>2</sup> ) |                                                                                                                                                                                           |
| RPS and Vertical Cable Chase | 4.3.3   | 900,397                                                   |                                               | 1013<br>2013<br>0040                      | 16,484<br>24,141<br>788,574                   |                                               | Average of 1013 / 2013 / 0040 is 191,000.                                                                                                                                                 |
| East Cableway                | 4.3.4   | 223,526                                                   |                                               | 1104                                      | 204,008                                       |                                               |                                                                                                                                                                                           |
| Intake Structure             | 4.3.5   | 12,440 for oil<br>42,570 for cable                        |                                               | 0501                                      | 5,955                                         |                                               | The updated FHA deletes the cable 42,570 for cable combustible loading, since there is no exposed cable. The oil combustible loading is averaged over the entire area in the updated FHA. |
| East Corridor                | 4.3.6   | 33,650                                                    |                                               | 0007A<br>0007B<br>2101C, D,<br>E, F, G, H | 21,502                                        |                                               | Updated FHA loading is the average of the zones indicated.                                                                                                                                |
| West Cableway                | 4.3.7   | 590,964                                                   |                                               | 1101I<br>2101I                            | 554,030<br>599,620                            |                                               | No value was provided in "Response"; so, the value shown is from the existing FHA. The average of 1101I and 2101I is approximately 579,000.                                               |

UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
WASHINGTON, D. C. 20555

October 4, 1978

Docket Nos. 50-321  
and 50-366

Mr. Charles F. Whitmer  
Vice President - Engineering  
Georgia Power Company  
P. O. Box 4545  
Atlanta, Georgia 30302

Dear Mr. Whitmer:

The Commission has issued the enclosed Amendment No. 60 to Facility Operating License No. DPR-57 for the Edwin I. Hatch Nuclear Plant Unit No. 1. The amendment consists of a change to the license by adding a license condition related to the facility modifications for fire protection. The Staff's Safety Evaluation Report, Fire Protection Review of Hatch Unit Nos. 1 and 2 which supports the amendment is attached. This evaluation also satisfies the Staff's commitment set forth in Section 9.5.1 of the Safety Evaluation Report for the Edwin I. Hatch Nuclear Plant Unit No. 2 (NUREG-0411), dated June 13, 1978, to provide the details of our Fire Protection Review.

By Amendment No. 50 to Facility Operating License No. DPR-57, we issued Technical Specifications to incorporate limiting conditions for operation and surveillance requirements for existing fire protection systems and administrative controls. We request that you provide revised Technical Specifications related to facility modifications described in Table 1 of the attached evaluation no later than three months before the next refueling outage for Hatch Unit No. 1.

Copies of the report of our fire protection consultant (letter, James D. Behn to Brookhaven National Laboratory dated May 22, 1978) and the related Notice of Issuance of Amendment are also enclosed.

Sincerely,

Thomas A. Ippolito, Chief  
Operating Reactors Branch #3  
Division of Operating Reactors

Enclosures and cc:  
see next page

Georgia Power Company  
Oglethorpe Electric Membership Corporation  
Municipal Electric Association of Georgia  
City of Dalton, Georgia

Enclosures:

1. Amendment No. 60 to DPR-57
2. Safety Evaluation
3. Consultant's Report
4. Notice

cc w/ enclosures:

G. F. Trowbridge, Esquire  
Shaw, Pittman, Potts and Trowbridge  
1800 M Street, N. W.  
Washington, D. C. 20036

Mr. D. P. Shannon  
Georgia Power Company  
Edwin I. Hatch Plant  
P. O. Box 442  
Baxley, Georgia 31513

Ruble A. Thomas  
Vice President  
P. O. 80x 2625  
Southern Services, Inc.  
Birmingham, Alabama 35202

U. S. Environmental Protection Agency  
Region IV Office  
ATTN: EIS COORDINATOR  
345 Courtland Street, N. E.  
Atlanta, Georgia 30308

Mr. Harry Majors  
Southern Services, Inc.  
300 Office Park  
Birmingham, Alabama 35202

Appling County Public Library  
Parker Street  
Baxley, Georgia 31513

Charles H. Badger  
Office of Planning and Budget  
Room 610  
270 Washington Street, S.W.  
Atlanta, Georgia 30334

Chief, Energy Systems Analysis Branch  
(AW-459)  
Office of Radiation Programs  
U. S. Environmental Protection Agency  
Room 645, East Tower  
401 M Street, S. W.  
Washington, D. C. 20460

Mr. H. B. Lee, Chairman  
Appling County Commissioners  
County Courthouse  
Baxley, Georgia 31513

Mr. L. T. Gucwa  
Georgia Power Company  
Engineering Department  
P. O. Box 4545  
Atlanta, Georgia 30302

Mr. C. T. Moore  
Georgia Power Company  
Power Generation Department  
P. O. Box 4545  
Atlanta, Georgia 30302

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

GEORGIA POWER COMPANY

OGLETHORPE ELECTRIC MEMBERSHIP CORPORATION  
MUNICIPAL ELECTRIC ASSOCIATION OF GEORGIA  
CITY OF DALTON, GEORGIA

DOCKET NO. 50-321

EDWIN I. HATCH NUCLEAR PLANT UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 60  
License No. DPR-57

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The facility will operate in conformity with the provisions of the Atomic Energy Act of 1954, as amended, and the rules and regulations of the Commission;
  - B. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public; and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - C. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - D. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, Facility Operating License No. DPR-57 is hereby amended by adding paragraph 2.C(3) to read as follows:

(3) Fire Protection

Georgia Power Company shall maintain in effect and fully implement all provisions of the approved fire protection plan. The approved fire protection plan consists of the licensee's document entitled, "Evaluation of the Hatch Nuclear Plant Fire Protection Program" which includes:

Original, submitted with letter dated October 1976

Amendment 1, submitted with letter dated September 6, 1977

Amendment 2, submitted with letter dated December 13, 1977

Amendment 3, submitted with letter dated February 15, 1978

Amendment 4, submitted with letter dated March 28, 1978

Amendment 5, submitted with letter dated April 11, 1978

Amendment 6, submitted with letter dated April 18, 1978

Amendment 7, submitted with letter dated May 19, 1978

The licensee may proceed with and is required to complete the modifications identified in Table 1 of the NRC's Edwin I. Hatch Safety Evaluation Report, Fire Protection Review, Unit Nos. 1 and 2 dated October 4, 1978. These modifications shall be completed before the end of the third refueling outage. In the event that these modifications cannot be completed by the end of the third refueling outage, the licensee shall submit a report, explaining the circumstances, together with a revised schedule.

Further, Georgia Power Company shall, prior to implementation, provide for Commission review and obtain Commission approval of the final design of the modifications which would allow the reactor to be taken to cold shutdown without reliance on the cable spreading room or the control room.

Except for the modifications described in the approved fire protection plan and approved as a result of Commission review of the Hatch Nuclear Plant Fire Protection Program, Georgia Power Company is authorized to make changes to the Program without prior Commission approval provided that such changes do not result in a decrease in the effectiveness of the Program.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Thomas A. Ippolito, Chief  
Operating Reactors Branch #3  
Division of Operating Reactors

Date of Issuance: October 4, 1978

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

GEORGIA POWER COMPANY  
OGLETHORPE ELECTRIC MEMBERSHIP CORPORATION  
MUNICIPAL ELECTRIC ASSOCIATION OF GEORGIA  
CITY OF DALTON, GEORGIA

EDWIN I. HATCH UNITS NOS. 1 AND 2

DOCKETS NOS. 50-321 AND 50-366

Dated: October 4, 1978



May 16, 1978

EDWIN I. HATCH SAFETY EVALUATION REPORT  
FIRE PROTECTION REVIEW  
UNIT NOS. 1 AND 2

TABLE OF CONTENTS

- I. INTRODUCTION
- II. FIRE PROTECTION SYSTEMS DESCRIPTION AND EVALUATION
  - A. Water Systems
  - B. Gas Suppression Systems
  - C. Fire Detection Systems
- III. OTHER ITEMS RELATING TO THE STATION FIRE PROTECTION PROGRAM
  - A. Fire Barriers, Fire Doors, and Dampers
  - B. Cable and Conduit Penetration Fire Stops
- IV. FIRE PROTECTION FOR SPECIFIC AREAS
- V. ADMINISTRATIVE CONTROLS AND FIRE BRIGADE
- VI. TECHNICAL SPECIFICATIONS
- VII. ENVIRONMENTAL CONSIDERATION
- VIII. CONCLUSIONS

EDWIN I. HATCH, UNIT NOS. 1 AND 2  
FIRE PROTECTION SAFETY EVALUATION REPORT

I. INTRODUCTION

Following a fire at the Browns Ferry Nuclear Station in March, 1975, the Nuclear Regulatory Commission (NRC) initiated an evaluation of the need for improving fire protection programs at all licensed nuclear power plants. As part of this continuing evaluation, the NRC, in February 1976, published a report by a special review group entitled, "Recommendations Related to Browns Ferry Fire," NUREG-0050. This report recommended that improvements in the areas of fire prevention and fire control be made in most existing facilities and that consideration should be given to design features that would increase the ability of nuclear facilities to withstand fire without the loss of important safety functions. To implement the report's recommendations, NRC initiated a program for reevaluation of fire protection programs at all licensed nuclear power stations and for a comprehensive review of all new license applications.

The NRC issued new guidelines for fire protection programs in nuclear power plants which reflect the recommendations in REG-0050. These guidelines are contained in the following documents:

"Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," NUREG-75/087, Section 9.5.1, "Fire Protection," May 1976, which includes, "Guidelines for Fire Protection for Nuclear Power Plants," (BTP APCS 9.5-1), August 23, 1976).

“Guidelines for Fire Protection for Nuclear Power Plants,” (Appendix A to BTP APCS 9.5-1), August 23, 1976.

“Supplementary Guidance on Information Needed for Fire Protection Program Evaluation,” September 30, 1976.

“Sample Technical Specifications.”

“Nuclear Plant Fire Protection Functional Responsibilities Administrative Controls, and Quality Assurance,” June 14, 1977.

All licensees were requested to: (1) compare their fire protection programs with the new guidelines; and (2) analyze the consequences of a postulated fire in each plant area. The results of these actions as applied to Hatch, Unit Nos. 1 and 2 are discussed below.

We have, with the assistance of our fire protection consultants\*, reviewed Georgia Power Company's (the licensee) analysis and visited both Units 1 and 2, to examine the relationship of safety related components, systems, and structures to both combustible materials, and to the associated fire detection and suppression systems. Our review was based on the licensee's proposed program for fire protection as described in the following docketed information: (1) Edwin I. Hatch Nuclear Plant, Unit Nos. 1 and 2, Fire Hazards Analysis, dated October 27, 1976; and (2) the licensee's docketed response to requests for additional information and staff positions.

The overall objective of our review of the Hatch Nuclear Plant Fire Protection Program was to ensure that in the event of a

---

\*Gage-Babcock & Associates, Inc., Chicago, Illinois.

fire at the facility, the units would maintain the ability to safely shutdown and remain in a safe shutdown condition and minimize the release of radioactivity to the environment.

Our conclusion is that the Fire Protection Program at the Hatch Plant is adequate for the present and meets General Design Criterion 3. However, to further ensure the ability of the plant to withstand the damaging effects of fires that could occur, we are requiring, and the licensee has agreed, to provide additional fire protection features. These additional features will be completed for Unit No. 1 prior to the end of the next refueling outage. For Unit No. 2, the program will be implemented prior to the end of the first refueling outage. The schedule for specific fire protection system improvements is presented in the Conclusion section of this report. This report summarizes the results of our evaluation of the Fire Protection Program at the Edwin I. Hatch Nuclear Plant. When the modifications itemized in Table 1 are completed, the Fire Protection Program at Hatch Nuclear Plant Units Nos. 1 and 2 will meet the guidelines of Appendix A to BTP 9.5.1 except for certain fire doors for which an acceptable alternative is discussed in Section IIIB of this evaluation. In the interim period until all modifications are

completed, we consider that the improved administrative controls of combustibles and ignition sources and the establishment of a fire brigade and brigade training program provide adequate protection against a fire that would affect safe plant shutdown.

## II. FIRE PROTECTION SYSTEMS DESCRIPTION

### A. Water Suppression Systems

The water fire protection system is designed to provide water in sufficient quantities and at the proper pressure to fight any fires that could occur at the Hatch Nuclear Plant. The system is common to both units and consists of a 2500 gpm motor driven pump, two 2500 gpm diesel engine driven pumps, a 75 gpm pressure maintenance pump (jockey pump), two 300,000 gallon storage tanks, a yard loop with sectionalizing post indicator isolation valves.

The jockey pump and fire pumps take their suction from either one of the 300,000 gallon storage tanks. All pumps are located inside the fire protection pump house and the pump installation is consistent with NFPA 20. Separate alarms monitoring pump running, drive availability, or failure to start are provided in the control room for the motor driven pump and for the combination of the two diesel driven pumps. The power supply associated with the control signal which starts the fire pumps automatically, is supplied by the Class 1E station battery system.

The fire pumps are located in a common fire pump building which is provided with automatic sprinklers; however, there are no fire barriers between the pumps. We were concerned that a single fire could damage all the fire pumps and cause loss of all sprinklers and hose stations water supply throughout the plant. The licensee has agreed to provide floor-to-ceiling one-hour rated fire barriers between the fire pumps and elevate the existing sprinklers to the roof of the fire pump building.

The automatic sprinkler system and manual hose station hose standpipe system are fed by a main loop inside the turbine and control building, and a separate main loop inside the reactor building. Every standpipe within each building is individually connected to the inside main loop.

The inside main loop for the turbine building and reactor building is fed from the yard loop by two lines with sectionalizing valves between the connections at the yard loop. The licensee has committed to provide either electrically supervised or locked open valves controlling water supply to the fixed water extinguishing systems. Since Unit No. 1 electrically supervised valves only alarm locally, but not in the control room, these valves will be locked open and their positions verified periodically. For Unit No. 2, the electrically supervised valves alarm locally and in the control room, but do not have trouble alarms. The circuit for these valves in Unit No. 2 will be tested monthly.

The automatic sprinklers have water flow alarms which initiate an alarm for fire in the affected area. The licensee is also committed to test monthly the alarm circuits which do not have trouble alarms. The automatic sprinkler systems, e.g., wet sprinkler system, pre-action sprinkler systems, deluge and water spray systems, are designed to the requirements of NFPA Standard No. 13, "Standard for Installation of Sprinkler Systems," and NFPA Standard No. 15, "Standard for Water Spray Fixed System."

Manual hose stations are located throughout the plant to ensure that an effective hose stream can be directed to any safety related area in the plant. These systems are consistent with the requirements of NFPA Standard No. 14, "Standpipe and Hose System for Sizing, Spacing, and Pipe Support Requirements."

Areas that have been equipped or will be equipped with automatic water suppression systems are:

- (a) Cable Spreading Room;<sup>(1)(2)</sup>
- (b) HPCI Room;
- (c) RCIC Room;
- (d) M-G Set Rooms;
- (e) East Cableway;
- (f) West Cableway;
- (g) HVAC Room;
- (h) Turbine Building Oil Spill Protection Zone;
- (i) Reactor Feed pump Turbine Room;
- (j) Reactor Feed pump Turbine Oil Conditioner Area;
- (k) Oil Storage Room on El 112';
- (l) Standby Gas Treatment Rooms;
- (m) Drywell;
- (n) Radwaste Building

---

<sup>(1)</sup>Sprinkler systems to be installed

<sup>(2)</sup>Cable spreading room is already equipped with CO<sub>2</sub> flooding system see Section IV A for evaluation of cable spreading room.

- (o) RPS vertical cable way; <sup>(1)</sup>
- (p) Control Building Corridor - elevation 130' <sup>(1)</sup>
- (q) Intake structure RHR service water pumps; <sup>(1)</sup>
- (r) Primary system Recirculation pumps <sup>(1)</sup>

We have reviewed the design criteria and bases for the water suppression systems and conclude that these systems meet the guidelines of Appendix A to Branch Technical Position 9.5.1 and are in accord with the applicable portions of the National Fire Protection Association (NFPA) Codes, and are, therefore, acceptable. Until the committed suppression systems are installed and operational, we consider the licensee's improved administrative procedures for control of combustibles and ignition sources, and fire brigade training to provide adequate protection against a fire occurring in these areas. These areas have detection systems to provide alarm in the event of a fire, and manual fire fighting equipment is available.

B. Gas Suppression System

Low pressure carbon dioxide flooding systems have been provided for the following areas:

- (a) Emergency diesel generator rooms;
- (b) Cable spreading room; and
- (c) Computer room.

Also, manual CO<sub>2</sub> hose stations have been provided in the electrical switchgear areas.

---

<sup>(1)</sup>Sprinkler systems to be installed



The CO<sub>2</sub> system for the diesel generator rooms is automatically actuated. Actuation of this system provides audible and visual alarms locally and in the main control room. The ventilating systems for these rooms shutdown automatically in the event of actuation of the automatic CO<sub>2</sub> system, thus, isolating the diesel rooms. An inadvertent actuation of the CO<sub>2</sub> system for a diesel room would not affect the combustion air intake for the other diesels, because the combustion air source is separate for each diesel generator.

The CO<sub>2</sub> suppression systems are designed according to NFPA Standard No. 12, "Carbon Dioxide Extinguishing Systems." We have reviewed the design criteria and basis for these fire suppression systems. We conclude that these systems satisfy the provisions of Appendix A to Branch Technical Position 9.5.1 and are provided in accordance with the applicable portions of the National Fire Protection Associate Code and are, therefore acceptable.

#### C. Fire Detection Systems

The fire detection system consists of the detectors, associated electrical circuitry, electrical power supplies, and the fire annunciator panel. The two types of detectors used at the Hatch Nuclear Plant are ionization (products of combustion), and thermal (heat sensors).

Fire detection systems given audible and visual alarm and annunciation in the control room. Local, audible and/or visual alarms are also provided. Both the fire detection systems are connected to the emergency power supply.

Appendix A to Branch Technical Position 9.5-1 contains guidelines that detectors be placed in control room cabinets so that fires occurring in these cabinets may be detected rapidly. The licensee is committed to install smoke detectors with local, visual and audible alarms in those control room cabinets containing redundant safety related cabling divisions and whose configuration could trap smoke from a cabinet fire and prevent the room ceiling detectors from providing rapid alarm.

At our request, the licensee agreed to install additional smoke detectors along the east cable way ceiling, in the peripheral rooms adjacent to the main control room, at the vertical cable trays adjacent to the reactor protection system M-G set room at 130' El and 140' El, in the northwest and southwest cable areas at reactor building 130' El, in the control building corridor-elevation 130' and elevation 112' and at each reactor coolant recirculation pump.

The fire detection systems have been installed or will be installed according to NFPA No. 72D, "Standard for the Installation, Maintenance, and Use of Proprietary Protection Signaling Systems."

We have reviewed the fire detection systems to ensure that fire detectors are located to provide detection and alarm of fires that could occur. We have also reviewed the fire detection systems design criteria and bases to ensure that it conforms to the applicable sections of NFPA No. 72D. We conclude that the design and the installation of the fire detection systems with the additional detectors to be installed, meet the guidelines of Appendix A to Branch Technical Position ASB 9.5-1 and the applicable portions of NFPA No. 72D, and are therefore, acceptable.

### III. OTHER ITEMS RELATING TO THE STATION FIRE PROTECTION PROGRAM

#### A. Fire Barriers and Fire Barrier Penetrations

All floors, walls, and ceilings enclosing fire areas are rated at a minimum of 3-hour fire rating. The main control room area contains peripheral rooms which are located within the main control room 3-hour fire barrier. These peripheral rooms will be provided with detectors and alarms and one-hour rated fire barriers and fire doors.

The licensee has provided documentation to substantiate the fire rating of the 3-hour penetration seals used in the penetrations for cable trays, conduits, and piping.

B. Fire Doors and Dampers

We have also reviewed the placement of the fire doors to ensure that fire doors of proper fire rating have been provided.

The licensee's submittal identified certain fire doors that are located in heavily trafficked plant areas. For these doors the licensee proposed an alternative to the staff guidance of locking or alarming these doors. The alternative is a daily check that the doors are closed. We have reviewed the list of fire doors involved and determined that the institution of administrative controls to check daily that these fire doors are closed is an acceptable alternative to the staff guidelines because it will assure fire barrier integrity.

The alarms will annunciate in a constantly manned area having direct communication with the staff supervisor.

Fire dampers installed in Unit No. 2 ventilation ducts are 3-hour rated. Some of the fire dampers installed in Unit No. 1 were 1-1/2 hour rated. The licensee agreed to upgrade all these dampers in Unit No. 1 to 3-hour rated. This modification was completed in June 1978.

We conclude that the fire barriers, barrier penetrations, fire doors and dampers are provided in accordance with the guidelines of Appendix A to Branch Technical Position ASB 9.5-1 except for the alternative discussed above and are, therefore acceptable.

#### IV. FIRE PROTECTION FOR SPECIFIC AREAS

##### A. Cable Spreading Room

The cable spreading room is shared by both units. The walls, floors, and ceilings in this room are designed to have a fire rating of three hours. At present a fixed low pressure manually operated CO<sub>2</sub> system is provided for total flooding of the cable spreading room. Back-up fire protection is provided by a manual hose station. Smoke detectors are provided that will initiate a local alarm and audible and visual alarms in the control room.

During our site visit, we noted that the cable spreading room contained many cables and cable trays with limited accessibility for manual fire fighting operations; however the cable separation criteria of the FSAR are met. We are concerned nevertheless, that a damaging fire could disable the redundant safety related cable trains for both units. At our request, the licensee agreed to provide an automatic, closed-head, preaction sprinkler system in accordance with NFPA 13, at the ceiling level of the cable spreading room of Unit Nos. 1 and 2,

including the open area between the two units cable trays. In addition, the licensee will establish and implement emergency procedures and associated modifications of the remote shutdown panels, as necessary, to achieve safe cold shutdown without reliance on the cable spreading room or the control room. Interim emergency shutdown procedures and modifications will be in effect by initial fuel loading of Unit No. 2. The interim emergency shutdown procedure which have been implemented requires that in the event of a fire involving cable in either the cable spreading room or the control room that the plant be taken to hot shutdown condition. If it became necessary to evacuate the control room, plant control would be isolated from the control room by means of the isolation switch and transferred to the remote shutdown panel. Hot shutdown condition would be maintained and monitored from the remote shutdown panel. After reaching hot shutdown and extinguishing the fire, the extent of plant damage would be assessed to determine the need for cold shutdown. If necessary, cold shutdown would be achieved by dispatching operators to perform local manual operation of individual systems necessary for cold shutdown. Communication between the control room or the remote shutdown panel and local station operators would be maintained by any of the plant communication systems, including portable radios which are available if necessary. We find the interim emergency shutdown procedures to be acceptable. The final procedures and

modifications will be implemented by October 1978.

We have reviewed the licensee's fire hazards analysis and fire protection provided for the cable spreading room and consider that appropriate fire protection and emergency shutdown procedures have been provided and conform to the provisions of Appendix A to BTP 9.5-1 and are therefore, acceptable.

B. East Cableways

The east cableways are on the east side of elevation 130' floor of the control building. The Unit 1 and Unit 2 portion of the cableways are separated by 3-hour rated fire walls. These areas contain primarily Division 2 cables. The combustible loading in these areas consists mainly of cable insulations. Automatic sprinklers are installed at the ceiling level and hose stations are available at convenient locations.

At our request the licensee has committed to install a sprinkler head at the side of the fire barrier which separates the redundant cable divisions in close proximity and a fire barrier (kaowool) will be installed around the redundant cables. In addition, smoke detectors will be installed along the ceiling level. Transient combustibles will be controlled by administrative procedures and the floor areas will be appropriately marked to prohibit storage of combustible materials.

We conclude that these additional fire protection measures for the east cableway area meet the positions of Appendix A to BTP 9.5-1 and are therefore, acceptable.

C. River Intake Structure

The intake structure is a shared facility and contains the RHR service water pumps, the plant service water pumps, and the diesel generator 1B service water pump for both units.

To protect against a potential fire involving oil contained in the pumps motors, the licensee has committed to add a curb around each RHR service water pump to contain oil spills. Also, he will provide an automatic wet pipe sprinkler system with directional nozzles as protection for each pump motor. Hose stations will be added to locations near each entrance and on the rear wall of the intake structure. In addition, kaowool will be installed as a barrier around the overhead cable trays and conduits for approximately ten feet in either side of divisional crossings. The remaining open-floor areas will be appropriately marked to exclude transient combustibles. Early warning ionization-type fire detectors located throughout the intake structure will alarm in the main control room.

We conclude that the protection to be provided for the river intake structure meet the positions of Appendix A to BTP 9.5-1 and is, therefore, acceptable. Until the kaowool



barriers around the overhead cable trays and conduits have been installed and the fire suppression system for the RHR service water pumps becomes operational, we consider the licensee's improved administrative procedures for control of combustibles and ignition sources and fire brigade training will provide adequate protection against a damaging fire occurring in the intake structure. In addition, fire detection systems provided in this area with alarm in the control room in the event of a fire, thus, a timely manual fire fighting operation can be initiated if necessary.

D. Fire Protection Inside Containment

The major fire hazards in the drywell area are lubrication oil contained in the recirculation pumps and electrical cables. The licensee will provide curbing under the pumps to contain any oil that might leak out, and will install dry sprinkler systems to protect the area under the recirculation pumps in the event of an oil fire. Fire detection systems will be placed under the pumps and will annunciate in the control room.

Safety related cable Division 1 and Division 2 containment cable penetration areas are located 180° apart in the drywell thus providing adequate separation. Cable trays will be covered with kaowool to reduce the probability of propagation of electrically initiated fire from one tray to the other within a division.

If containment access is not possible, the containment sprays can be used to extinguish a cable tray fire. When containment access is possible, the area hose stations and portable extinguishers located outside the containment may be used for manual fire fighting.

We have reviewed the licensee's Fire Hazards Analysis for the areas inside containment and conclude that appropriate fire protection which meets the positions of Appendix A has been provided and is acceptable, subject to the addition of the protection to be provided for the recirculation pumps and cable trays as stated above.

E. Other Plant Areas

The licensee's Fire Hazards Analysis addresses other plant areas not specifically discussed in this report. The licensee has committed to install additional detectors, portable extinguishers, hose stations, and some additional emergency lighting as identified in the licensee's installation schedule. With the commitment made by the licensee, we find these areas to be in accordance with the guidelines of Appendix A of BTP 9.5-1, and the applicable sections of the National Fire Protection Association Code and are therefore acceptable.

V. ADMINISTRATIVE CONTROLS

The administrative controls for fire protection consists of the fire protection organization, the fire brigade training, the controls over combustibles and ignition sources, the prefire plans and procedures for fighting fires.

In response to Appendix A to Branch Technical Position ASB 9.5-1, the licensee described briefly those procedures and controls that were in existence at that time.

The licensee has agreed to revise his administrative controls and training procedures to follow supplemental staff guidelines contained in "Nuclear Plant Fire Protection Functional Responsibilities, Administrative Controls and Quality Assurance," dated 6/14/77, and implement them according to the schedule as presented in Table 1 for the following activities:

- (a) Fire Brigade Training;
- (b) Control of Combustibles;
- (c) Control of Ignition Sources; and
- (d) Fire Fighting Procedures.

The plant fire brigade of at least five members is organized to provide immediate response to fires that may occur at the site. Spare air cylinders and recharge capability are provided to satisfy the guidelines of Appendix A to Branch Technical Position ASB 9.5-1.

The plant fire brigade will also be equipped with pressure demand breathing apparatus, portable communications equipment, portable lanterns, and other necessary fire fighting equipment.

The fire fighting brigade participates in periodic drills. Liaison between the plant fire brigade and the local fire departments has been established. The local fire departments have been on plant

tours and have also been involved in training sessions with the plant fire brigade.

We conclude that the fire brigade equipment and training conform to the recommendations of the supplemental National Fire Protection Association, Appendix A to Branch Technical Position 9.5-1 and supplemental staff guidelines and are, therefore, acceptable.

## VI. TECHNICAL SPECIFICATIONS

The Technical Specifications for the fire protection systems in use have been issued for Unit No. 1. The same standard fire protection Technical Specifications were issued for Unit No. 2 with the initial Unit No. 2 Plant Technical Specifications.

We have reviewed the currently approved Technical Specifications for Units Nos. 1 and 2 and find that they are consistent with our Standard Technical Specifications for fire protection. Following the implementation of the modifications of fire protection systems and administrative controls resulting from this review, the Technical Specifications will be modified accordingly to incorporate the limiting conditions for operation and surveillance requirements to reflect these modifications.

The amendment for Hatch Unit No. 1, which is supported by this evaluation, adds a license condition requiring the licensee to maintain in effect an approved Fire Protection Program. The licensee is authorized to make changes in the program provided such changes do

not degrade the effectiveness of the program. This condition would insure that the licensee will not deviate from the descriptions of approved modifications but will allow the licensee to make additional improvements without prior Commission approval.

## VII. ENVIRONMENTAL CONSIDERATION

We have determined that the license conditions incorporated on both Hatch Units Nos. 1 and 2 do not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the action is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR 51.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this action.

## VIII. CONCLUSION

During the course of our review we have reviewed the licensee's submittals and his responses to our requests for additional information. In addition, we have made a site visit to evaluate the fire hazards that exist in the Hatch Nuclear Plant and the design features and protection systems provided to minimize these hazards.

The licensee has proposed to make many modifications to improve the fire resistance capability for fire doors, dampers, fire barriers and barrier penetration seals.

The licensee has also proposed to install additional sprinkler systems for areas such as the cable spreading rooms, HVAC rooms, intake structure, recirculation pumps, and various other areas. To ensure that fires can be detected rapidly and the plant operators informed promptly, additional detectors will be installed in various areas of the plant.

In addition, the licensee has established emergency shutdown procedure to bring the plants to safe cooldown condition in the event of a damaging fire in the cable spreading room or the main control room.

The licensee committed to making all improvements for Unit No. 1 prior to the end of the first refueling outage following our acceptance of the plan unless the refueling outage occurs within six months of acceptance.\* Accordingly, improvements will be made before the end of the third refueling outage. For Unit No. 2, all improvements will be implemented prior to the end of the first fueling outage. We have reviewed the licensee's schedule and find it acceptable and have included it in Table 1.

Our overall conclusion is that a fire occurring in any area of the Edwin I. Hatch Nuclear Plant will not prevent either unit from being brought to a controlled safe cold shutdown, and further, that such a fire would not cause the release of significant amounts of radiation.

\*Issuance of Hatch 2 SER indicates our acceptance

We find that the Fire Protection Program for the Edwin I. Hatch Nuclear Plant with the improvements already made by the licensee, is adequate for the present and, with the scheduled modifications will meet the guidelines contained in Appendix A to Branch Technical Position 9.5-1 with a single acceptable alternative and meets the General Design Criterion 3 and is, therefore, acceptable. In the interim period until all modifications are completed, we consider that the improved administrative controls of combustibles and ignition sources and the establishment of a fire brigade and brigade training program provide adequate protection against a fire that would affect safe plant shutdown.

In the report of the Special Review Group on the Browns Ferry Fire (NUREG-0050) dated February 1976, consideration of the safety of operation of all operating nuclear power plants pending the completion of our detailed fire protection evaluation was presented. The following quotations from the report summarize the basis for our conclusion that the operation of the facility, pending resolution of the incomplete items and the implementation of all facility modifications, does not present an undue risk to the health and safety of the public.

“A probability assessment of public safety or risk in quantitative terms is given in the Reactor Safety Study (WASH-1400). As the result of the calculation based on the Browns Ferry fire, the study concludes that the potential for a significant

release of radioactivity from such a fire is about 20% of that calculated from all other causes analyzed. This indicates that predicted potential accident risks from all causes were not greatly affected by consideration of the Browns Ferry fire. This is one of the reasons that urgent action in regard to reducing risks due to potential fires is not required. The study (WASH-1400) also points out that ‘rather straightforward measures, such as may already exist at other nuclear plants, can significantly reduce the likelihood of a potential core melt accident that might result from a large fire’.

“Fires occur rather frequently; however, fires involving equipment unavailability comparable to the Browns Ferry fire are quite infrequent (see Section 3.3 of NUREG-0500). The Review Group believes that steps already taken since March 1975 (see Section 3.3.2) have reduced this frequency significantly.

“Based on its review of the events transpiring before, during, and after the Browns Ferry fire, the Review Group concludes that the probability of disruptive fires of the magnitude of the Browns Ferry event is small, and that there is no need to restrict operation of nuclear power plants for public safety. However, it is clear that much can and should be done to reduce even further the likelihood of disabling fires and to



improve assurance of rapid extinguishment of fires that occur. Consideration should be given also to features that would increase further the ability of nuclear facilities to withstand large fires without loss of important functions should such fires occur.”

We have concluded, based on the considerations discussed above, that: (1) because the license conditions incorporated on both Hatch Units Nos. 1 and 2 do not involve a significant increase in the probability or consequences of accidents previously considered and do not involve a significant decrease in a safety margin, the conditions do not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission’s regulations and the issuance of this action will not be inimical to the common defense and security or to the health and safety of the public.

TABLE 1  
SCHEDULE

- I. Overall Schedule
  - (a) Unit 1
 

The program will be implemented prior to the end of the third refueling outage.
  - (b) Unit 2
 

The program will be implemented for Unit 2 prior to the end of the first refueling outage.
- II. Items to be completed prior to HNP-2 initial fuel loading:
  - (a) Installation of 3-hour rated penetrations for Unit 2.
  - (b) Emergency lighting and communication system for Unit 1 and 2.
  - (c) Place into effect procedures for fire protection administrative and training activities for Units 1 and 2.
  - (d) Fire retardant material on cable trays and conduit at the intake structure.
  - (e) Complete interim revised modifications and procedures to provide for safe cold shutdown without reliance on cable spreading room or control room.
- III. Specific Schedule
 

|    |                                                                                                                         |              |
|----|-------------------------------------------------------------------------------------------------------------------------|--------------|
| 1. | Separate peripheral rooms from the control room and provide smoke detector.                                             | January 1979 |
| 2. | Provide control cabinets that contain redundant safety functions with smoke ventilation or smoke detection as proposed. | January 1979 |
| 3. | Provide dampers for CO <sub>2</sub> system.                                                                             | Refueling    |
| 4. | Remove unused cable tray from cable spreading room.                                                                     | Refueling    |

---

\*Issuance of Edwin I. Hatch Unit 2 SER indicated our acceptance

|     |                                                                                                                                                 |              |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 5.  | Install sprinklers and additional smoke detection in cable spreading room.                                                                      | Refueling    |
| 6.  | Complete revised final modifications and procedures to achieve safe cold shutdown without reliance on cable spreading room or the control room. | October 1978 |
| 7.  | Provide disconnect switches to aid in remote shutdown.                                                                                          | October 1978 |
| 8.  | Remove loose hanging cable in the east cable way.                                                                                               | July 1978*   |
| 9.  | Improve barrier in east cable way.                                                                                                              | July 1978*   |
| 10. | Addition of fire retardant material on cable trays near the barrier in the east cable way.                                                      | July 1978*   |
| 11. | Modify the sprinkler to spray both sides of the barrier in east cable way.                                                                      | July 1978*   |
| 12. | Place into effect procedures for control of combustible material in the east cable way.                                                         | July 1978*   |
| 13. | Mark floors of east cable way.                                                                                                                  | July 1978*   |
| 14. | Provide smoke detection in east cable way.                                                                                                      | Refueling    |
| 15. | Provide 3 hr barriers for the RPS vertical cable way.                                                                                           | April 1978*  |
| 16. | Provide smoke detection for the RPS vertical cable way.                                                                                         | Refueling    |
| 17. | Provide sprinkler system for RPS vertical cable way.                                                                                            | Refueling    |
| 18. | Remove cable temperature monitoring equipment.                                                                                                  | Refueling    |
| 19. | Provide sprinkler and smoke detection for the Control Building corridor at elevation 130'.                                                      | Refueling    |
| 20. | Provide smoke detection in the Control Building Corridor and work area at elevation 112'.                                                       | Refueling    |
| 21. | Sprinkler system for the pumps in the intake.                                                                                                   | January 1979 |
| 22. | Provide spray barriers between divisional pumps at the intake structure.                                                                        | January 1979 |

\*Completed

|      |                                                                                                                                       |                    |
|------|---------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 23.  | Provide oil collection curbs around pumps at the intake structure.                                                                    | January 1979       |
| 24.  | Fire retardant coating for divisional crossings in the intake structure.                                                              | April 1978*        |
| 25.  | Mark floors to prohibit transient combustibles in the intake structure.                                                               | April 1978*        |
| 25A. | Provision of separation between HPCI and RHR rooms.                                                                                   | May 1, 1978*       |
| 26.  | Provide smoke detection in the CRD areas.                                                                                             | Refueling          |
| 27.  | Add Kaowool to cable trays in the drywell.                                                                                            | April 1978*        |
| 28.  | Curbing for recirc pump in the drywell.                                                                                               | Refueling          |
| 29.  | Sprinkler system for recirc pump.                                                                                                     | Refueling          |
| 30.  | Fire detectors for recirc pump.                                                                                                       | Refueling          |
| 30A. | Lock or Alarm Fire doors.                                                                                                             | April 1978*        |
| 31.  | Qualification of fire dampers.                                                                                                        | June 1978*         |
| 31A. | Replace 3 hr barriers.                                                                                                                | July 1978*         |
| 32.  | Provision of smoke handling equipment.                                                                                                | January 1979       |
| 32A. | Training of fire team in revised procedures.                                                                                          | September 15, 1978 |
| 32B. | Training of fire Brigade in revised procedures.                                                                                       | January 1, 1979    |
| 33.  | The circuits of unsupervised flow switches and alarms to be tested monthly.                                                           | April 1978*        |
| 34.  | Unsupervised valve alarm circuitry will be tested monthly and valve positions checked.                                                | April 1978*        |
| 35.  | Provide separate monitoring for the electric fire pump.                                                                               | July 1978*         |
| 36.  | Barriers will be provided between fire pumps and the sprinkler system raised.                                                         | October 1978       |
| 37.  | Above ground valves controlling water to fixed water extinguishing system will be locked or have position alarms in the control room. | April 1978*        |

\*Completed

- |     |                                                                                                     |              |
|-----|-----------------------------------------------------------------------------------------------------|--------------|
| 38. | Additional smoke detection for northwest and south west cable areas.                                | Refueling    |
| 39. | Mobile platform for northwest and southwest cable areas.                                            | Refueling    |
| 40. | Protect cable trays in the northwest and southwest cable areas with Kaowool.                        | Refueling    |
| 41. | Provide smoke detection and sprinklers in the HVAC area of the 158' floor of the reactor buildings. | Refueling    |
| 42. | Lock closed the MG set oil drain valve and seal the penetration.                                    | Refueling    |
| 43. | Provide curbs around the MG set area (pg. Q25-5).                                                   | Refueling    |
| 44. | Coat exposed structural steel of the MG set fire wall.                                              | Refueling    |
| 45. | Relocate obstructed sprinkler nozzles in the MG set area.                                           | January 1979 |

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-321

GEORGIA POWER COMPANY

OGLETHORPE ELECTRIC MEMBERSHIP CORPORATION

MUNICIPAL ELECTRIC ASSOCIATION OF GEORGIA

CITY OF DALTON, GEORGIA

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY

OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 60 to Facility Operating License No. DPR-57 issued to Georgia Power Company, Oglethorpe Electric Membership Corporation, Municipal Electric Association of Georgia and City of Dalton, Georgia, which revised the license for operation of the Edwin I. Hatch Nuclear Plant, Unit No. 1, located in Appling County, Georgia. The amendment is effective as of its date of issuance.

This amendment adds a license condition related to the completion of facility modifications for fire protection.

The Commission has made appropriate findings as required by the Atomic Energy Act of 1954, as amended, and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment. Prior public notice of this amendment was not required since the amendment does not involve a significant hazards consideration.

The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that

pursuant to 10 CFR 51.5(d)(4) an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of this amendment.

For further details with respect to this action, see (1) the licensee's submittal dated October 27, 1976 and September 6, December 13, 1977 and February 15, March 28, April 11, April 18, and May 19, 1978, (2) Amendment No. 60 to License No. DPR-57 and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C. and at the Appling County Public Library, Parker Street, Baxley, Georgia 31513. A copy of items (2) and (3), may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Operating Reactors.

Dated at Bethesda, Maryland this 4 day of October 1978.

FOR THE NUCLEAR REGULATORY COMMISSION

Thomas A. Ippolito, Chief  
Operating Reactors Branch #3  
Division of Operating Reactors

***gage - babcock & associates, inc.***

CHICAGO    SAN FRANCISCO    LOS ANGELES    NEW YORK

PAUL D. SMITH, P.E., President  
BERT M. COHN, P.E., Senior Vice President

CHICAGO OFFICE  
135 ADDISON AVENUE  
ELMHURST, ILL 60126  
Tel (312) 530-1494

May 22, 1978  
File 7820

Brookhaven National Laboratory  
Associated Universities, Inc.  
Upton, New York 11973

Attn: Robert Hall, Bldg. 130

Gentlemen:

Fire Protection Safety Evaluation,  
Hatch Units No. 1 and 2

The fire protection safety evaluation report for Hatch Units No. 1 and 2, dated May 16, 1978, has been reviewed and adequately reflects our concerns and recommendations. We concur in the NRC findings and the conclusion that upon implementation of the modifications listed in the report the fire protection program will be acceptable. Our review was based on the guidelines set forth in Appendix A to Branch Technical Position APCSB 9.5-1.

The review process of the plant's fire protection program was a joint effort of NRC and GBA staff personnel, and frequent contact was maintained during the review process. However, the GBA concurrence is based on an independent evaluation of documents submitted by Georgia Power Company, of conditions noted during a site visit in February 1977, and of documents supplied in response to requests for information generated during the evaluation.

Very truly yours,

James D. Behn  
Fire Protection Engineer

cc:    Vic Beneroya  
       Phil Matthews



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

November 16, 1981

Docket Nos. 50-321  
and 50-366

Mr. J. T. Beckham, Jr.  
Vice President - Engineering  
Georgia Power Company  
P. O. Box 4545  
Atlanta, Georgia 30302

Dear Mr. Beckham:

By letter dated March 19, 1981, you requested two exemptions to 10 CFR 50, Appendix R, Item III.G.3 for the Edwin I. Hatch Nuclear Plant, Units 1 and 2. These exemptions would: (1) delete full fire barriers at the river intake structure, and (2) omit fixed suppression in the control room. In the first instance, you state that full fire barriers would interfere with the air cooling of safety related pump motors. For the second item, you state that a fixed suppression system in the constantly manned control room would constitute a hazard to plant safety due to the possibility of inadvertent actuation.

We have found that your first request provides a sound technical basis warranting further staff review. The schedule requirements for this item are, therefore, suspended in accordance with 10 CFR 50.48 (c) (6) until final Commission action on this request.

We have granted an exemption, enclosed, from the requirements of 10 CFR 50, Appendix R, Item III.G.3, stating that a fixed suppression system is not required in the control room.

Your request for exemption from the provisions of 10 CFR 50.48 (c) (5) regarding the submittal of your plans and schedules for complying with 10 CFR 50, Appendix R, Items III.G and III.L, is under review and will be the subject of separate correspondence.

A copy of the Exemption is being filed with the Office of the Federal Register for publication.

Sincerely,

Harold R. Denton, Director  
Office of Nuclear Reactor Regulation

Enclosure:  
Exemption

cc w/enclosure: See next page

Hatch 1/2  
Georgia Power Company

50-321/366

cc w/enclosure(s):

G. F. Trowbridge, Esq.  
Shaw, Pittman, Potts and Trowbridge  
1800 M Street, N.W.  
Washington, D. C. 20036

Ruble A. Thomas  
Vice President  
P. O. Box 2625:  
Southern Services, Inc.  
Birmingham, Alabama 35202

Ozen Batum  
P. O. Box 2625  
Southern Services, Inc.  
Birmingham, Alabama 35202

Charles H. Badger  
Office of Planning and Budget  
Room 610  
270 Washington Street, S.W.  
Atlanta, Georgia 30334

Chairman  
Appling County Commissioners  
County Courthouse  
Baxley, Georgia 31513

Mr. L. T. Gucwa  
Georgia Power Company  
Engineering Department  
P. O. Box 4545  
Atlanta, Georgia 30302

Mr. Max Manry  
Georgia Power Company  
Edwin I. Hatch Plant  
P. O. Box 442  
Baxley, Georgia 31513

U. S. Environmental Protection Agency  
Region IV Office  
ATTN: EIS COORDINATOR  
345 Courtland Street, N.E.  
Atlanta, Georgia 30308

Appling County Public Library  
301 City Hall Drive  
Baxley, Georgia 31513

Mr. R. F. Rodgers  
U.S. Nuclear Regulatory Commission  
Route 1, P. O. Box 279  
Baxley, Georgia 31513

# UNITED STATES NUCLEAR REGULATORY COMMISSION

In the matter of

Dockets Nos. 50-321 and 50-366

GEORGIA POWER COMPANY

Edwin I. Hatch Nuclear Plant, Units 1 and 2

## EXEMPTION

### I.

The Georgia Power Company (the licensee) and three other co-owners are the holders of Facility Operating Licenses Nos. DPR-57 and NPF-5 which authorize operation of the Edwin I. Hatch Nuclear Plant, Units 1 and 2 (Hatch or the facilities). These licenses provide, among other things, that they are subject to all rules, regulations, and Orders of the Nuclear Regulatory Commission (the Commission) now or hereafter in effect.

The facilities are boiling water reactors located at the licensee's site in Appling County, Georgia.

### II.

Section III.G.3 of Appendix R to 10 CFR Part 50 requires that a fixed fire suppression system be installed in an area, room, or zone under consideration for alternative safe shutdown modifications. In the case of Hatch, under this provision, a fixed fire suppression system would be required in the control room.

The licensee indicated in its March 19, 1981 letter that the fire protection features currently installed in the control room provide adequate fire fighting capability in the control room and constitute an adequate fixed fire suppression system for the area. However, inasmuch as the item "fixed suppression" has been used to connote sprinklers or gas suppression systems, the licensee has requested an exemption from the requirements of III.G.3 to provide a fixed suppression system.

The licensee's exemption request is based on the following:

- An alternate shutdown system has been provided for the control room. This alternate shutdown system provides remote control capabilities for those systems needed to carry out a reactor shutdown function, maintain hot shutdown, proceed to and maintain cold shutdown, from outside the main control room.
- A fire detection system has been installed in the control room.
- A hose station and fire extinguishers have been installed inside the control room.

The modifications which the licensee's exemption request is based on are required by Appendix R to 10 CFR Part 50. Therefore, the above modifications alone do not justify an exemption from the requirement to install a fixed fire suppression system in areas where redundant divisions are located. However, the control room is a unique area of the plant that is required to be continually occupied by the operators. In the event of a fire, manual fire suppression would be effective and prompt. Because the operators provide a continuous fire watch in the control room, a fixed suppression system is not necessary to achieve adequate fire protection in the control room. This is similar to the concept reflected in the staff's acceptance, on a short term basis, of a continuous fire watch as an alternative to fixed suppression systems when such systems become unavailable per 3.7.11.2 of the Standard Technical Specifications.

Based on our evaluation, we conclude that the licensee's fire protection features for the control room meet the objectives of section III.G, "Fire Protection of Safe Shutdown Capability", of Appendix R to 10 CFR part 50, and, therefore, the licensee's request to be exempted from the requirements to provide a fixed fire suppression system in the control room should be granted.

III.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, an exemption is authorized by law and will not endanger life or property or the common defense and security, is otherwise in the public interest, and is hereby granted.

The Commission has determined that granting this exemption will not result in any significant environmental impact and that pursuant to 10 CFR 51.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with this action.

This exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Harold R. Denton, Director  
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland  
this 16th day of November, 1981.

UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
WASHINGTON, D. C. 20555

February 11, 1983

Docket Nos. 50-321  
and 50-366

Mr. J. T. Beckham, Jr.  
Vice President - Nuclear Generation  
Georgia Power Company  
P. O. Box 4545  
Atlanta, Georgia 30302

Dear Mr. Beckham:

SUBJECT: SAFETY EVALUATION REPORT FOR APPENDIX R TO 10 CFR PART 50  
ITEMS III.G AND III.L

Re: Edwin I. Hatch Nuclear Power Plant, Units 1 and 2

This letter transmits the Safety Evaluation on the safe shutdown capability in the event of fire at the Hatch Power Plant. The safe shutdown capability was evaluated against the requirements of Section III.G.3 and III.L Appendix R to 10 CFR Part 50. We conclude that your conceptual design of the alternative shutdown capability for the control room and cable spreading room is in accordance with Appendix R, Section III.G.3 and III.L requirements.

This completes the review of the Hatch Power Plant Units 1 and 2 fire protection program by NRR. A regional inspection to determine Appendix R compliance will be conducted in the future. Any modifications you require must be completed in accordance with the schedule given in Section 50.48(c)(4) of the regulations.

This action addresses only the safe shutdown capability of your plant evaluated against the requirements of Sections III.G.3 and III.L of Appendix R to 10 CFR Part 50. Your request of July 1, 1982 for specific exemptions from the requirements of Section III.G.2 are the subject of a separate evaluation. By our letter to you of January 20, 1983, we transmitted our draft Safety Evaluation Report on these specific exemption requests.

Sincerely,

John F. Stolz, Chief  
Operating Reactors Branch #4  
Division of Licensing

Enclosure:  
Safety Evaluation

cc w/enclosure:  
See next page

Hatch 1/2  
Georgia Power Company

50-321/366

cc w/enclosure(s):

G. F. Trowbridge, Esq.  
Shaw, Pittman, Potts and Trowbridge  
1800 M Street, N.W.  
Washington, D. C. 20036

Mr. James P. O'Reilly, Regional  
Administrator  
U. S. Nuclear Regulatory  
Commission Region II  
101 Marietta Street, Suite 3100  
Atlanta, Georgia 30303

Ruble A. Thomas  
Vice President  
P. O. Box 262:  
Southern Services, Inc.  
Birmingham, Alabama 35202

Ozen Batum  
P. O. Box 2625  
Southern Services, Inc.  
Birmingham, Alabama 35202

Charles H. Badger  
Office of Planning and Budget  
Room 610  
270 Washington Street, S.W.  
Atlanta, Georgia 30334

Chairman  
Appling County Commissioners  
County Courthouse  
Baxley, Georgia 31513

Mr. L. T. Gucwa  
Georgia Power Company  
Engineering Department  
P. O. Box 4545  
Atlanta, Georgia 30302

Mr. Max Manry  
Georgia Power Company  
Edwin I. Hatch Plant  
P. O. Box 442  
Baxley, Georgia 31513

Regional Radiation Representative  
EPA Region IV  
345 Courtland Street, N.E.  
Atlanta, Georgia 30308

Resident Inspector  
U.S. Nuclear Regulatory Commission  
Route 1, P. O. Box 279  
Baxley, Georgia 31513

EDWIN I. HATCH NUCLEAR PLANT UNITS 1 AND 2  
SAFETY EVALUATION REPORT FOR  
APPENDIX R TO 10 CFR PART 50

1.0 INTRODUCTION

On February 19, 1981, the fire protection rule for nuclear power plants, 10 CFR 50.48 and Appendix R to 10 CFR Part .50, became effective. This rule required all licensees of plants licensed prior to January 1, 1979, to submit by March 19, 1981; (1) plans and schedules for meeting the applicable requirements of Appendix R, (2) a design description of any modifications proposed to provide alternative safe shutdown capability pursuant to Paragraph III.G.3 of Appendix R, and (3) exemption requests for which the tolling provision of Section 50.48(c)(6) was to be invoked. Section III.G of Appendix R is a retrofit item to all pre-1979 plants regardless of previous SER positions and resolutions.

By submittals dated March 19, 1981, May 18, 1981, and July 1, 1982, the licensee described the means by which safe shutdown can be achieved in the event of fire and proposed modifications to both units of the Hatch Nuclear Plant to meet the requirements of Appendix R to 10 CFR 50, Items III.G. and III.L. Additional information and clarification



was obtained through a telephone conference call of October 4, 1982. The licensee's response to the questions asked in the telephone conference call was evaluated and it was ascertained that a meeting was required to clarify various concerns. Therefore, a meeting was held on October 28, 1982 at the Bechtel office in Gaithersburg to resolve open items for the Appendix R review.

The licensee has provided a safe shutdown analyses for fire events and has proposed an alternate safe shutdown system. Our analysis and evaluation of this follows.

## 2.0 Systems Used for Post-Fire Safe Shutdown

### 2.1 Systems Required for Safe Shutdown

Safe shutdown of the reactor is initially performed by rod insertion from the control room.

Reactor cooldown can be accomplished by use of one of the two safe shutdown pathways proposed by the licensee. Pathway 1 requires the availability of the reactor core isolation cooling (RCIC) system to maintain inventory; the automatic depressurization system (ADS) to control pressure; the

residual heat removal system (RHR) which can be used either for suppression pool cooling (SPC) or for low pressure coolant injection to maintain inventory following reactor vessel depressurization. Pathway 2 requires the availability of the high pressure coolant injection (HPCI) system to maintain inventory and depressurization via the HPCI steam turbine while throttling HPCI pump flow back to the condensate storage tank (CST) through the HPCI test line; the low pressure core spray (LPCS) to fill the reactor vessel following the depressurization; the RHR system in SPC mode to remove the heat from the torus resulting from HPCI operation; and the RHR system to remove stray heat until shutdown cooling can be initiated. In the event that the ADS valves are not affected by the fire, they may be used as an alternate means of depressurizing the reactor.

The mechanical support systems which are available for hot and cold shutdown are as follows: plant service water, drywell compressed air supply, diesel generator, RHR and RCIC

emergency room ventilation system and RHR service water. Electrical systems available for safe shutdown are the 4.16 KV, 120/208V AC, 125/250V DC, 125V DC diesel auxiliary supply system and 120/240V uninterruptable AC power.

## 2.2 Areas Where Alternative Safe Shutdown is Required

The licensee has provided alternate safe shutdown capability independent of the cabling and equipment in the control room and cable spreading room as discussed below.

## 2.3 Section III.G.2 of Appendix R

The licensee has stated that all areas of the plant not required to have an alternate safe shutdown system will comply with the requirements of Section III.G.2 of Appendix R unless an exemption request has been submitted and approved by the staff.

## 2.4 Alternate Safe Shutdown System

The licensee has committed to provide alternate safe shutdown capability independent of the control room and the cable spreading room. Unit 1 has six remote shutdown panels and Unit 2 has two remote shutdown panels to accomplish alternate safe shutdown.

The alternate safe shutdown is achieved by activation of the relief valves and the RCIC system which are utilized to cool and depressurize the reactor after a scram and reactor isolation from main feedwater system are achieved. During this phase of the shutdown, the suppression pool will be cooled as required by operating the RHR system in the suppression pool cooling mode. Reactor pressure will be controlled, and core decay and sensible heat rejected to the suppression pool by dumping steam through the relief valves. Reactor water inventory will be maintained by the RCIC system. When the reactor is cooled down and depressurized and the decay heat is within the capabilities of the RHR shutdown cooling mode, the RHR system will be operated in this mode to bring the reactor to a cold shutdown. The plant procedures specify which valves are operated from the remote shutdown panels and which valves are operated locally using the valve handwheel. Power circuits, either 600V AC or 250V DC for motor operated valves and small pumps or 4160V AC for large pumps, are common to the remote and normal shutdown systems. These circuits are routed from the electrical buses directly to the shutdown components outside the cable spreading room or main control room. Control power circuits, both 120V AC and 125V DC, are routed from the distribution power panels directly to the remote shutdown panels.

Process monitoring is provided for the following parameters on the remote shutdown panels:

- RCIC flow
- RHR flow
- RHR service water flow
- Reactor water level
- Reactor pressure
- Suppression pool water temperature
- Suppression pool vapor temperature
- Suppression pool water level
- Drywell temperatures (3)

The condensate storage tank level is monitored locally.

### 3.0 EVALUATION

#### 3.1 Performance Goals

The performance goals for post fire safe shutdown can be met using the proposed alternate shutdown systems described in Section 2.4.

The process monitoring instruments to be used for a post fire shutdown are listed in Section 2.4.

### 3.2 72 Hour Requirement

The licensee has stated that the capability to achieve cold shutdown within 72 hours after a fire event is available, and that no repairs are planned in order to achieve cold shutdown conditions.

### 3.3 Repairs

No repairs are planned for alternate safe shutdown of the plant.

### 3.4 Associated Circuits and Isolation

The licensee has installed transfer switches to transfer control of the systems required for hot and cold shutdown to the remote shutdown panels. The licensee indicated at the October 28 meeting that should a fire occur at a shutdown panel, the alternate shutdown pathway will be available.

In response to a question asked at the October 28 meeting, the licensee reviewed circuits to identify any remote reading ammeter circuits which may be damaged in a fire. The concern is whether the primary of the current transformer is protected against voltage surges which are caused by open circuits due to fires in the secondary of the current transformer.

As a result of the review conducted by the licensee, some circuits have been identified which will be protected by the installation of a shorting bar (e.g. automatic clamp) or zener diode. These solutions are acceptable.

The licensee's analysis to satisfy the associated circuit concern is as follows:

#### 3.4.1 Common Bus

The analysis conducted by the licensee deals primarily with those circuits which enter the cable spreading room or control room and have a common power source which are not electrically protected by coordinated circuit breakers or fuses and whose misoperation could adversely affect post fire safe shutdown. The licensee indicated at the October 28 meeting that all circuits are protected by circuit breakers or fuses. All power circuits are protected with coordinated circuit breakers. Should these circuit breakers trip, the affected components will be restarted at local switchgear.

#### 3.4.2 Spurious Signal

The licensee, at the October 28 meeting, addressed this concern and indicated that pathway isolation, circuit breaker protection, and disconnect switches are the primary methods being utilized to prevent spurious operation.

### 3.4.3 Common Enclosure

The cables for redundant circuits essential to achieve post fire safe shutdown (protected train) will be protected by rerouting or by wrapping with fire barrier and providing fixed fire suppression system (or exemption requests to the requirement for fixed suppression) to comply with the Appendix R, Section III.G.2. The licensee indicated that all circuits are protected by circuit breakers or fuses.

### 3.5 High / Low Pressure Interface

The licensee has listed some thirteen interfaces for Unit 1 and seventeen for Unit 2 in his response to the telecon of October 4, 1982. The circuits are protected by one of the following methods:

- (1) removing power by opening of a circuit breaker or disconnect switch,
- (2) wrapping with one hour fire barrier and providing a fixed fire suppression system (or request for exemption to the requirement for fixed suppression) or rewiring control circuits to provide acceptable separation between redundant trains,
- (3) Periodically monitoring the pressure differential across check valves to detect any leakage through the valves.



### 3.6 Safe Shutdown Procedures and Manpower

The personnel available, as outlined in the licensee's submittal, will consist of a crew of eight including the shift foreman, four licensed operators and three non-licensed operators plus a fire brigade team. This manpower commitment is considered adequate. The existing remote shutdown procedures HNP-1-1908 and HNP-2-1908 will be used to achieve safe shutdown from outside the control room.

### 4.0 Conclusion

Based on our review, we conclude that the alternate safe shutdown system proposed by the licensee is adequate to achieve and maintain cold shutdown conditions free of fire damage. The licensee's conceptual design of the alternative shutdown capability for the control room and cable spreading room complies with the requirements of Section III.G.3 and III.L of Appendix R. Dated: February 11, 1983.

The following NRC personnel contributed to this Safety Evaluation:  
Braja K. Singh.

UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
WASHINGTON, D. C. 20555

April 18, 1984

Docket Nos. 50-321  
and 50-366

Mr. J. T. Beckham, Jr.  
Vice President - Nuclear Generation  
Georgia Power Company  
P. O. Box 4545  
Atlanta, Georgia 30302

Dear Mr. Beckham:

By letter dated July 1, 1982, you requested 12 exemptions from the requirements of Appendix R to 10 CFR 50. In subsequent letters dated April 28, May 27, November 16 and 30 and December 20, 1983 you provided additional information revising some of the previous information and requests, adding additional requests for exemptions and requesting approval for deviations from provisions of several National Fire Protection Association (NFPA) Codes.

We have completed our evaluation and have granted exemptions for all 26 of the areas requested as specified in the enclosed Exemption (Enclosure 1). We have also granted the requested deviations from the provisions of the NFPA Code requirements as discussed in the enclosed Safety Evaluation (Enclosure 2).

Sincerely,

Darrell G. Eisenhut, Director  
Division of Licensing

Enclosures:  
As stated

cc w/enclosures:  
See next page

Hatch 1/2  
Georgia Power Company

50-321/366

cc w/enclosure(s):

G. F. Trowbridge, Esq.  
Shaw, Pittman, Potts and Trowbridge  
1800 M Street, N.W.  
Washington, D. C. 20036

Mr. James P. O'Reilly, Regional  
Administrator  
U. S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, Suite 3100  
Atlanta, Georgia 30303

Ruble A. Thomas  
Vice President  
P. O. Box 2625  
Southern Company Services, Inc.  
Birmingham, Alabama 35202

Ozen Batum  
Southern Company Services, Inc.  
P. O. Box 2625  
Birmingham, Alabama 35202

Charles H. Badger  
Office of Planning and Budget  
Room 610  
270 Washington Street, S.W.  
Atlanta, Georgia 30334

Chairman  
Appling County Commissioners  
County Courthouse  
Baxley, Georgia 31513

Mr. L. T. Gucwa  
Georgia Power Company  
Engineering Department  
P. O. Box 4545  
Atlanta, Georgia 30302

J. Leonard Ledbetter, Commissioner  
Department of Natural Resources  
270 Washington Street, N. W.  
Atlanta, Georgia 30334

Mr. H. C. Nix, Jr. General Manager  
Edwin I. Hatch Nuclear Plant  
Georgia Power Company  
P. O. Box 442  
Baxley, Georgia 31513

Regional Radiation Representative  
EPA Region IV  
345 Courtland Street, N.E.  
Atlanta, Georgia 30308

Resident Inspector  
U.S. Nuclear Regulatory Commission  
Route 1, P. O. Box 279  
Baxley, Georgia 31513

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of  
GEORGIA POWER COMPANY, ET AL

Dockets Nos. 50-321  
and 50-366

(Edwin I. Hatch Nuclear Plant,  
Units Nos. 1 and 2)

EXEMPTION

I.

The Georgia Power Company (GPC or the licensee) and three other co-owners are the holders of Facility Operating Licenses Nos. DPR-57 and NPF-5 which authorize operation of the Edwin I. Hatch Nuclear Plant, Units 1 and 2 (Hatch or the facilities) at steady state reactor power levels not in excess of 2436 megawatts thermal for each unit. The facilities are boiling water reactors located at the licensee's site in Appling County, Georgia. The licenses are subject to all the rules and regulations of the Nuclear Regulatory Commission (the Commission).

II.

On November 19, 1980, the Commission published a revised Section 10 CFR 50.48 and a new Appendix R to 10 CFR 50 regarding fire protection features of nuclear power plants (45 FR 76602). The revised Section 50.48 and Appendix R became effective on February 17, 1981. Section III of Appendix R contains fifteen subsections, lettered A through O, each of which specifies requirements for a particular aspect of the fire protection features at a nuclear power plant. One of these fifteen subsections, III.G, is the subject of this Exemption. Specifically, Subsection III.G.2 requires that one train of cables and equipment necessary to achieve and maintain safe shutdown be maintained free of fire damage by one of the following means:

- a. Separation of cables and equipment and associated non-safety circuits of redundant trains by a fire barrier having a 3-hour rating. Structural steel forming a part of or supporting such fire barriers shall be protected to provide fire resistance equivalent to that required of the barrier;
- b. Separation of cable and equipment and associated non-safety circuits or redundant trains by a horizontal distance of more than 20 feet with no intervening combustibles or fire hazards. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area; or
- c. Enclosure of cable and equipment and associated non-safety circuits of one redundant train in a fire barrier having a 1-hour rating. In addition, fire detectors and an automatic suppression system shall be installed in the fire area.

### III.

By letters dated July 1, 1982, as supplemented by letters dated April 28, May 27, November 16 and 30 and December 20, 1983, the licensee requested an exemption from the requirements of Subsection III.G.2 of Appendix R in 26 areas of the Hatch Nuclear Plant, Units 1 & 2. The acceptability of the exemption request for each of these 26 areas is addressed below. More details are contained in the Commission's related Safety Evaluation dated April 18, 1984.

### IV.

AREAS: 4160V Transformer Room - Unit 1  
West 600V Switchgear Room - Unit 1

The licensee requested exemptions from Section, III.G.2 in these two areas to the extent that it requires the installation of automatic fire suppression systems and requires that redundant shutdown divisions be separated by complete 3-hour fire rated barriers.

Both rooms are bounded by walls, floor and ceiling of reinforced concrete and masonry block. The walls have a minimum fire resistance rating of 2 hours. All openings in the walls are protected by 3-hour fire rated doors, dampers or penetration seals. Combustible materials located in the 4160V Transformer Room include cable insulation in conduit and fire retardant-type transformer oil, which represent a negligible fire load. Combustible material located in the West 600V Switchgear Room includes cable insulation, which represents a fire load of 25,000 BTU/sq. ft., and if totally consumed, would equal a fire severity of approximately 20 minutes on the ASTM E-119 time-temperature curve. Existing fire protection in both rooms consists of smoke detection systems, portable fire extinguishers, and manual hose stations. The licensee has committed to completely protect the redundant shutdown division in each room by a 1-hour fire rated barrier.

The smoke detection systems provide reasonable assurance of early fire awareness and response by operating personnel and the plant fire brigade. The combustible material in these rooms is limited and widely dispersed. Consequently, we do not expect a fire to propagate rapidly and with a high heat release rate. The 2-hour rated perimeter walls and reinforced concrete ceiling will confine the fire to the room of origin until the arrival of the fire brigade. The fire brigade has sufficient manual fire fighting equipment available to extinguish the fire. Therefore, an automatic fire suppression system is not necessary to limit damage. The 1-hour fire barrier will protect one shutdown related pathway within these rooms until the fire brigade arrives.

Based on our evaluation, we conclude that the existing protection, with the modifications the licensee has committed to make, will provide a level of fire protection equivalent to that provided by Section III.G.2. Therefore, the licensee's request for exemption for these two areas is granted.

AREAS: Control Building Working Floor, El. 112 Feet - Unit 1  
West DC Switchgear Room - Unit 1  
East DC Switchgear Room - Unit 1  
East 600V Switchgear Room - Unit 1  
4160V Transformer Room - Unit 2  
West DC Switchgear Room - Unit 2  
East DC Switchgear Room - Unit 2  
West 600V Switchgear Room - Unit 2  
East 600V Switchgear Room - Unit 2

The licensee requested exemptions from Section III.G.2 in these nine areas to the extent that it requires that redundant shutdown divisions be separated by complete 3-hour fire rated barriers.

These rooms are all bounded by walls, floors and ceilings of reinforced concrete and masonry block. Some of the walls are not 3-hour fire rated; however, all walls have a minimum fire resistance rating of 2 hours. Openings in the walls are protected by 3-hour rated doors, dampers or penetration seals.

Cables and components of only one safe shutdown pathway are vulnerable to fire damage in these rooms. Systems associated with the other required pathway are either located outside the room, in a separate fire area, or will be completely protected in a 3-hour fire rated enclosure (Control Building Working Floor - El. 112 feet). The fire loads in these areas range from 21,000 to 48,000 BTU/sq. ft. Existing fire protection in each of these rooms consists of fire detection systems, portable fire extinguishers, and manual hose stations. The Control Building Working Floor area also has partial coverage by an automatic fire suppression system.

The fire loading in these locations is low. Combustible materials are generally dispersed throughout the area. Therefore, a fire, if one should occur, will not be of significant magnitude or duration. Because each room is equipped with fire detectors, we expect the fire to be discovered in its initial stages before serious damage occurs. The fire brigade will then be summoned and will extinguish the fire with portable fire extinguishing equipment. Because the minimum fire rating of the perimeter walls and floor/ceiling is at least 2 hours, we have reasonable assurance that the damaging effects of a fire will be confined within the room of origin until suppression is achieved. The systems associated with the required redundant shutdown pathway are located outside the fire area and will not be affected by the fire.



Based on our evaluation, we conclude that the existing protection will provide a level of fire protection equivalent to that provided by Section III.G.2, and therefore, the licensee's request for exemption for these areas is granted.

AREAS: Reactor Building North of Column Line R7 - Unit 1  
Reactor Building South of Column Line R7 - Unit 1  
Reactor Building North of Column Line R19 - Unit 2  
Reactor Building South of Column Line R19 - Unit 2

The licensee requested exemptions from Section III.G.2 in these areas to the extent that redundant shutdown systems are required to be protected by either 1) a 3-hour fire rated barrier, or 2) a 1-hour fire rated barrier and area-wide automatic fire detection and suppression systems.

Both the Unit 1 and Unit 2 reactor buildings are divided into two fire areas. The dividing line for Unit 1 is approximately along column line R7 and for Unit 2 is approximately along column line R19. The two areas for each Unit are separated from each other by a combination of existing concrete walls, the drywell, and an automatic sprinkler system and draft curtain which the licensee has committed to install along the common boundary between these two areas where no physical barrier exists.

Combustible material within both areas of each unit consists of cable insulation, lube oil, health physics supplies and charcoal filters. Existing fire protection in both areas of each unit includes an automatic sprinkler system and fire detectors for the Heating, Ventilation and Air Conditioning (HVAC) room on elevation 164 feet, a smoke detection system at the ceiling of working floor elevation 130 feet, portable fire extinguishers and manual hose stations. For Unit 1 only, it also includes a sprinkler system below 130 feet elevation in the High Pressure Coolant Injection (HPCI) room for the north half and in the southwest corner room for the south half. For Unit 2 only, it also includes automatic sprinkler systems located in the northeast corner room below elevation 130 feet for the north half and a sprinkler system in the HPCI room below elevation 130 feet for the south half.

The north half of the Unit 1 reactor building primarily contains components and cables for safe shutdown pathway 2, and the south half primarily contains components and cables for safe shutdown pathway 1. The licensee has committed that those pathway 1 systems that are located in the north half and those pathway 2 systems that are located in the south half of the reactor building will be protected by a 1-hour fire rated barrier or will be relocated outside these respective fire areas.

The north half of the Unit 2 reactor building primarily contains components and cables of safe shutdown pathway 1, and the south half primarily contains components and cables for safe shutdown of pathway 2. The licensee has committed that these pathway 2 systems that are located in the north half and those pathway 1 systems that are located in the south half of the reactor building will either be protected by a complete 1-hour fire rated barrier or will be relocated outside these respective fire areas.

These 1-hour fire rated barriers will extend throughout the respective area and extend to a point 20 feet inside the opposite half of the reactor building. Those required pathway 1 circuits that are not protected by a fire barrier will be relocated outside of this fire area. Also, within the area that will be protected by the automatic sprinkler system, all required safe shutdown related circuits will be enclosed in a 1-hour barrier.

For both Unit 1 and Unit 2, the area that will be covered by the automatic sprinkler system will extend from the east-west centerline of the reactor building into each fire area to a distance of 20 feet beyond the last redundant opposite train component. Where only one train of equipment exists, the area of sprinkler coverage will be 20 feet wide. On elevation 185 feet, the area south of columns F7 on Unit 1 and R19 on Unit 2 will be sprinklered except for the decontamination room. Draft curtains at the ceiling at R7 on Unit 1 and R19 on Unit 2 will be installed to facilitate sprinkler operation and restrict smoke spread from one area to another.

The licensee has also committed to install a fire detection system in the sprinklered areas on elevation 158 feet and in the torus rooms of both Hatch Units 1 and Unit 2. Additional modifications committed to by the licensee for Hatch Unit 2 only include installation of an automatic halon fire suppression system above remote shutdown panels 2C82-P001B and 1A, upgrade and extension of the existing missile shield around and behind these panels, and installation of a noncombustible partition between these panels from the back of the panel to the missile shield. The licensee also committed to install a fire detection system at these shutdown panels.

The existing fire detection systems and the committed additional fire detectors provide reasonable assurance that a fire will be detected in its initial stages before significant damage occurs. The fire will then be suppressed manually by the plant fire brigade before it represents a serious threat to shutdown systems. The fire suppression system, fire barriers, the large open areas of the reactor building, and the existing spatial separation between redundant divisions provide assurance that one division will remain free of fire damage until the fire brigade arrives.

Based on our evaluation, we conclude that the existing fire protection, with the proposed modifications, will achieve a level of safety equivalent to that provided by Section III.G.2. Therefore, the licensee's request for exemption in the reactor building (Units 1 and 2) is granted.

AREA: Control Building Health Physics Area - Unit 2

The licensee requested an exemption from Section III.G.2 in this area to the extent that it requires a complete area-wide automatic fire suppression system.

The area is bounded by walls, floor and ceiling of reinforced concrete and masonry construction. All penetrations of these fire barriers are protected by 3-hour fire rated doors, dampers or penetration seals. Redundant systems are separated by approximately 40 feet in this area. The fire load consists of 5160 BTU/sq. ft. which corresponds to an ASTM E-119 fire severity of less than 5 minutes. Existing fire protection includes a smoke detection system, which provides area-wide coverage, manual hose stations and carbon dioxide hose reels.

The licensee has committed to provide automatic sprinkler protection over the shutdown related systems in the area.

Because the fire load is small, any postulated fire will tend to cause damage over a limited area. Because redundant shutdown divisions are separated by about 40 feet, we expect that damage will be sustained by only one pathway. The area is equipped with a complete smoke detection system. Therefore, a fire will be discovered early and would be put out by the fire brigade before serious damage resulted. If a fire should propagate rapidly and produce elevated temperatures, which would represent a threat to shutdown related systems in the area, the sprinkler system will activate to protect the vulnerable systems until the arrival of the fire brigade.

Based on our evaluation, we conclude that the existing protection with the proposed modification will provide a level of fire protection equivalent to that provided by Section III.G.2. Therefore, the licensee's request for exemption in the Control Building Health Physics Area - Unit 2 is granted.

AREA: Control Building Switchgear Hallway - Unit 2

The licensee requested an exemption from Section III.G.2 in this area to the extent that it requires that redundant shutdown divisions be separated by complete 3-hour rated fire barriers.

The area is bounded by walls, floor and ceiling of reinforced concrete and masonry block. With the exception of an opening into the control building south corridor, all penetrations of the fire area boundaries are protected against the propagation of fire.

Combustible material located in this area consists principally of cable insulation in four cable trays, which represent a fire load of approximately 45,000 BTU/sq. ft. This corresponds to an ASTM E-119 fire severity of approximately 1/2 hour. Existing fire protection includes an area-wide smoke detector system, manual hose station, and carbon dioxide hose reels.

Both the control building switchgear hallway and the control building south corridor are equipped with smoke detectors. We, therefore, expect that a fire would be discovered in its initial stages before significant heat build-up occurred. The existing spatial separation between shutdown systems provides assurance that only one shutdown pathway would be damaged before the fire brigade responds and suppresses the fire. If the fire were to propagate through the unprotected perimeter wall opening before the arrival of the fire brigade, the automatic sprinkler system in the south corridor will activate and discharge water in a pattern which would limit the propagation of hot gasses. Therefore, the absence of a complete fire barrier will not prevent the achievement and maintenance of safe shutdown conditions.

Based on our evaluation, we conclude that the existing protection, with the committed modifications, provides a level of fire protection equivalent to that provided by Section III.G.2. Therefore, the licensee's request for exemption in the Control Building Switchgear Hallway-Unit 2 is granted.

AREA: Control Building Station Battery Rooms - Units 1 & 2

The licensee requested an exemption from Section III.G.2 to the extent that it requires the installation of a 3-hour rated fire barrier between redundant trains of safe shutdown related cable and equipment.

Each battery room is enclosed by walls, floor and ceiling of reinforced concrete or masonry block construction having a fire resistance rating of 3 hours. HVAC duct penetrations of the walls are protected by fire dampers. Access to these rooms is via a single watertight door that is not fire rated. Safe shutdown equipment located in each room consists of one safety division of station batteries and redundant circuits for the drywell air system. The licensee has committed to reroute these circuits as needed to conform to the separation criteria of Section III.G. The licensee states that replacing this door with one that is fire rated will degrade plant safety because the station batteries must be protected from a circulatory water flood, and a non-watertight fire rated door would not provide sufficient protection.

Combustible material located in these rooms include cable insulation, battery casing, and hydrogen gas which represent a fire load of approximately 30,000 BTU/sq. ft. Existing fire protection consists of a smoke detection system, manual hose stations, and portable fire extinguishers.

The fuel load in these areas is low. If totally consumed, the combustibles would produce a fire which corresponds to a fire severity on the ASTM E-119 time-temperature curve of less than 25 minutes. It is our judgment that a fire in these areas, if one should occur, would not be of significant magnitude or duration. It would be discovered early by the smoke detection system and extinguished by the fire brigade using manual fire fighting equipment. Because the door is watertight, it would prevent smoke from passing through it. Since it is constructed of 5/8-inch thick steel, the door would act as an effective radiant heat shield. The door in conjunction with the ventilation system would prevent convective heat from

increasing to a significant level so as to damage safety systems. Therefore, a 3-hour fire rated door is not necessary to provide reasonable assurance that one safety division would remain free of fire damage.

Based on our evaluation, we conclude that the existing fire protection will provide a level of safety equivalent to that provided by Section III.G.2. Therefore, the licensee's request for exemption for the Control Building Station Battery Rooms - Units 1 & 2 is granted.

AREA: Turbine Building Condenser Bay - Unit 2

The licensee requested an exemption from Section III.G.2 to the extent that it requires the installation of a 3-hour rated fire barrier between redundant trains of safe shutdown related cable and equipment.

The area is bounded by walls, floor and ceiling constructed of reinforced concrete. However, unsealed electrical penetrations in the west perimeter wall and unsealed mechanical penetrations in the ceiling communicate with adjoining plant locations, which the licensee has designated as separate fire areas. There are no pathway 2 systems located within this fire area. The combustible material in this location consists of turbine lube oil and cable insulation which represent a fire load of about 360,000 BTU/sq. ft. or a fire severity of approximately 6 hours on the ASTM E-119 time-temperature curve. Existing fire protection includes an automatic sprinkler system which protects the drain cooler area, a fire detection system, manual hose stations and portable fire extinguishers.

The principal fire hazard in the condenser bay, which is associated with a turbine oil spill, is mitigated by the presence of the automatic fire suppression system. If a turbine oil or other fire should occur within this area, we expect the existing fire detection system to activate and summon the fire brigade. During the time delay until the arrival



of the fire brigade, the reinforced concrete perimeter walls and ceiling would, to a significant extent, confine the damaging effects of a fire to this area. A small quantity of smoke and hot gases would be expected to propagate beyond the perimeter or these fire areas because of the unprotected penetrations. However, these penetrations are located away from the redundant shutdown systems. Therefore, hot gases passing through the penetrations would not affect components or cabling of the redundant division. The remaining products of combustion would be so diluted by ambient air conditions and the temperature of the air mass would be so diminished that they would not present a threat to the redundant division. Consequently, we have reasonable assurance that if a fire were to occur within this area, safe shutdown conditions could be achieved and maintained.

Based on our evaluation, we conclude that the existing fire protection will achieve a level of safety equivalent to that provided by Section III.G.2. Therefore, the licensee's request for exemption for the Unit 2 Turbine Building Condenser Bay is granted.

AREAS: Turbine Building East Cableway - Unit 2  
East Cableway - Common  
Turbine Building West Cableway, El. 112 feet

The licensee requested an exemption from Section III.G.2 to the extent that it requires the installation of a 3-hour rated fire barrier between redundant trains of safe shutdown related cable and equipment.

The East Cableway - Unit 2 area is bounded on two sides by 3-hour rated fire walls. The other two sides are open to an adjoining plant location. The floors and ceiling are of reinforced concrete construction. The licensee has committed to protect the required pathway 1 systems that are located within this cableway by a 1-hour fire rated barrier. Combustible material within this area consists primarily of cable insulation and oil, which represent a fuel load of approximately 340,000 BTU/sq. ft. or a fire severity of about 4-1/2 hours. Existing fire protection, includes an area-wide automatic sprinkler system, an open-head deluge-type fire suppression system for the oil conditioner unit, an area-wide smoke detection system, portable fire extinguishers and manual hose stations.

The East Cableway - Common area is bounded on three sides by reinforced concrete and masonry block walls having a 3-hour fire rating. The fourth side is open to an adjoining plant location. The floor and ceiling are of reinforced concrete construction. The licensee has committed to protect the required systems associated with the redundant pathway with a 1-hour fire barrier. In lieu of protecting the cables for the compressed nitrogen system valve (2T48-F026), the licensee has committed to lock the valve open to assure proper alignment for safe shutdown. Combustible material within this area consists primarily of cable insulation which represents a fire load of approximately 220,000 BTU/sq. ft. or a fire severity of about 3 hours based on the ASTM E-119 time-temperature curve. Existing fire protection includes an automatic sprinkler system located throughout the area, an area-wide smoke

detection system, a noncombustible radiant energy shield between redundant shutdown divisions, manual hose stations and portable fire extinguishers.

The West Cableway, El. 112 ft. area is bounded by walls, floor and ceiling reinforced concrete construction. There are no systems from the redundant shutdown capability located within the west cableway or adjoining areas. Combustible material located in this area consists primarily of cable insulation. Existing fire protection includes an area-wide automatic sprinkler system and heat detection system, manual hose stations and portable fire extinguishers.

If a fire were to occur within any of the above three areas, the existing fire detection system would activate during the early stages of a fire and summon the fire brigade. If the room temperature rose significantly, the automatic sprinkler system would activate and suppress the fire while protecting the exposed shutdown systems. Until the fire burned itself out, or was extinguished manually by the fire brigade or automatically by the fire suppression system, the committed 1-hour fire barriers would provide reasonable assurance that one shutdown division would remain free of damage. A small quantity of smoke and hot gases would be expected to propagate beyond the perimeter of these fire areas because of the unprotected penetrations. However, these penetrations are located away from the redundant shutdown systems. Therefore, hot gases passing through the penetrations would not affect components or cabling of the redundant division. The remaining products of combustion would be so diluted by ambient air conditions and the temperature of the air mass would be so diminished that they would not present a threat to the redundant division.

If a fire were to occur outside of these areas, smoke and heat which would result from a fire would be dissipated throughout the area of fire origin. The existing smoke and heat detection systems would activate or plant operators would discover the fire and summon the plant fire brigade. The fire brigade would then extinguish the fire before shutdown systems within the areas became vulnerable. If a sufficient temperature rise were to occur within these areas, the automatic sprinkler system would activate to protect the exposed systems. Therefore, complete 3-hour fire rated walls around the cableways would not significantly enhance the level of fire protection. We, therefore, have reasonable assurance that safe shutdown conditions could be achieved and maintained.

Based on our evaluation, we conclude that the existing fire protection, with the proposed modifications, will achieve a level of safety equivalent to that provided by Section III.G.2. Therefore, the licensee's request for exemption for these three areas is granted.

AREA: Diesel Building Switchgear Room 2G - Unit 2

The licensee requested an exemption from Section III.G.2 to the extent that it requires the installation of an area-wide automatic fire suppression system.

The room is enclosed by walls, floor and ceiling of reinforced concrete. Combustible material located in this room includes cable insulation which represents a fire load of 53,460 BTU/sq. ft. or a fire severity of approximately 45 minutes. Existing fire protection consists of heat and smoke detection systems, portable fire extinguishers, a carbon dioxide hose reel, and hose lines from outside hydrants. The licensee has committed to protect the required pathway 1 system in a 1-hour fire rated barrier.

Active protection in this area consists of the heat and smoke detection systems. We expect that they would activate in the early stages of a fire and summon the plant fire brigade which would extinguish the fire before serious damage occurs. Passive protection is achieved by the 1-hour fire rated barrier for the shutdown pathway 1 system and the fire rated perimeter construction.

The combustible material in this room is limited and widely dispersed. Consequently, we do not expect a fire would propagate widely or with a high heat release rate. The reinforced concrete walls, floor and ceiling will confine the fire to this room until the arrival of the fire brigade. The brigade has sufficient manual fire fighting equipment available to extinguish the fire. Therefore, an automatic fire suppression system is not necessary to limit damage. The 1-hour fire barrier, which completely protects the systems for one shutdown pathway until the fire brigade arrives, will provide reasonable assurance that safe shutdown can be achieved and maintained.

Based on our evaluation, we conclude that the existing fire protection, with the committed modifications, will provide a level of safety equivalent to that provided by Section III.G.2. Therefore, the licensee's request for exemption for the Diesel Building Switchgear Room 2G - Unit 2 is granted.

AREA: Control Building Corridor - Common

The licensee requested exemptions from Section III.G.2 in this area to the extent that it requires: 1) a complete 3-hour fire rated barrier between redundant shutdown divisions; or 2) a 1-hour barrier between redundant divisions and area-wide automatic fire suppression and detection systems.

The area is bounded by 2- and 3-hour fire rated walls with openings protected by fire doors, fire dampers and penetration seal. However, the east portion of the south wall is open to the switchgear hallway, and the west wall is open to the fan room in the service building. The floor and ceiling are of reinforced concrete construction.

It was assumed that all systems for safe shutdown pathway 1 were lost in a fire in this area. The licensee has committed that these required pathway 2 systems that cannot be repaired within 72 hours, as stipulated in Section III.G.1, will be completely protected by a 1-hour fire rated barrier. The barrier for essential panel (R25-S002) will extend from the floor to the top of the panel. The barrier will be open at the top to allow adequate ventilation of the panel.

The combustible material in this area consists primarily of cable insulation which represents a fuel load of approximately 334,000 BTU/sq. ft. In addition, a 1-inch hydrogen gas line which has a 2-inch protective pipe casing, passes along the west wall of the corridor. A compressed gas cylinder containing a mixture of 10% methane and 90% argon is located in the area within a concrete block enclosure. Existing fire protection includes an automatic sprinkler system installed at the level of the ceiling. Additional sprinklers are installed beneath the lowest cable trays in the north corridor to protect against exposure fires. The sprinkler system does not extend to the rest rooms, the decontamination rooms in the health physics area, and the HVAC room, all of which are part of the same fire area, but contain no safe shutdown equipment. Additional protection includes a complete area-wide smoke detection system, portable fire extinguishers and manual hose stations.

If a fire were to occur within the corridor, the existing smoke detection system would activate during the early stages of a fire and summon the fire brigade. If room temperatures rose significantly, the sprinkler system would activate and suppress the fire while protecting the exposed shutdown systems and limiting further fire spread. Until the fire was completely extinguished, adequate passive protection is available to ensure that one shutdown pathway will be free of fire damage. This passive protection includes varying degrees of spatial separation between redundant divisions and 1-hour fire rated barriers. Although the barrier at panel R25-S002 does not extend from floor to ceiling, it is high enough to protect the panel from radiant heat and direct flame impingement; coupled with the existence of the automatic sprinkler system, the barrier provides reasonable assurance that the panel will remain free of damage.

If a fire were to occur outside of the control building, the 2- and 3-hour fire rated walls and reinforced concrete floors and ceiling would tend to limit fire propagation into this area. Because of the unprotected openings, a quantity of smoke and heat is expected to enter this fire area. However, the sprinkler system and 1-hour fire barriers are expected to limit damage to the systems associated with shutdown pathway 1. The redundant pathway would then be available to achieve and maintain safe shutdown conditions.

With regard to the unsprinklered rooms within this area, no shutdown related systems are located within them. Consequently, localized fire damage would not affect safe shutdown. The sprinkler system in the corridor and the fire brigades provide reasonable assurance that if the fire were to spread beyond these rooms, one shutdown division would remain free of damage.

Based on our evaluation, we conclude that the licensee's alternate fire protection configuration, with committed modifications, will provide a level of safety equivalent to that provided by Section III.G.2. Therefore, the licensee's request for exemption in the Control Building Corridor - Common is granted.

AREA: River Intake Structure

The licensee requested an exemption from the requirements of Section III.G.2 to the extent that it requires the installation of a complete, area-wide automatic fire suppression system.

The building is enclosed within walls, floor and ceiling of reinforced concrete. Safe shutdown equipment located within this fire area includes both safety divisions of Residual Heat Removal (RHR) service water pumps and associated cabling and motor control centers (MCC) for both units. In addition, this area contains both safety divisions of plant service water pumps and associated cabling and MCCs for both units. Redundant safety circuits are located in conduit and cable trays and are either separated by more than 20 feet without intervening combustibles, or one train will be protected by a 1-hour fire-rated barrier as described in the May 27, 1983, revision to the licensee's Appendix R report. One-half inch steel plate barriers have been installed to separate RHR service water pumps and MCCs for each unit, and to separate the service water pumps from the remainder of the equipment in the building.

Combustible materials located in the area include cable insulation and lube oil representing a fire load of 55,000 BTU/sq. ft. Existing fire protection consists of a smoke detection system, a wet-pipe automatic sprinkler system protecting the RHR and plant service water pump motors, manual hose stations, and portable fire extinguishers.



The technical requirements of Section III G 2 are not met in this area because of the absence of an area-wide automatic fire suppression system. In addition, the fire barriers between the pumps and MCCs are not 1-hour fire rated. In this area, the smoke detection system will provide reasonable assurance of early fire awareness and response by operating personnel and the plant fire brigade. The fire loading in this location, which includes anticipated transient combustibles, is low. If the combustibles were totally consumed, they would produce a fire which corresponds to a fire severity on the ASTM time-temperature curve of less than 50 minutes; but this fire would be unlikely to occur because of the existing level of fire protection. It is our judgment that a fire in this area would not be significant and would not breach the protection provided by physical fire barriers until the fire self-extinguished or was suppressed by the plant fire brigade. We, therefore, have reasonable assurance that one safe shutdown pathway will be free of fire damage.

Based on our evaluation, we conclude that the existing fire protection, with the committed modification, will provide a level of safety equivalent to that provided by Section III.G 2. Therefore, the licensee's request for exemption for the River Intake Structure is granted.

AREA: East Corridor, Control and Turbine Building and Condensate Pump Area, El. 112 Feet

The licensee requested an exemption from the technical requirements of Section III G 2 to the extent that it requires that redundant shutdown divisions be separated by complete 3-hour fire rated barriers.

The area is bounded by 3-hour fire rated walls, floor and ceiling. However, the common walls between this location and the condenser and west cableway areas are of non-fire rated reinforced concrete. In addition, an open stairway connects area with the east cableway. There are no pathway 2 systems within this area. The fire load has been estimated to be approximately 34,000 BTU/sq. ft. or a fire severity of about 25 minutes. Existing fire protection includes an area-wide fire detection system, manual hose stations, and portable fire extinguishers.

Combustible materials within this area are limited. We, therefore, do not expect a fire to propagate rapidly or produce significantly elevated temperatures. Because of the fire detection system, we expect a fire to be detected early and suppressed by the plant fire brigade before significant damage resulted. Because of the open stairway into the east cableway, smoke and heat from a fire is expected to propagate into this area; but, if this occurs, the automatic sprinkler system in the east cableway will activate to protect exposed shutdown related cables and limit further fire spread. Systems from only one shutdown pathway are located within the area, and a redundant shutdown capability is outside of this location. It is therefore our judgment that, because of the masonry and reinforced concrete perimeter construction, coupled with the sprinkler system in the east cableway, fire damage would be limited and systems from just one shutdown pathway would be lost. The redundant pathway would remain free of damage so as to achieve and maintain safe shutdown conditions.

Based on our evaluation, we conclude that the licensee's alternate fire protection configuration will provide a level of safety equivalent to that provided by Section III.G.2. Therefore, the licensee's request for exemption for the East Corridor, Control and Turbine Building and Condensate Pump Area, El. 112 feet is granted.

V.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, the exemptions requested by the licensee's letters as referenced and discussed in III. and IV. above are authorized by law, will not endanger life or property or the common defense and security, are otherwise in the public interest, and are hereby granted.

The Commission has determined that the granting of these exemptions will not result in any significant environmental impact and that pursuant to 10 CFR 51.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with this action.

A copy of the Safety Evaluation dated April 18, 1984 related to this action is available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C. 20555 and at the Appling County Public Library, 301 City Hall Drive, Baxley, Georgia.

This Exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Darrell G. Eisenhut, Director  
Division of Licensing  
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland  
this 18th day of April, 1984

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

January 2, 1987

Dockets Nos.: 50-321/366

Mr. James P. O'Reilly  
Senior Vice President - Nuclear Operations  
Georgia Power Company  
P.O. Box 4545  
Atlanta, Georgia 30302

Dear Mr. O'Reilly

The Commission has issued the enclosed Exemption from the requirements of Appendix R to 10 CFR Part 50 for Hatch Units 1 and 2 in response to your letter of May 16, 1986. A copy of the Safety Evaluation supporting the Exemption is also enclosed.

The Commission has previously, by letter dated April 18, 1984, granted requests for technical exemptions to the requirements of Section III.G.2 of Appendix R to 10 CFR Part 50 in 26 specific plant areas of Hatch Units 1 and 2. Your May 16, 1986 letter requested new and additional exemptions. It requested technical exemptions to the requirements of Sections III.G.1, III.G.2, and III.J of Appendix R in 27 specific plant areas of Hatch Units 1 and 2. It also requested scheduler exemptions to the requirements of 10 CFR 50.48, one concerning circuit breakers and fuses for both Hatch Units 1 and 2 and one concerning a control power transfer switch for Unit 1 only.

Fifteen of the requested plant area exemptions and both of the requested generic exemptions were found by the staff not to be required. The other exemptions requested in two specific plant areas were found by the staff to be unacceptable and were not granted. One of the specific plant area exemption requests was withdrawn by your letter dated November 14, 1986. It was learned by telephone conversation on November 24, 1986, with your representatives that the control power transfer switch has been installed and that the scheduler exemption for this item is no longer required.

The remaining 10 requested plant area exemptions have been granted, one with conditions, as discussed in the enclosed Exemption. The remaining requested scheduler exemption has also been granted, with interim compensatory measures as discussed in the enclosed Exemption.

The exemption is being forwarded to the Office of the Federal Register for publication. A copy of an Environmental Assessment and Finding of No Significant Impact which has been published in the Federal Register is enclosed for your information.

Sincerely,

George Rivenbark, Project Manager  
BWR Project Directorate #2  
Division of BWR Licensing

Enclosures:

1. Exemption
2. Safety Evaluation
3. Environmental Assessment

cc w/enclosures:

See next page

Mr. J. P. O'Reilly  
Georgia Power Company

Edwin I. Hatch Nuclear Plant,  
Unit Nos. 1 and 2

cc:

Bruce W. Churchill, Esquire  
Shaw, Pittman, Potts, & Towbridge  
2300 N Street, N.W.  
Washington, D.C. 20037

Mr. L. T. Gucwa  
Engineering Department  
Georgia Power Company  
Post Office Box 4545  
Atlanta, Georgia 30302

Mr. H. C. Nix, Jr., General Manager  
Edwin I. Hatch Nuclear Plant  
Georgia Power Company  
Post Office Box 442  
Baxley, Georgia 31513

Mr. Louis B. Long  
Southern Company Services, Inc.  
Post Office Box, 2625  
Birmingham, Alabama 35202

Resident Inspector  
U.S. Nuclear Regulatory Commission  
Route 1, Post Office Box 279  
Baxley, Georgia 31513

Regional Administrator, Region II  
U.S. Nuclear Regulatory Commission  
101 Marietta Street, Suite 2900  
Atlanta, Georgia 30303

Mr. Charles H. Badger  
Office of Planning and Budget  
Room 610  
270 Washington Street, S.W.  
Atlanta, Georgia 30334

Mr J. Leonard Ledbetter, Commissioner  
Department of Natural Resources  
270 Washington Street, N.W.  
Atlanta, Georgia 30334

Chairman  
Appling County Commissioners  
County Courthouse  
Baxley, Georgia 31513

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATIVE TO APPENDIX R EXEMPTION REQUESTS

GEORGIA POWER COMPANY

OGLETHORPE POWER CORPORATION

MUNICIPAL ELECTRIC AUTHORITY OF GEORGIA

CITY OF DALTON, GEORGIA

EDWIN I. HATCH NUCLEAR PLANT, UNITS NOS. 1 AND 2

DOCKETS NOS. 50-321 AND 50-366

1.0 INTRODUCTION

By letter to Georgia Power Company (the licensee) dated April 18, 1984 the staff granted requests for exemptions to the requirements of Section III.G.2 of Appendix R to 10 CFR 50 in 26 specific plant areas of Hatch Units 1 and 2. In a subsequent letter dated May 16, 1986, the licensee requested additional exemptions to the Appendix R requirements. These requested exemptions are both technical and scheduler in nature. The technical exemption requests include new exemption requests and clarification of previously granted exemptions. The scheduler exemption is requested under 10 CFR 10.12 and is specifically for the installation of circuit breakers and fuses and a control power transfer switch in the Diesel Building switchgear room. In addition to the technical and scheduler exemption requests, the May 16, 1986 submittal also included revisions to previous statements made by the licensee. Additional information supplementing or revising the May 16, 1986 submittal also included revisions to previous statements made by the licensee. Additional information supplementing or revising the May 16, 1986 submittal was provided in letters dated July 22, September 23, October 31, November 14, November 21, December 9, and December 11, 1986.

The staff has reviewed the licensee's submittals with respect to the following requirements for both fire protection and safe shutdown. Section III.G.2 of Appendix R requires that one train of cables and equipment necessary to achieve and maintain safe shutdown be maintained free of fire damage by one of the following means:



- a. Separation of cables and equipment and associated non-safety circuits of redundant trains by a fire barrier having a 3-hour rating. Structural steel forming a part of or supporting such fire barriers shall be protected to provide fire resistance equivalent to that required of the barrier;
- b. Separation of cables and equipment and associated non-safety circuits of redundant trains by a horizontal distance of more than 20 feet with no intervening combustibles or fire hazards. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area; or
- c. Enclosure of cable and equipment and associated non-safety circuits of one redundant train in a fire barrier having a 1-hour rating. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area.

If these conditions are not met, Section III.G.3 requires alternative shutdown capability independent of the fire area of concern. It also requires a fixed suppression system to be installed in the fire area of concern if it contains a large concentration of cables or other combustibles. These alternative requirements are not deemed to be equivalent; however, they provide equivalent protection for those configurations in which they are accepted.

Because it is not possible to predict the specific conditions under which fires may occur and propagate, the design basis protective features are specified in the rule rather than the design basis fire. Plant specific features may require protection different than the measures specified in Section III.G. In such a case, the licensee must demonstrate, by means of a detailed fire hazards analysis, that existing protection or existing protection in conjunction with proposed modifications will provide a level of safety equivalent to the technical requirements of Section III.G of Appendix R.

In summary, Section III.G is related to fire protection features for ensuring that systems and associated circuits used to achieve and maintain safe shutdown are free of fire damage. Fire protection configurations must either meet the specific requirements of Section III.G or an alternative fire protection configuration must be justified by a fire hazards analysis.

Our general criteria for accepting an alternative fire protection configuration are the following:

- The alternative assures that one train of equipment necessary to achieve hot shutdown from either the control room or emergency control stations is free of fire damage.

- The alternative assures that fire damage to at least one train of equipment necessary to achieve cold shutdown is limited such that it can be repaired within a reasonable time (minor repairs with components stored on-site).
- Modifications required to meet Section III.G would not enhance fire protection safety above that provided by either existing or proposed alternatives.
- Modifications required to meet Section III.G would be detrimental to overall facility safety.

Another subsection which is a subject of this exemption required is III.J. Subsection III.J specifically requires that “emergency lighting units with at least an 8-hour battery power supply shall be provided in all areas needed for operation of safe shutdown equipment and in access and egress routes thereto.”

## 2.0 FIRE AREA BOUNDARIES: UNIT 1, UNIT 2 AND COMMON

### 2.1 Exemption Requested

A generic exemption was requested from the requirements of Section III.G.2.a of Appendix R to the extent that separation of redundant cable and equipment must be accomplished by 3-hour-rated barriers. The generic exemption was limited to fire area boundaries, such as penetrations, floors, walls, and ceilings which are unrated or rated less than 3 hours.

Also under fire area boundaries, specific exemptions were requested for the following areas:

- 1) Units 1 and 2 Oil Conditioner Room
- 2) Control Room Roof
- 3) Units 1 and 2 Refueling Floors
- 4) Units 1 and 2 LPCI Inverter Room
- 5) Yard area, and
- 6) Control Complex

### 2.2 Discussion

The staff concludes that the generic exemption request is a request for relief from the requirements of Section III.G.2.a of Appendix R to 10 CFR 50 equivalent to that already granted by Generic Letter 86-10, Interpretation of Appendix R, Part 4. Generic Letter 86-10, Part 4 states that: “Where fire area boundaries are not wall-to-wall, floor-to-ceiling boundaries with all penetrations sealed to the fire rating required of the boundaries, licensees must perform an evaluation to assess the adequacy of fire

boundaries in their plants to determine if the boundaries will withstand the hazards associated with the area.” The generic letter stipulates that the licensee is to retain the analyses for subsequent NRC audits.

Furthermore, in accordance with the generic letter, the staff does not consider NRC approval of the specific area boundary exemption requests to be required. As a general rule, the staff expects all barriers in a fire area to be rated, or to be equivalent to a barrier rated at twice the fire severity as determined from the fuel loading. The staff also expects account to be taken of the type and location of fuel contained in the fire area, and the existence of detection and automatic suppression.

One area was assessed by the licensee as part of the Fire Hazards Analysis (FHA) in sufficient detail to allow for a staff review. This licensee evaluation relates to heat transfer to the service water valve pit as a result of a fire in the auxiliary boiler fuel tank enclosure. The analysis was to support the absence of barriers in the yard areas.

### 2.3 Evaluations

Because of the guidance in Part 4 of Generic Letter 86-10, no evaluation of the licensee’s request for a generic exemption from Section III.G.2.a of Appendix R to 10 CFR 50 has been undertaken. The staff has evaluated the licensee’s calculations of radiant heat transfer to the plant service water (PSW) valve pit. The staff notes that the radiant heat calculated by the licensee was only 14% less than that required for damage to the valves. In addition, the licensee’s calculation did not contain any significant conservatism that would justify such a small margin. It is the staff’s position that the evaluation in the FHA is, by itself, insufficient justification for no protection to the PSW valve pits. The staff recommends a more complete evaluation including a discussion of the functions of the valves in the pits and how the fire brigade may alleviate the effects of the fire.

### 2.4 Conclusions

For the reasons stated above, the generic exemption request with regard to 3-hour barriers has not been considered. The specific exemption requests are not being reviewed at this time with the exception of the PSW valve pit where supporting calculations were supplied.

## 3.0 DIESEL GENERATOR BUILDING SWITCHGEAR ROOMS NOS. 1E AND 1F

### 3.1 Exemptions Requested

An exemption from the requirements of Sections III.G.2.b & c of Appendix R is requested to the extent that an automatic fire suppression system is required in these areas.

### 3.2 Discussion

Both of these rooms have low combustible loadings; about 55,000 BTU/square foot for room 1E and 48,800 BTU/square foot for room 1F. The combustible loadings consist primarily of cable insulation in each room.

The three interior walls bordering each area are 3-hour rated reinforced concrete. The diesel generator building exterior wall to the west of each room is reinforced concrete, and is not fire rated. Each room has two UL class A doors in the east wall (entering to the diesel generator room and battery room for each generator) and a non-rated double door in the west wall.

Each area is equipped with full area coverage smoke detection which provides an alarm locally and in the control room. The area is also provided with a CO<sub>2</sub> hose reel and a CO<sub>2</sub> portable fire extinguisher. Hydrants are located immediately outside of the Diesel Generator Building.

The licensee has provided a 1-hour protective wrap on all pathway 2 circuits passing through the switchgear rooms. Pathway 2 is the diesel generator circuit that is protected from shutdown under the provisions of Appendix R.

The licensee has justified the exemption request on the basis of existing fire protection, the low fire load and the 1-hour protective wrap described above.

### 3.3 Evaluation

In response to staff inquiries, the licensee provided drawings showing the layout of the pathway 2 circuits relative to other circuits in the switchgear rooms. The drawings provided by the licensee showed combustible material to be concentrated and in close proximity to pathway 2 circuits in area 1408 and even more concentrated in area 1412.

The technical requirements of Sections III.G.2.b & c are not met in the area because of the absence of an area wide automatic suppression system. Without such suppression, the staff cannot conclude that the pathway 2 cables can survive a fire.

### 3.4 Conclusion

Based on our evaluation, we conclude that the existing fire protection, even with the modifications having been completed, will not achieve an acceptable level of safety equivalent to that provided by sections III.G.2.b or c of Appendix R to 10 CFR 50 in switchgear room 1E and 1F. Therefore, the exemption request should be denied and automatic fire suppression or 3-hour protective wrap on the pathway 2 cables should be provided in diesel generator switchgear rooms 1E and 1F.

#### 4.0 CONTROL ROOM AND YARD

##### 4.1 Exemption Requested

An exemption is requested from the requirements of Section III.J of Appendix R for these areas to the extent that 8-hour battery-powered emergency lighting is required.

##### 4.2 Discussion

###### 4.2.1 Control Room

The emergency lights in the control room are designed to be powered from the station batteries. The station batteries have the capability to power the control room emergency lights and other required loads for a minimum of 120 minutes. After the emergency diesel generators start, the station battery chargers can maintain the required 125-V-dc load. The emergency lights are designed so that a fire in any area outside of the control room or cable spreading room would not result in the loss of both divisions of emergency lighting. The divisional separation of the feeder circuits is equivalent with the separation requirements of Section III.G.2 of Appendix R. For these reasons the licensee requests an exemption from the requirements of Section III.J of Appendix R for the control room.

###### 4.2.2 Yard

Appendix R requires emergency lighting in all areas needed for operation of safe shutdown equipment and in access and egress routes thereto. Safe shutdown procedures sometimes require traversing the yard between buildings, and a manual action to close a valve located in the PSW valve pits has been identified for alternate shutdown. Hence the yard is required by Appendix R to have emergency lighting. According to the licensee, these types of actions do not require more than minimal lighting levels which will be available from the security building. However, the licensee has dedicated four engine-driven portable lighting units for use at the service water valve pits. These lighting units will be chained in place so that they will not be inadvertently moved and not returned. These designated units will be maintained in accordance with a written security surveillance procedure. This procedure requires that each unit be functionally tested once per week.

##### 4.3 Evaluation

For the control room, the staff considers lighting powered initially by batteries and then by the emergency diesel generators to be equivalent to 8-hour battery powered lights based on the licensee's description.

With regard to the yard lighting, the staff agrees that movement between buildings requires little lighting and that the security lighting will be sufficient. The staff also agrees that the dedicated engine-driven portable light units at the PSW valve pits will be sufficient for necessary changing of the valve positions.

#### 4.4 Conclusion

Based on the above evaluation, the staff has concluded that an exemption from the requirements of Section III.J of Appendix R for the control room and the yard should be granted.

#### 5.0 UNIT 1 REACTOR BUILDING NORTH OF COLUMN LINE R7

##### UNIT 1 REACTOR BUILDING SOUTH OF COLUMN LINE R7

##### UNIT 2 REACTOR BUILDING NORTH OF COLUMN LINE R19

##### UNIT 2 REACTOR BUILDING SOUTH OF COLUMN LINE R19

#### 5.1 Exemption Requested

An exemption from the 1-hour barrier requirements of Section III.G.2 of Appendix R 10 CFR 50 is requested by the licensee for equipment within the suppression system/water curtain boundary.

#### 5.2 Discussion

##### 5.2.1 Unit 1, Pathway 1, RHR Inboard Valves E11-F015A, E11-F017A

Valves E11-F015A and E11-F017A are motor operated residual heat removal isolation valves. The location of these valves is approximately 13 feet south of the column line R7 on elevation 130 feet of the Unit 1 Reactor Building inside the piping penetration room in Fire Zone 1203F. This room is located totally within the east water curtain zone on elevation 130 feet (wet pipe automatic sprinkler system) and is also covered by a linear thermal heat detection system. Cables for the valves will be protected with a 1-hour fire protective wrapping within the suppression system boundary. The valve operators, however, are not protected since complete enclosure could jeopardize their operability according to the licensee. Also, there are no unprotected pathway 2 components located within 20 feet of the valves. Fire Zone 1203F has a fire loading of about 105,000 BTUs/square foot over an area of 8172 square feet.

##### 5.2.2 Unit 1, Pathway 2, RHR Suppression Pool Suction Valve E11-F0650

Valve E11-F0650 is an air operated suppression pool suction valve located approximately 15 1/2 feet north of column line R7 on elevation 87 feet in the Unit 1 Reactor Building in Fire Zone 1205A. This valve is located within the east torus water curtain zone (wet pipe sprinkler system) which is also covered by a linear thermal heat detection system. Cables for the valve will be protected by 1-hour fire protective wrapping. The valve operator, however, is not covered since complete enclosure could jeopardize its operability according to the licensee. There are four torus water temperature instruments located on this same elevation at 90-degree intervals around the torus, one of which is located approximately 12 1/2 feet from this valve. Fire loading within Fire Zone 1205A is about 13,000 BTUs/square foot over an area of 6620 square feet.

5.2.3 Unit 1, Pathway 2, HPCI Pump Discharge Valve E41-F006

Valve E41-F006 is a motor operated HPCI pump discharge valve located approximately 17 feet north of column line R7 at elevation 87 feet on the west side of the Unit 1 Reactor Building in Fire Zone 1205A. This valve is located within the west torus water curtain zone (wet pipe sprinkler system) which is also covered by a linear thermal heat detection system. Cables for the valve will be protected with 1-hour fire protective wrapping. However, no protection is proposed for the valve operator since complete enclosure could jeopardize the operability of the valve, according to the licensee.

5.2.4 Unit 1, Pathway 1, RCIC Pump Discharge Valve E51-F013

Valve E51-F013 is a motor operated RCIC pump discharge valve located about 4 feet south of column line R7 at elevation 87 feet on the west side of the Unit 1 Reactor Building in Fire Zone 1203A. This valve is located within the west torus water curtain zone (wet pipe sprinkler system) which is also covered by a linear thermal detection system. Cables for the valve will be protected with 1-hour fire protective wrapping. However, no protection is proposed for the valve operator since complete enclosure could jeopardize the operability of the valve, according to the licensee. Fire loading within Fire Zone 1203A is 8352 BTUs/square foot over 6680 square feet.

5.2.5 Unit 1 Torus Water Temperature Instruments T-48-N009A and T-48-N009C

Torus water temperature instruments T-48-N009A and T-48-N009C are located opposite each other on the west and east sides of the torus, respectively, at elevation 87 feet in the Unit 1 Reactor Building in Fire Zones 1203A and 1205A. Two other water temperature instruments are located 90° apart from these.

In response to a staff question, the licensee reevaluated the instrument location and circuit routing (letter of 10/31/86 L. T. Gucwa to D. Muller). The licensee found that the circuit routing is such that for a fire occurring anywhere within the torus room (fire areas 2203 and 2205) at least one instrument will always be available. Thus, protection of these instruments is not required by Appendix R.

5.2.6 Unit 1, Pathway 1, Motor Control Center R24-S018A and Pathway 2, Motor Control Center R24-S028B

Motor control centers (MCCs) R24-S018A and R24-S028B are located in the south side along the east wall between column lines R7 and R9 of the Unit 1 Reactor Building at elevation 130 feet in Fire Zone 1203F. Both MCCs are located in the east water curtain zone on elevation 130 feet (wet pipe sprinkler system) which is covered by a linear thermal detection system. No protection is proposed for the cables and components within each MCC. The cables leading to the MCC are covered by a 1-hour fire protective covering. There are no required unprotected pathway 2 components within 20 feet of either of these MCCs. Also the loss of R24-S018B does not impact shutdown pathway 2.



5.2.7 Unit 2, Pathway 2, Remote Shutdown Panel 2H21-P173

Remote shutdown panel 2H21-P173 is located approximately 12 feet east of column line RA and 12 feet north of column line R17 in the Unit 2 Reactor Building at elevation 130 feet in Fire Zone 2203F. A control cable for the pathway 2 plant service water pump is routed through the area and panel. All raceways in this area containing this cable will be protected with 1-hour fire protective wrapping up to this panel. For a fire inside the panel, pathway 1 will be available for shutdown. The panel is located in the northwest water curtain zone (wet pipe sprinkler system) which is also covered by a linear thermal detection system. However, the water curtain does not meet the 20 foot expansion criteria stated in Section 4.2.1 of the April 18, 1984 SER. This criteria required the water curtain to extend at least 20 feet beyond the protected component. The fire loading within Fire Area Zone F is about 111,422 BTUs/square foot over 7438 square feet.

5.2.8 Unit 2, Pathway 1, RCIC Pump Discharge Valve 2E51-F013

Valve 2E51-F013 is a motor operated RCIC pump discharge valve. The location of this valve is about 8 feet north of column line R19 and 20 feet east of column line RA at elevation 87 feet in the west side of the torus area in the Unit 2 Reactor Building in Fire Zone 2203A. The valve is located in the west torus water curtain zone (wet pipe sprinkler system) which is covered by a linear thermal detection system. Cables for the valve are protected with 1-hour fire protective wrapping. However, no protection is provided for the valve operator, since complete enclosure could jeopardize the operability of the valve, according to the licensee. There are no unprotected pathway 2 components located within 20 feet of the valve operator. Fire loading in Fire Zone 2203A is about 25,000 BTUs/square foot over 6427 square feet.

5.2.9 Unit 2, Pathway 1, Plant Service Water Inlet Valve No. 2P41-F066

Valve 2P41-F066 is a solenoid-operated valve located about 8 feet north of column line R19 and 6 feet west of column line RL in the torus area on the east side of the Unit 2 Reactor Building in Fire Zone 2203A. The valve is located in the east torus water curtain zone (wet pipe sprinkler system) which is covered by a linear thermal detection system. All cables for the valve will be protected by 1-hour fire protective wrapping. However, no protection is proposed for the valve operator because complete enclosure could jeopardize its operability, according to the licensee. There are no unprotected pathway 2 components within 20 feet of the valve operator.

5.2.10 Unit 2, Pathway 1, RHR Inboard Valve and RHR Outboard Valves 2E11-F015A and 2E11-F017A

Valves 2E11-F015A and 2E11-F017A are motor operated isolation valves located about 16 feet north of column line R19 and about 29 feet (2E11-F015A) and 24 feet (2E11-F017A) west of column line RL on



elevation 130 feet of the Unit 2 Reactor Building. The valves are located in Fire Zone 2203F and in the East Water Curtain Zone on elevation 130 feet which is also covered by a linear thermal detection system. Cables for these valves will be protected with 1-hour fire protective wrapping. However, no protection is proposed for the valve operators because complete enclosure could jeopardize their operability, according to the licensee. There are no unprotected pathway 2 components within 20 feet of the valve operator.

5.2.11 Unit 2, Pathway 2, HPCI Pump Discharge Valve 2E41-F006

Valve 2E41-F006 is a motor operated HPCI pump discharge valve located about 15 feet south of column line R19 and 25 feet east of column line RA at elevation 87 feet in the torus area on the west side of the Unit 2 Reactor Building. The valve is located in Fire Zone 2205A and in the west torus water curtain zone which is covered by a linear thermal detection system. The cables to these valve will be protected with 1-hour protective wrapping. However, no protection is proposed for the valve operator because complete enclosure could jeopardize its operability, according to the licensee. There are no unprotected pathway 2 components within 20 feet of the valve operator. The combustible loading in Fire Zone 2205A is about 23,000 BTUs/square foot over 6727 square feet.

5.2.12 RCIC Steam Supply Valve MCC, Unit 2 Pathway 1 2R24-S012B

MCC 2R24-S012B contains the valve motor starter for the RCIC steam supply valve 2E51-F007. It is located about 6 feet west of column line RB and 2 feet north of column line R21 on elevation 164 feet in the chiller room in the Unit 2 Reactor Building. The chiller room is in Fire Zone 2205N and is protected by a preaction sprinkler system which is activated by ionization type smoke detectors. Cables for the valve starter will be protected with 1-hour fire protective wrapping. However, the control cables and starter for the valve are inside the MCC and further protection is not proposed. Valve 2E51-F007 is considered a passive component required to remain open. Safe shutdown does not require operability of the valve. The fire loading in Fire Zone 2205N is about 83,000 BTUs/square foot over 4204 square feet.

5.2.13 HPCI Steam Line Leak RTDs Unit 1 Pathway 2 (E41-N071) and Unit 2 Pathway 2 (2E41-N071)

The HPCI Line Leak resistance temperature detectors (RTDs) are the pipe penetration room high ambient temperature detectors. These will be located in both the Unit 1 and Unit 2 Reactor Buildings on elevation 130 feet in fire Zone 1203F and 2203F. The RTDs are designed to sense a HPCI steam line break but could respond to the heat of a fire and cause isolation of the HPCI system which is assumed lost for a fire on this side of the Reactor Building. Once the RTDs are installed, the cables to the RTDs will be protected with a 1-hour fire protective coating. However, the RTDs will not be protected. The pipe penetration rooms are located within water curtain zones covered with a fire detection system. There are no unprotected pathway 1 components within 20 feet of the RTDs.

#### 5.2.14 RHR Outboard Valve - Unit 2, Pathway 2, 2E11-F017B

Valve 2E11-F017B is an RHR motor operated isolation valve located about 2 feet west of column line RJ and 14 feet south of column line R19 on elevation 130 feet in the Unit 2 Reactor Building piping penetration room. This room is located entirely within Fire Zone 2205F and the east water curtain zone on elevation 130 feet (wet pipe sprinkler system) which is covered by a linear thermal detection system. Cables for the valve operator will be covered with 1-hour fire barrier. However, no protection is proposed for the valve operator because complete enclosure could jeopardize its operability according to the licensee. There are no unprotected pathway 1 components located within 20 feet of this valve. The fire loading in Fire Zone 2205F is less than 84,000 BTUs/square foot.

#### 5.2.15 RHR Minimum Flow Bypass Valve (MCC) - Unit 2, Pathway 2, 2R24-S018B

MCC 2R24-S018B contains the motor starter for the pathway 2 RHR minimum flow bypass valve 2E11-F007B. The MCC is located on column lines R17 and RJ in the Unit 2 Reactor Building. The MCC is located in fire Zone 2203F and the east water curtain zone on elevation 130 feet which is also covered by a linear thermal detection system. The water curtain, however, does not extend 20 feet beyond the MCC in all directions because of an open hatchway to the north. All cables to the MCC will be protected with 1-hour fire protective wrapping. Cables and the starter inside the MCC are not protected except by the MCC itself. However, loss of operability of the valve will be compensated for by a manual operator action. The licensee has stated that for a fire in the vicinity of the MCC, all pathway 2 required circuits are protected with 1-hour barrier (pathway 1 circuits are assumed lost).

### 5.3 Evaluation

The technical requirements of Section III.G.2 are not met in each of these areas because:

- 1) redundant shutdown divisions in either half of the Reactor Building are not separated from each other by continuous 3-hour fire rated barriers; and
- 2) redundant divisions are not separated by continuous 1-hour fire barriers and protected by area-wide automatic fire suppression and detection systems.

The 15 exemptions requested are contained in 9 fire zones in the Unit 1 and Unit 2 Reactor Buildings: 1203A, 1203F, 1205A, 1205F, 2203A, 2203F, 2205A, 2205F, and 2205N. The fire loading in these zones varies from a little over 8,000 BTUs/square foot to almost 112,000 BTUs/square foot. Hence the fire loading may be considered very low to low. All of the exemption request items are located at least 20 feet within a wet pipe sprinkler area except for Unit 2 remote shutdown panel 2H21-P173 (item 7), Unit 2 RCIC steam supply valve MCC 2R24-S012B (item 12), and Unit 2

RHR minimum flow bypass valve MCC 2R24-S108B, (item 15). The Unit 2 RCIC steam supply valve MCC is protected by a preaction sprinkler system which affords the same degree of protection as the water curtain zones. The Unit 2 remote shutdown panel and the RHR minimum flow bypass valve MCC both are beyond the 20 feet margin on at least one side but are still inside the sprinkler area. In addition, the likelihood of the conductor to conductor fault which could cause spurious operation of valves controlled by the cables passing through these panels is extremely remote.

With regard to an increase in fire hazard due to transient combustibles, the licensee has administrative procedures in place to control the introduction, storage, handling, and removal of combustible materials. These procedures apply to solid combustibles, flammable liquids, combustible liquids and hazardous compressed gases. Similar procedures control ignition sources throughout the plant. These procedures were reviewed by the staff and are considered to be sufficiently adequate to insure that no extra hazard is introduced to these unprotected components due to transient combustibles.

The staff concludes that fire damage to the unprotected equipment is not likely as a result of normal operation or during maintenance and similar operations involving transient combustibles.

#### 5.4 Conclusions

Based on the above evaluation, the staff has concluded that an exemption from the requirements of III.G.2 of Appendix R 10 CFR 50 should be granted for all of the above items. As a part of this exemption, however, the licensee must have available for audit, an analysis demonstrating the adequacy of the existing fire detection and suppression system to prevent damage to safety related components.

#### 6.0 UNIT 1 REACTOR BUILDING NORTH OF COLUMN LINE R7

##### UNIT 2 REACTOR BUILDING SOUTH OF COLUMN LINE R19

##### UNIT 2 TURBINE BUILDING EAST CABLEWAY

#### 6.1 Exemption Requested

An exemption was requested from the requirements of Sections III.G.2.a & b Appendix R 10 CFR 50 regarding barriers to the extent that a fire may lead to loss of control of the HPCI system using pathway 1 or pathway 2.

#### 6.2 Discussion

##### 6.2.1 Unit 1 Reactor Building

In the Unit 1 Reactor Building, cables for two of the three methods available to shut down HPCI are separated by 50 feet at their closest point. These are the cables for the inboard isolation valve and the HPCI turbine trip valve (TTV). Other components and power supplies for all

three methods which are not separated by the drywell are separated by at least 90 feet. The combustible loading in the torus area is limited. Also there is area wide fire protection on elevation 130 feet and there are water curtain zones on the east and west sides of the torus area.

#### 6.2.2 Unit 2 Reactor Building

In the Unit 2 Reactor Building the equipment and cable routing for two of the three methods to secure the HPCI are separated by either a fire area boundary, a 3-hour protective wrapping, or a non-rated floor slab. The control cable from the main control room for the HPCI inboard steam isolation valve, the power cable and control cable for the HPCI outboard isolation valve, and the control cable to the HPCI trip solenoid valve enter the south fire area of Unit 2 Reactor Building on elevation 130 feet.

The conduit containing the control cable to the HPCI inboard steam isolation valve is contained in a conduit which will be protected by a 3-hour fire protective barrier in the south fire area. From the south fire area, the control cable to the HPCI inboard steam isolation valve goes upward through the elevation 164 feet floor slab to the MCC for the valve. The control and power cables for the HPCI outboard steam isolation valve stays on elevation 130 feet to the MCC on the east portion of the south wall. Hence, the elevation 164 feet floor slab which varies from 2 to 4 feet of reinforced concrete separates the control and power cables for the HPCI outboard valve from the control cables for the HPCI inboard valve. The power cable for the HPCI inboard valve enters the Reactor Building on elevation 130 feet in the north fire area and is separated from the other cables by a horizontal distance of at least 50 feet.

#### 6.2.3 Unit 2 Turbine Building East Cableway

In the Unit 2 Turbine Building east cableway, the power and control cables for the three methods of securing HPCI are routed in a separate raceway with minimal horizontal separation. Vertical separation between opposite divisions of cables used for securing HPCI is at least three feet. Power cables for the inboard and outboard isolation valves are enclosed in armored jacket material and routed in separate runs of 4-inch aluminum channel. The control cable for the inboard isolation valve is routed in conduit. All raceways containing power and control cables for the three methods are located at least 9 feet above the floor.

The east cableway is protected by ionization smoke detectors and a wet pipe sprinkler system.

### 6.3 Elevation

The technical requirements of Section III.G.2 are not met in each of these areas because:

- 1) redundant shutdown divisions in either half of the Reactor Building are not separated from each other by continuous 3-hour fire rated barriers; and

- 2) redundant divisions are not separated by continuous 1-hour fire barriers and protected by area-wide automatic fire suppression and detection systems.

The three exemptions requested apply to significantly different physical situations according to the description provided by the licensee.

For the Unit 1 Reactor Building, the separation distances are considered to be sufficient. Also the detection and suppression system around the torus are considered sufficient to prevent fires from crossing from one side of the Unit 1 Reactor Building to the other.

For the Unit 2 Reactor Building, the licensee provided a detailed description of the routes of the various pathways and the separation between any two of them. The 50 feet separation distance, the 2 feet thick reinforced concrete floor, and the 3-hour barrier are all considered adequate protection to ensure that at least one complete pathway is available to secure the HPCI system.

In the East Cableway of the Turbine Building, the cable jacketing and support described by the licensee, is not considered capable of protecting the cable for a significant time during a fire. However, upon further analysis the licensee determined that an exemption is not required for the East Cableway of the Turbine Building and withdrew the exemption.

#### 6.4 Conclusion

Based on the above evaluation, the staff concludes that the licensee's request for an exemption from the barrier requirements of Section III.G.2 in regard to the HPCI system should be granted for the Unit 1 Reactor Building and the Unit 2 Reactor Building.

#### 7.0 UNIT 1, UNIT 2, AND COMMON

##### 7.1 Exemption Requested

A generic exemption is requested from the implied requirements of Section III.G.2 of Appendix R 10 CFR 50 to the extent that when one pathway of redundant safe shutdown raceway is protected with a fire protective barrier, the cable tray supports and conduit supports are also required to be enclosed within a 1-hour protective barrier. The requested exemption is to exclude the wrapping of these supports in areas protected by automatic fire suppression systems.

##### 7.2 Discussion and Evaluation

Section 3.3.4 of the enclosure to Generic Letter 86-10 states that an exemption is not required for unprotected cable tray supports in areas protected by a sprinkler system. In addition, the licensee has stated that all supports are wrapped for at least 18 inches beyond the tray to minimize heat conduction to the cables (letter of October 31, 1986, L. T. Gucwa to D. Muller). The licensee has also committed to perform an

analysis to verify that, during a fire, the suppression system will actuate before the yield strength of the cable supports is significantly reduced. According to the licensee, the calculation will consider one or more worst-case areas in question based upon the quantity of exposed cables located near the supports, the size of the supports, and the yield strength of steel at elevated temperatures.

### 7.3 Conclusions

Although an exemption request was not required, the staff considers the licensee's proposed approach to be in accordance with Generic Letter 86-10.

## 8.0 CONTROL ROOM

### 8.1 Exemption Requested

An exemption from the requirements of Section III.G.1.a of Appendix R is requested to the extent that repairs should not be used to maintain hot shutdown.

### 8.2 Discussion

The potential repairs required for hot shutdown after a fire involve opening links and installing jumpers in order to assure the operation of the following equipment:

1. Residual Heat Removal (RHR) Pump Room Cooler;
2. Reactor Core Isolation Cooling (RCIC) Pump Room Cooler;
3. Diesel Generator Voltage Regulator; and
4. Diesel Generator Local Ammeters.

The RHR and RCIC room coolers are required to maintain the proper room temperature for the RHR and RCIC pumps to operate. The licensee has determined that it would require 4 hours after the pumps are started for the pump room temperature to reach the design limitations of the RHR and RCIC pumps. The plant operating procedures require the operator to verify the room coolers are operating when the respective pump is started. In the event the coolers are not operating, the operator can start the coolers in 20 minutes by opening links and installing jumpers. Since the operating actions necessary to restore the coolers to operating status can be accomplished in ample time to maintain the RHR and RCIC pumps below the design temperature, we concur with the licensee that the operator can easily perform the actions necessary to maintain the room temperatures within the design limits of the RHR and RCIC pumps.

In order to assure the availability of onsite emergency power, the voltage regulators and the local ammeters for the diesel generator must be functional. If the voltage regulator is incapacitated because of fire induced circuitry damage, the operator can restore its function in 15 minutes by opening links and installing jumpers. The licensee has provided procedures that require a dedicated operator be immediately dispatched to the Diesel Generator Building to ensure operation of the voltage regulator upon the loss of offsite power. We concur with the licensee that the operator has sufficient time to perform this action and maintain the plant in a safe shutdown condition.

Originally the licensee requested an exemption to allow repairs to ensure the functional capability of the local ammeters which are required for loading the emergency electrical loads on the diesel generator. Since the licensee is installing a switch that eliminates the need for this repair, the licensee has withdrawn this exemption request.

The licensee has committed to store the tools necessary for the repairs in locked boxes and cabinets.

### 8.3 Conclusion

Based on our review of the licensee's submittal, we conclude that the licensee has verified that the operator has sufficient time to complete repairs and restore the functional capability of the diesel generator voltage regulator, RHR pump room coolers and the RCIC pump room coolers. Therefore, we approve the licensee's exemption request involving repairs to this equipment. Furthermore, the licensee has withdrawn the exemption request that involved repairs to the diesel generator local ammeters.

## 9.0 INTAKE STRUCTURE

### 9.1 Exemption Requested

An exemption is requested from the requirements of Section III.G.2.b to the extent that it requires a 20-foot separation for cable in conduit and cable wrapped in cable trays. An exemption has already been granted to the requirement for the installation of a complete area-wide automatic fire suppression system.

### 9.2 Discussion

The intake structure is constructed of nonrated reinforced concrete and contains 16 residual heat removal service water and plant service water pumps. Each of these pumps is protected with two wet pipe fusible sprinkler nozzles rated at 135°F. Almost the entire nontransient fire load is oil and grease located around the pump motors.

All cable trays and exposed cable are wrapped with Koawool providing a 1-hour fire barrier. All other cables are routed in conduit or other metal enclosures. Outside of the suppression areas, unwrapped Unit 2 redundant conduit is separated by a minimum of 8 feet.



The entire structure is protected by ionization type smoke detectors.

### 9.3 Evaluation

When transient combustibles are not present, the 8 feet minimum separation distance is sufficient protection because of the near zero fire load away from the pumps. Near the pumps, the 135°F rated sprinkler heads may be expected to fuse quick enough to suppress any fire that might result from leaking grease or oil.

During maintenance and repair activities, however, transient combustibles may present a hazard to the unprotected conduits. Therefore, the staff will require that a fire watch be maintained during maintenance and repair activities or whenever combustibles are stored in the intake structure.

### 9.4 Conclusion

Based on the above evaluation, the staff recommends that the exemption from the 20-foot requirement of Section III.G.2 be granted with the condition that the licensee augment its administrative procedures such that movement of significant quantities of transient combustibles into the intake structure will require notification of the fire brigade and the initiation of a fire watch.

## 10.0 ADDITIONAL CLARIFICATION REGARDING THE EXISTING 3-HOUR BARRIER REQUIREMENT EXEMPTION

### 10.1 Areas Affected

- Unit 2 Turbine Building East Cableway, elevation 130 feet.
- Control Building East Corridor, elevation 112 feet.
- Control Building Working Floor, elevation 112 feet.
- Unit 1 Turbine Building East Cableway, elevation 130 feet.
- Unit 2 Switch Gear Hallway.

The above areas refer to items 2.2 - 2.6 in the licensee's May 16, 1986 exemption request letter providing clarification of previously granted exemptions.

### 10.2 Information Submitted

All of the above items are in the form of clarifications to and interpretations of exemptions which were granted in the staff SER dated April 18, 1984. All of the above deal with the adequacy of existing fire barriers within the plant. The submittal also provides justification (evaluation) for the clarification and interpretation.



### 10.3 Discussion and Evaluation

From the information submitted by the licensee, the staff considers these clarifications to be equivalent to a request for exemption from the 3-hour boundary requirement of Appendix R (III.G.2.a) addressed in Part 4 of Generic Letter 86-10. Generic Letter 86-10, Interpretations of Appendix R, part 4 states that: "Where fire area boundaries are not wall-to-wall, floor-to-ceiling boundaries with all penetrations sealed to the fire rating required of the boundaries, licensees must perform an evaluation to assess the adequacy of fire boundaries in their plants to determine if the boundaries will withstand the hazards associated with the area." The generic letter does not require the licensee to submit the evaluations for staff review but does require the licensee to retain the analyses for subsequent NRC audits.

The staff concludes that clarifications to existing exemptions with regard to the 3-hour barrier requirement will not require the granting of new exemptions to Appendix R for each specific request under the conditions described by the licensee. The staff will, however, require the licensee to follow the guidance in Generic Letter 86-10 in assessing each of these barriers. (See also the discussion under Section 2.0 of this evaluation).

### 11.0 FIRE AREAS IN THE UNIT 1 AND UNIT 2 REACTOR BUILDING

#### 11.1 Clarification

The clarification concerning existing exemption provided in Section 2.7 of the licensee's May 16, 1986 exemption request letter are all in regard to minor changes in the licensee's fire area boundaries. These are due to installation of the automatic fire suppression systems, primarily the wet pipe sprinkler water curtain zones in the Unit 1 and Unit 2 Reactor Buildings.

#### 11.2 Discussion and Evaluation

In accordance with Generic Letter 86-10, the staff does not consider NRC approval of the specific changes in the location of fire area boundaries to be required. In addition, the staff has reviewed these changes and has determined that they will have no effect on previous exemptions or approvals granted by the staff.

### 12.0 SCHEDULAR EXEMPTIONS

#### 12.1 New Circuit Breakers and Fuses

#### 12.1.1 Requested Exemption

An exemption from the scheduler requirements of 10 CFR 50.48 and Appendix R is requested by the licensee under 10 CFR 50.12 for Hatch Units 1 and 2. This exemption is for the installation in Hatch Units 1 and 2 of new circuit breakers and fuses identified as necessary to ensure coordinated circuits from the standpoint of Enclosure 2 to Generic Letter 81-12. Enclosure 2 to Generic Letter 81-12 identifies circuits which are not isolated from the shutdown circuit of concern by coordinated circuit breakers, fuses, or similar devices, as associated circuits and requires special provisions for such circuits. The licensee requests a scheduler extension for each unit until the end of its next scheduled refueling outage commencing after November 30, 1986.

#### 12.1.2 Discussion

From Generic Letter 86-10, there are four criteria to be used to evaluate scheduler exemptions. These criteria and the staff's evaluation response are as follows:

1. The Utility has proceeded expeditiously to meet the Commission's requirements.

The licensee stated in its May 16, 1986 request that all work required for Appendix R was scheduled and was anticipated to be completed before November 30, 1986. The staff has recently discussed the current status of Appendix R implementation with the licensee and it has informed the staff that it has completed all its Hatch Unit 1 and 2 Appendix R work except installation of the circuit breakers and fuses for which it has requested the current scheduler exemption. The licensee informed the staff that it was processing a work request to install these circuit breakers and fuses but that it did not have all of the materials for installation of these components available for installation in Hatch Unit 2 prior to its restart.

On the basis of the licensee's completion of all of the Appendix R work except for the above discussed circuit breakers and fuses, the staff concludes that the licensee has proceeded expeditiously to meet the Commission's requirements.

2. The delay is caused by circumstances beyond the utility's control

The detailed coordinated circuit breaker analysis could not be started until virtually all other design and analysis work required for Appendix R was essentially complete. The analysis was completed in September 1985. It was through this analysis that the licensee determined that it needed to replace low-voltage circuit breakers and fuses. Following determination that these items should be replaced, the licensee proceeded on an expedited basis to procure the new circuit breakers and fuses. The delay in installing these circuit breakers and fuses is being caused by difficulties with the selection,

qualification, and delivery of these components. Many of the original Hatch equipment suppliers no longer supply Nuclear Class 1E-qualified equipment. The licensee had to identify other vendors with qualified equipment and add them to the list of qualified suppliers for the Hatch Nuclear Plant. On the basis of this information, the staff concludes that the delay is caused by circumstances beyond the licensee's control.

3. The proposed schedule for completion represents a best effort under the circumstances.

The licensee has stated that, for the reasons discussed above, it has not been able to assure delivery of the circuit breakers and fuses in time for installation prior to November 30, 1986. Further, it does not believe that a special outage to replace the circuit breakers and fuses would be justified. It has proposed to install these components at the first refueling outage scheduled to commence after November 30, 1986. It also stated that if the breakers and fuses arrived in time to allow their installation during the recent Hatch Unit 2 refueling outage it would do so prior to November 30, 1986. However, it stated that the marginal increase in safety gained by installing the breakers and fuses does not warrant the minor risk involved in installing them while the plant is operating and that it does not warrant a special plant outage for the purpose of installing time. The licensee stated that considering these points, it considers its proposed scheduler extension represents a best effort.

The staff informed the licensee that it does not agree that the increase in safety from the installation of these new circuit breakers and fuses is marginal. In response, the licensee has prepared a procedure that it will implement as an interim compensatory measure until the new circuit breakers and fuses are installed. With this procedure in place, the staff agrees with the licensee that a special plant outage for the purpose of installing these breakers and fuses is not warranted and concludes that the proposal to install the circuit breakers and fuses at the next scheduled refueling outage after November 30, 1986 represents the best effort under the circumstances.

4. Adequate interim compensatory measures will be taken until compliance is achieved.

An interim compensatory measure as discussed above under criterion 3 was developed by the licensee in cooperation the staff. For the interim until compliance is achieved, the licensee will implement a procedure that directs the operator to reestablish power that is lost due to loss of d.c. buses, loss of instrument buses, loss of vital a.c. buses, or loss of essential a.c. distribution buses. The staff concludes that adequate interim measures will be taken.

12.1.3 Evaluation

On the basis of the above information, the staff concludes that the licensee has demonstrated acceptable conformance with the four criteria and therefore, the licensee's request for a scheduler exemption regarding installation of new circuit breakers and fuses should be granted.

12.2 Control Power Transfer Switch

12.2.1 Requested Exemption

An exemption from the scheduler requirements of 10 CFR 50.48 was requested by the licensee under 10 CFR 50.12 for Hatch Unit 1. This requested exemption was for the installation of a control power transfer switch in the Diesel Building switchgear room 1F. A scheduler extension was requested for Unit 1 until the end of its next scheduled refueling outage after November 30, 1986, for this specific piece of equipment.

The licensee has informed us orally on November 24, 1986, that this control power switch has been installed and the exemption is no longer needed.

Principal Contributors: R. Wescott and G. Rivenbark

Dated: January 2, 1987

UNITED STATES NUCLEAR REGULATORY COMMISSION  
ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT

GEORGIA POWER COMPANY  
OGLETHORPE POWER CORPORATION  
MUNICIPAL ELECTRIC AUTHORITY OF GEORGIA  
CITY OF DALTON, GEORGIA

DOCKET NOS. 50-321 and 50-366

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of an exemption from the requirements of 10 CFR 50.48(c) and Appendix R to 10 CFR 50 to the Georgia Power Company, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and the City of Dalton, Georgia (the licensees), for the Edwin I. Hatch Nuclear Plant, Units 1 and 2 located in Appling County, Georgia.

ENVIRONMENTAL ASSESSMENT

Identification of the Proposed Action: The licensee would be exempted from the requirements of Section III.G.1 Appendix R to 10 CFR 50 to the extent that repairs would be permitted to maintain hot shutdown for a fire in the Unit 1 and Unit 2 control room area.

The licensee would be exempted from the requirements of Section III.G.2 of Appendix R to 10 CFR 50 as follows:

1) to the extent that certain components within the suppression system/water curtain boundary within the following areas would not be required to be wrapped

Unit 1 Reactor Building North of Column Line R7

Unit 1 Reactor Building South of Column Line R7

Unit 2 Reactor Building North of Column Line R19

Unit 2 Reactor Building South of Column Line R19

2) to the extent that barriers would not be required between redundant pathways in the following areas so that a fire in these areas will not lead to loss of control of the high pressure coolant injection (HPCI) system:

Unit 1 Reactor Building North of Column Line R7

Unit 2 Reactor Building South of Column Line R19

3) to the extent that a 20-foot separation distance would not be required between redundant cables in the Intake Structure, outside of the automatic suppression areas.

The licensee would be exempted from the requirements of Section III.J of Appendix R to 10 CFR 50 to the extent that 8-hour battery powered emergency lighting would not be required in the control room and in the yard.

The licensee would be exempted from the scheduler requirements of 10 CFR 50.48 and Appendix R to 10 CFR 50 to the extent that installation of new circuit breakers and fuses identified as necessary to ensure electrically coordinated circuits would not be required to be completed in Units 1 and 2 prior to the licensee's current implementation schedule November 30, 1986 but instead would be required to be completed by the end of the next scheduled refueling outage for each of these Units commencing after November 30, 1986.

As an interim compensatory measure, until these circuit breakers and fuses are installed, the licensee is required to provide procedures that direct the operator to reestablish power to the Appendix R components that are tripped as a result of the fire.

The exemption is responsive to the licensee's application for exemption dated May 16, 1986 as supplemented by letters dated July 22, September 23, October 31, November 14, and November 21, 1986.

The Need for the Proposed Action: The exemption to Section III.G.1 to allow repairs to be made in order to maintain hot shutdown of the reactor is needed to allow greater flexibility and ensure reliable, long-term maintainability of hot shutdown conditions.

The exemption to Section III.G.2 to allow certain components within suppression system/water curtain boundary to not be wrapped is necessary because enclosure of these components would jeopardize their operability and would therefore be detrimental to overall plant safety. Since the existing separation distances and barriers provides adequate protection to assure that the complete pathway is available to secure the HPCI system, the exemption to Section III.G.2 to eliminate the requirement that barriers be provided between redundant pathways to prevent loss of control of the HPCI system in the event of a fire in specified areas is needed to avoid unnecessary modifications and their associated costs.

The Commission issued an exemption to the requirements of 10 CFR 50.48 dated May 14, 1985 extending the deadline for completion of fire protection modifications requiring plant shutdown until November 30, 1986 for both Hatch Units. The licensee has been unable to procure a few of the components required to complete these modifications by November 30, 1986, specifically the new circuit breakers and fuses identified as necessary to ensure required electrically coordinated circuits. In order to avoid shutting down the two Units until the parts are available or shutting down the two Units specifically for the purpose of installing these breakers and fuses the licensee needs an exemption to allow it to extend the installation completion schedule for these specific components until the end of the next scheduled refueling outage commencing after November 30, 1986 for each Unit.

Environmental Impact of the Proposed Action: The proposed action with respect to the exemptions from Sections III.G and III.J would not impact the ability to effect safe shutdown of the plant in the event of a fire and would provide an acceptable level of safety, equivalent to that attained by compliance with these Sections of Appendix R to 10 CFR 50. By using reasonable interim compensatory measures, the proposed exemption to the scheduler requirements of 10 CFR 50.48 will provide a degree of fire protection such that there is no significant increase in the risk of fire at this facility.

The probability of fires has not been increased and the post-fire radiological releases will not be greater than previously determined nor does the proposed exemption otherwise affect radiological plant effluents. Therefore, the Commission concludes that there are no significant radiological environmental impacts associated with this proposed exemption.

With regard to potential nonradiological impacts, the proposed exemption involves features located entirely within the restricted area as defined in 10 CFR 20. It does not affect nonradiological plant effluents and has not other environmental impact. Therefore, the Commission concludes that there are no significant nonradiological environmental impacts associated with the proposed exemption.

Alternative Use of Resources: This action does not involve the use of resources not considered previously in connection with the Final Environmental Statements (FES) relating to this facility, FES for Hatch Units 1 and 2, USAEC (October 1972) and FES for Hatch Unit 2, NUREG-0417 (March 1978).

Agencies and Persons Consulted: The Commission's staff reviewed the licensees' request and did not consult other agencies or persons.



FINDING OF NO SIGNIFICANT IMPACT

The Commission has determined not to prepare an environmental impact statement for the proposed exemption.

Based upon the foregoing environmental assessment, the Commission concludes that the proposed action will not have a significant effect on the quality of the human environment.

For further details with respect to this action, see the application for exemption dated May 16, 1986 as supplemented by letters dated September 23, October 31, November 14, and November 21, 1986, which is available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D. C. , and at the Appling County Public Library, 301 City Hall Drive, Baxley, Georgia.

Dated at Bethesda, Maryland, this 28th day of November, 1986.

FOR THE NUCLEAR REGULATORY COMMISSION

George W. Rivenbark, Acting Director  
Project Directorate #2  
Division of BWR Licensing

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of  
GEORGIA POWER COMPANY, ET AL

Dockets Nos. 50-321  
and 50-366

(Edwin I. Hatch Nuclear Plant,  
Units Nos. 1 and 2)

EXEMPTION

I.

The Georgia Power Company (the licensee) and three other co-owners are the holders of Facility Operating Licenses Nos. DPR-57 and NPF-5 which authorize operation of the Edwin I. Hatch Nuclear Plant, Units 1 and 2 (Hatch or the facilities) at steady state reactor power levels not in excess of 2436 megawatts thermal for each unit. The facilities are boiling water reactors located at the licensee's site in Appling County, Georgia. The licenses are subject to all rules, regulations and Orders of the Commission now or hereafter in effect.

II.

On November 19, 1980, the Commission published a revised Section 10 CFR 50.48 and a new Appendix R to 10 CFR 50 regarding fire protection features of nuclear power plants (45 FR 76602). The revised Section 50.48 and Appendix R became effective on February 17, 1981. Section III of Appendix R contains fifteen subsections, lettered A through O, each of which specifies requirements for a particular aspect of the fire protection features at a nuclear power plant. One of these fifteen subsections, III.G, is the primary subject of this Exemption. Specifically, Subsection III.G.2 requires that one train of cables and equipment necessary to achieve and maintain safe shutdown be maintained free of fire damage by one of the following means:

- a. Separation of cables and equipment and associated non-safety circuits of redundant trains by a fire barrier having a 3-hour rating. Structural steel forming a part of or supporting such fire barriers shall be protected to provide fire resistance equivalent to that required of the barrier;
- b. Separation of cables and equipment and associated non-safety circuits or redundant trains by a horizontal distance of more than 20 feet with no intervening combustibles or fire hazards. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area; or
- c. Enclosure of cable and equipment and associated non-safety circuits of one redundant train in a fire barrier having a 1-hour rating. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area.

A related subsection, III.G.1.a, also requires that one train of systems necessary to achieve and maintain hot shutdown conditions from either the control room or emergency control stations be free of fire damage. This means that repairs to damaged systems should not be made to reach or maintain hot shutdown.

The final subsection which is a subject of this Exemption is III.J. This subsection specifically requires that “emergency lighting units with at least an 8-hour battery power supply shall be provided in all areas needed for operation of safe shutdown equipment and in access and egress routes thereto.”

### III.

The Commission previously, by letter dated April 18, 1984, granted requests for technical exemptions to the requirements of Subsection III.G.2 of Appendix R to 10 CFR Part 50 in 26 specific plant areas of Hatch Units 1 and 2. The licensee requested, by letter dated May 16, 1986, new and additional exemptions. It requested technical exemptions in 27 specific plant areas of Hatch Units 1 and 2 and 2 generic technical exemptions that apply to all areas of Hatch Units 1 and 2. It also requested scheduler exemptions to the requirements of 10 CFR 50.48, one concerning circuit breakers and fuses for both Hatch Units 1 and 2 and one concerning a control power transfer switch for Unit 1 only.

Fifteen of the items for which the licensee requested specific plant area exemptions and both of the items for which it requested generic exemptions were found by the staff, based on Generic Letter 86-10, not to require exemptions or staff approval. Exemptions requested in two specific plant areas were found by the staff to be unacceptable. One of the specific plant area exemption requests was withdrawn by the licensee in its letter dated November 14, 1986. It was learned by telephone conversation with licensee representatives on November 24, 1986, that the control power transfer switch has been installed and that the scheduler exemption for this item is no longer required.

The acceptability of the remaining exemption requests is addressed below. More details are contained in the Commission's related Safety Evaluation (SE) (concurrently issued with this Exemption).

#### IV.

By letter dated December 9, 1986, the licensee provided information relevant to the “special circumstances” finding required by 10 CFR 50.12(a) for the licensee’s May 16, 1986 request. For the requested exemptions, the licensee stated that application of the specific requirements of the regulation is not necessary to achieve the underlying purpose of the rule. The licensee stated that the cost of implementing additional modifications to relocate components, upgrade yard lighting, provide additional fire barriers and provide additional diesel generator control panel switches would result in undue hardship and an unwarranted burden on its available resources. The licensee described the costs to be incurred as follows:

- Extensive engineering and installation to upgrade the yard lighting.
- Design studies, engineering and installation of new piping and supports and new electrical raceways and supports to relocate valves, motor control centers, instrumentation and control panels.
- Extensive application of additional raceway fire barrier material and associated engineering analysis of seismic loads, installation of additional supports and relocation of raceways and supports due to interferences.
- Installation of switches on the diesel generator instrument panel and engineering analysis to requalify the panel.
- Increased congestion in the reactor building that complicates operations and future plant modifications.
- Implementation of new plant operating and maintenance procedures.

The staff concludes that “special circumstances” exist for the exemptions that are being granted in that application of the regulation in these particular circumstances is not necessary to achieve the underlying purpose of Appendix R to 10 CFR 50. See 10 CFR 50.12(a)(2)(ii).

SPECIFIC PLANT AREA EXEMPTIONS:

AREAS:     Control Room  
              Yard

The licensee requested exemption from Subsection III of Appendix R in these areas to the extent that 8-hour battery powered emergency lighting is required.

In the control room, the emergency lights are designed to be powered from the station batteries for a minimum of 2 hours. Power from the emergency diesel generators is also available once they are started. The control room lights are designed so that a fire in any area outside of the control room would not result in the loss of both divisions of emergency lighting. According to the licensee, any action required in the yard area requires only minimal light which is provided by the existing yard security lights. In addition, the licensee has provided dedicated engine-driven portable light units for the location in the yard area requiring operator action in the event of loss of offsite power which could result in loss of the yard security lights. The licensee has chained and locked these dedicated engine-driven units in all the required locations and has adequate procedures to assure proper maintenance and operability of them.

Based on the discussions above, the licensee's request for exemptions from the requirements of paragraph III.J for the Control Room and the yard area are granted.

AREAS:      Unit 1 Reactor Building North of Column Line R7  
                 Unit 1 Reactor Building South of Column Line R7  
                 Unit 2 Reactor Building North of Column Line R19  
                 Unit 2 Reactor Building South of Column Line R19

The licensee has requested an exemption from the 1 hour barrier requirements of Subsection III.G.2.c for equipment within the suppression system water curtain boundary within these areas. The licensee listed 15 components, primarily motor operated valves, as items which could not be wrapped because complete enclosure could jeopardize the operability of the component. Other components listed include components of the Unit 1 torus water temperature instruments, the Unit 2 remote shutdown panel, HPCI steam line leak resistance temperature detectors, and three motor control centers. Upon further review, the licensee concluded that the Unit 1 torus water temperature instrument components were not out of compliance with Appendix R and the request for an exemption was withdrawn.

The staff reviewed the remaining components and determined that in all instances the items were within the water curtain, the fuel loading in the fire

zone in which the item was located was low, and fire detection was provided in the vicinity of each of the items. In addition, the licensee has adequate administrative procedures governing introduction and care of transient combustibles (including combustible and flammable liquids) in these areas to provide reasonable assurance that such transient combustibles will not damage the safe shutdown components. For these reasons the licensee's request for exemption from the requirements of Subsection III.G.2.c for the areas listed is granted.

AREA:        Control Room

The licensee requested an exemption from the requirements of Subsection III.G.1.a of Appendix R to the extent that repairs should not be used to maintain hot shutdown.

The potential repairs required for hot shutdown after a fire involve opening links (disconnecting faulted circuits) and installing jumpers in order to assure the operation of the following equipment:

- 1) Residual Heat Removal (RHR) Pump Room Cooler
- 2) Reactor Core Isolation Cooling (RCIC) Pump and Room Cooler
- 3) Diesel Generator Voltage Regulator

The staff evaluated the time available to make the necessary repairs. For the RHR and RCIC pump room coolers, the operator can start the coolers in 20 minutes by opening links and installing jumpers. The minimum time required for the pump room temperatures to reach their design limitations is 4 hours. In the case of the voltage regulator for the diesel generator, its function can be restored in 15 minutes by opening links and installing jumpers. The time



available to perform this action is 1/2 hour. In order to perform this task, a dedicated operator will be immediately dispatched to the Diesel Generator Building upon the loss of offsite power. The licensee has also committed to store the tools necessary for the repairs in locked boxes and cabinets.

For these reasons, the licensee's request for an exemption from the requirements of Subsection III.G.1.a is granted.

AREA:                      Unit 1 Reactor Building North of Column Line R7  
                                 Unit 2 Reactor Building South of Column Line R19

The licensee requested an exemption from the requirements of Subsection III.G.2 (a & b) of Appendix R regarding barriers to the extent that barriers are required between redundant pathways so that a fire will not lead to loss of control of the HPCI system.

The staff evaluated the physical spacing and existing barriers between the various pathways which would be used to secure the HPCI system in each building. In the Unit 1 Reactor Building, the separation distance (at least 50 feet) is considered to be sufficient. Also, the detection and suppression systems around the torus are considered sufficient to prevent fires from crossing from one side of the Unit 1 Reactor Building to the other. For the Unit 2 Reactor Building, the staff determined that two of the three pathways available to secure the HPCI system are always separated by either a fire area boundary, a 3 hour protective wrapping, or a 2 foot non-rated floor slab.

For these reasons, the licensee's request for an exemption from the requirements of Subsection III.G.2. (a & b) regarding barriers between pathways which could be used to secure the HPCI system is granted for the Unit 1 and Unit 2 Reactor Buildings.

AREA: Intake Structure

The licensee has requested an exemption from the requirements of Subsection III.G.2.b to the extent that a 20-foot separation distance is required between redundant cables. An exemption has already been granted to the requirement for the installation of an automatic fire suppression system.

Almost all of the non-transient fire load in the intake structure is oil and grease located around the pump motors which are protected by a wet pipe automatic sprinkler system. All cable trays and exposed cable within the intake structure are wrapped with Kaowool (1-hour protection), or enclosed in conduit or other metal enclosures. Outside the suppression areas, unwrapped Unit 2 redundant conduit is separated by a minimum of 8 feet. The staff considers this separation distance to be sufficient because of the near zero fire load outside of the fire suppression areas. The only exception to this near zero fuel load would be transient combustibles likely to be present during maintenance or repair activities.

For these reasons, the licensee's request for an exemption from the requirements of Subsection III.G.2.b to the extent that a 20-foot separation distance is required between redundant cables, is granted for the Intake Structure outside of the automatic suppression areas. As a condition for granting of this exemption, however, the licensee will be required to augment its administrative procedures to include a requirement to maintain a continuous fire watch during repair and maintenance activities whenever combustible materials are stored in or are moved through the non-sprinkled area.

SCHEDULAR EXEMPTION:

An exemption from the scheduler requirements of 10 CFR 50.48 is requested by the licensee under 10 CFR 50.12 for Hatch Units 1 and 2. This exemption is for the installation in Hatch Units 1 and 2 of new circuit breakers and fuses identified as necessary to ensure coordinated circuits from the standpoint of Enclosure 2 to Generic Letter 81-12. Enclosure 2 to Generic Letter 81-12 identifies circuits which are not isolated from the shutdown circuit of concern by coordinated circuit breakers, fuses, or similar devices, as associated circuits and requires special provisions for such circuits. The licensee requests a scheduler extension for each unit until the end of its next scheduled refueling outage commencing after November 30, 1986.

From Generic Letter 86-10, there are four criteria to be used to evaluate scheduler exemptions. These criteria and the staff's evaluation are as follows:

- 1) The utility has proceeded expeditiously to meet the Commission's requirements.

The licensee stated in its May 16, 1986 request that all work required for Appendix R was scheduled and was anticipated to be completed before November 30, 1986. The staff has recently discussed the current status of Appendix R implementation with the licensee and it has informed the staff that it has completed all its Hatch Unit 1 and 2 Appendix R work except installation of the circuit breakers and fuses for which it has requested the current scheduler exemption. The licensee informed the staff that it was processing a work request to install these circuit breakers and fuses but that it did not have all of the materials for installation of these components available for installation in Hatch Unit 2 prior to its restart.

On the basis of the licensee's completion of all of the Appendix R work except for the above discussed circuit breakers and fuses, the staff concludes that the licensee has proceeded expeditiously to meet the Commission's requirements.

2) The delay is caused by circumstances beyond the utility's control.

The detailed coordinate circuit breaker analysis could not be started until virtually all other design and analysis work required for Appendix R was essentially complete. This analysis was completed in September 1985. It was through this analysis that the licensee determined that it needed to replace low voltage circuit breakers and fuses. Following determination that these items should be replaced, the licensee proceeded on an expedited basis to procure the new circuit breakers and fuses. The delay in installing these circuit breakers and fuses is being caused by difficulties with the selection, qualification, and delivery of these components. Many of the original Hatch equipment suppliers no longer supply Nuclear Class 1E-qualified equipment. The licensee had to identify other vendors with qualified equipment and add them to the list of qualified suppliers for the Hatch Nuclear Plant. On the basis of this information, the staff concludes that the delay is caused by circumstances beyond the licensee's control.

3) The proposed schedule for completion represents a best effort under the circumstances.

The licensee has stated that, for the reasons discussed above, it has not been able to assure delivery of these circuit breakers and fuses in time for installation prior to November 30, 1986. Further, it does not

believe that a special outage to replace the circuit breakers and fuses would be justified. It has proposed to install these components at the first refueling outage scheduled to commence after November 30, 1986. It also stated that if the breakers and fuses arrived in time to allow their installation during the recent Hatch Unit 2 refueling outage it would do so prior to November 30, 1986. However, it stated that the marginal increase in safety gained by installing the breakers and fuses does not warrant the minor risk involved in installing them while the plant is operating and that it does not warrant a special plant outage for the purpose of installing time. The licensee stated that considering these points, it considers its proposed scheduler extension represents a best effort.

The staff informed the licensee that it does not agree that the increase in safety from the installation of these new circuit breakers and fuses is marginal. In response, the licensee has prepared a procedure that it will implement as an interim compensatory measure until the new circuit breakers and fuses are installed. With this procedure in place, the staff agrees with the licensee that a special plant outage for the purpose of installing these breakers and fuses is not warranted and conclude that the proposal to install the circuit breakers and fuses at the next scheduled refueling outage after November 30, 1986 represents the best effort under the circumstances.

- 4) Adequate interim compensatory measures will be taken until compliance is achieved.

An interim compensatory measure as discussed above under criterion 3 was developed by the licensee in cooperation with the staff. For the interim until compliance is achieved, the licensee will implement a procedure that directs the operator to reestablish power to the Appendix R component that is tripped as a result of the fire. This procedure directs the operator to reestablish power that is lost due to loss of d.c. buses, loss of instrument buses, loss of vital a.c. buses, or loss of essential a.c. distribution buses. The staff concludes that adequate interim measures will be taken. On the basis of the above information, the staff concludes that the licensee has demonstrated conformance acceptable with the four criteria and, therefore, the licensee's request for a scheduler exemption regarding installation of new circuit breakers and fuses is granted.

V.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, (1) these exemptions as described in Section IV are authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security, and (2) special circumstances are present for the exemptions in that application of the regulation in these particular circumstances is not necessary to achieve the underlying purposes of Appendix R to 10 CFR 50. Therefore, the Commission hereby grants the exemptions as identified above in Section IV.

Pursuant to 10 CFR 51.32, the Commission has determined that the issuance of the exemptions will have no significant impact on the environment (51 FR 43693).

A copy of the Commission's concurrently issued Safety Evaluation related to this action is available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C., and at the Appling County Public Library, 301 City Hall Drive, Baxley, Georgia.

This Exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Richard H. Vollmer, Acting Director  
Office of Nuclear Reactor Resolution

Dated at Bethesda, Maryland  
this 2nd day of January 1987.

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

March 24, 1987

Dockets Nos.: 50-321/366

Mr. James P. O'Reilly  
Senior Vice President - Nuclear Operations  
Georgia Power Company  
P.O. Box 4545  
Atlanta, Georgia 30302

Dear Mr. O'Reilly

We have learned through conversations with Mr. J. Heidt of your staff that the Safety Evaluation that we issued in support of the Exemption of Hatch Units 1 and 2 to the requirements of Appendix R to 10 CFR Part 50 on January 2, 1987 is not consistent, in its discussion of the intake structure, with the Exemption. Errors in identification numbers of a valve and a fire area and in the size of two fire areas were also pointed out.

Enclosed are replacement pages 7, 8, 9, 10 and 17 for the Safety Evaluation that correct these discrepancies.

The corrections consist of:

1. Changing the reference to RHR valve E11-F0650 in Section 5.2.2 at page 7 to valve E11-F065D.
2. Changing the floor area of Fire Zone 1203A from 6680 to 6670 sq. ft. in Section 5.2.4 at page 8 and changing the floor area of Fire Zone 2205A from 6727 to 6427 sq. ft. in Section 5.2.11 at page 10.
3. Changing the reference to Fire Area Zone F in Section 5.2.7 at page 9 to Fire Zone 2203F.
4. Correcting the last sentence in Section 9.3 at page 17 to indicate that a fire watch is required whenever combustibles are stored in the intake structure and during maintenance and repair activities involving the use of combustible materials.
5. Correcting Section 9.4 at page 17 to indicate that the condition for concluding the exemption be granted is that the licensee augment its administrative procedures such that storage in or movement of transient combustibles into the intake structure or maintenance or repair activities involving use of combustible materials will require the initiation of a fire watch.



We appreciate your calling these errors to our attention and apologize for any inconvenience they have caused.

Sincerely,

George Rivenbark, Project Manager  
BWR Project Directorate #2  
Division of BWR Licensing

Enclosures:  
as stated

cc w/enclosures:  
See next page

Mr. J. P. O'Reilly  
Georgia Power Company

Edwin I. Hatch Nuclear Plant,  
Unit Nos. 1 and 2

cc:

Bruce W. Churchill, Esquire  
Shaw, Pittman, Potts, & Towbridge  
2300 N Street, N.W.  
Washington, D.C. 20037

Mr. L. T. Gucwa  
Engineering Department  
Georgia Power Company  
Post Office Box 4545  
Atlanta, Georgia 30302

Mr. H. C. Nix, Jr., General Manager  
Edwin I. Hatch Nuclear Plant  
Georgia Power Company  
Post Office Box 442  
Baxley, Georgia 31513

Mr. Louis B. Long  
Southern Company Services, Inc.  
Post Office Box, 2625  
Birmingham, Alabama 35202

Resident Inspector  
U.S. Nuclear Regulatory Commission  
Route 1, Post Office Box 279  
Baxley, Georgia 31513

Regional Administrator, Region II  
U.S. Nuclear Regulatory Commission  
101 Marietta Street, Suite 2900  
Atlanta, Georgia 30303

Mr. Charles H. Badger  
Office of Planning and Budget  
Room 610  
270 Washington Street, S.W.  
Atlanta, Georgia 30334

Mr J. Leonard Ledbetter, Commissioner  
Department of Natural Resources  
270 Washington Street, N.W.  
Atlanta, Georgia 30334

Chairman  
Appling County Commissioners  
County Courthouse  
Baxley, Georgia 31513

#### 4.4 Conclusion

Based on the above evaluation, the staff has concluded that an exemption from the requirements of Section III.J of Appendix R for the control room and the yard should be granted.

#### 5.0 UNIT 1 REACTOR BUILDING NORTH OF COLUMN LINE R7

##### UNIT 1 REACTOR BUILDING SOUTH OF COLUMN LINE R7

##### UNIT 2 REACTOR BUILDING NORTH OF COLUMN LINE R19

##### UNIT 2 REACTOR BUILDING SOUTH OF COLUMN LINE R19

#### 5.1 Exemption Requested

An exemption from the 1-hour barrier requirements of Section III.G.2 of Appendix R 10 CFR 50 is requested by the licensee for equipment within the suppression system/water curtain boundary.

#### 5.2 Discussion

##### 5.2.1 Unit 1, Pathway 1, RHR Inboard Valves E11-F015A, E11-F017A

Valves E11-F015A and E11-F017A are motor operated residual heat removal isolation valves. The location of these valves is approximately 13 feet south of the column line R7 on elevation 130 feet of the Unit 1 Reactor Building inside the piping penetration room in Fire Zone 1203F. This room is located totally within the east water curtain zone on elevation 130 feet (wet pipe automatic sprinkler system) and is also covered by a linear thermal heat detection system. Cables for the valves will be protected with a 1-hour fire protective wrapping within the suppression system boundary. The valve operators, however, are not protected since complete enclosure could jeopardize their operability according to the licensee. Also, there are no unprotected pathway 2 components located within 20 feet of the valves. Fire Zone 1203F has a fire loading of about 105,000 BTUs/square foot over an area of 8172 square feet.

##### 5.2.2 Unit 1, Pathway 2, RHR Suppression Pool Suction Valve E11-F065D

Valve E11-F065D is an air operated suppression pool suction valve located approximately 15 1/2 feet north of column line R7 on elevation 87 feet in the Unit 1 Reactor Building in Fire Zone 1205A. This valve is located within the east torus water curtain zone (wet pipe sprinkler system) which is also covered by a linear thermal heat detection system. Cables for the valve will be protected by 1-hour fire protective wrapping. The valve operator, however, is not covered since complete enclosure could jeopardize its operability according to the licensee. There are four torus water temperature instruments located on this same elevation at 90-degree intervals around the torus, one of which is located approximately 12 1/2 feet from this valve. Fire loading within Fire Zone 1205A is about 13,000 BTUs/square foot over an area of 6620 square feet.

### 5.2.3 Unit 1, Pathway 2, HPCI Pump Discharge Valve E41-F006

Valve E41-F006 is a motor operated HPCI pump discharge valve located approximately 17 feet north of column line R7 at elevation 87 feet on the west side of the Unit 1 Reactor Building in Fire Zone 1205A. This valve is located within the west torus water curtain zone (wet pipe sprinkler system) which is also covered by a linear thermal heat detection system. Cables for the valve will be protected with 1-hour fire protective wrapping. However, no protection is proposed for the valve operator since complete enclosure could jeopardize the operability of the valve, according to the licensee.

### 5.2.4 Unit 1, Pathway 1, RCIC Pump Discharge Valve E51-F013

Valve E51-F013 is a motor operated RCIC pump discharge valve located about 4 feet south of column line R7 at elevation 87 feet on the west side of the Unit 1 Reactor Building in Fire Zone 1203A. This valve is located within the west torus water curtain zone (wet pipe sprinkler system) which is also covered by a linear thermal detection system. Cables for the valve will be protected with 1-hour fire protective wrapping. However, no protection is proposed for the valve operator since complete enclosure could jeopardize the operability of the valve, according to the licensee. Fire loading within Fire Zone 1203A is 8352 BTUs/square foot over 6670 square feet.

### 5.2.5 Unit 1 Torus Water Temperature Instruments T-48-N009A and T-48-N009C

Torus water temperature instruments T-48-N009A and T-48-N009C are located opposite each other on the west and east sides of the torus, respectively, at elevation 87 feet in the Unit 1 Reactor Building in Fire Zones 1203A and 1205A. Two other water temperature instruments are located 90° apart from these.

In response to a staff question, the licensee reevaluated the instrument location and circuit routing (letter of 10/31/86 L. T. Gucwa to D. Muller). The licensee found that the circuit routing is such that for a fire occurring anywhere within the torus room (fire areas 2203 and 2205) at least one instrument will always be available. Thus, protection of these instruments is not required by Appendix R.

### 5.2.6 Unit 1, Pathway 1, Motor Control Center R24-S018A and Pathway 2, Motor Control Center R24-S028B

Motor control centers (MCCs) R24-S018A and R24-S028B are located in the south side along the east wall between column lines R7 and R9 of the Unit 1 Reactor Building at elevation 130 feet in Fire Zone 1203F. Both MCCs are located in the east water curtain zone on elevation 130 feet (wet pipe sprinkler system) which is covered by a linear thermal detection system. No protection is proposed for the cables and components within each MCC. The cables leading to the MCC are covered by a 1-hour fire protective covering. There are no required unprotected pathway 2 components within 20 feet of either of these MCCs. Also the loss of R24-S018B does not impact shutdown pathway 2.

5.2.7 Unit 2, Pathway 2, Remote Shutdown Panel 2H21-P173

Remote shutdown panel 2H21-P173 is located approximately 12 feet east of column line RA and 12 feet north of column line R17 in the Unit 2 Reactor Building at elevation 130 feet in Fire Zone 2203F. A control cable for the pathway 2 plant service water pump is routed through the area and panel. All raceways in this area containing this cable will be protected with 1-hour fire protective wrapping up to this panel. For a fire inside the panel, pathway 1 will be available for shutdown. The panel is located in the northwest water curtain zone (wet pipe sprinkler system) which is also covered by a linear thermal detection system. However, the water curtain does not meet the 20 foot expansion criteria stated in Section 4.2.1 of the April 18, 1984 SER. This criteria required the water curtain to extend at least 20 feet beyond the protected component. The fire loading within Fire Area Zone 2203F is about 111,422 BTUs/square foot over 7438 square feet.

5.2.8 Unit 2, Pathway 1, RCIC Pump Discharge Valve 2E51-F013

Valve 2E51-F013 is a motor operated RCIC pump discharge valve. The location of this valve is about 8 feet north of column line R19 and 20 feet east of column line RA at elevation 87 feet in the west side of the torus area in the Unit 2 Reactor Building in Fire Zone 2203A. The valve is located in the west torus water curtain zone (wet pipe sprinkler system) which is covered by a linear thermal detection system. Cables for the valve are protected with 1-hour fire protective wrapping. However, no protection is provided for the valve operator, since complete enclosure could jeopardize the operability of the valve, according to the licensee. There are no unprotected pathway 2 components located within 20 feet of the valve operator. Fire loading in Fire Zone 2203A is about 25,000 BTUs/square foot over 6427 square feet.

5.2.9 Unit 2, Pathway 1, Plant Service Water Inlet Valve No. 2P41-F066

Valve 2P41-F066 is a solenoid-operated valve located about 8 feet north of column line R19 and 6 feet west of column line RL in the torus area on the east side of the Unit 2 Reactor Building in Fire Zone 2203A. The valve is located in the east torus water curtain zone (wet pipe sprinkler system) which is covered by a linear thermal detection system. All cables for the valve will be protected by 1-hour fire protective wrapping. However, no protection is proposed for the valve operator because complete enclosure could jeopardize its operability, according to the licensee. There are no unprotected pathway 2 components within 20 feet of the valve operator.

5.2.10 Unit 2, Pathway 1, RHR Inboard Valve and RHR Outboard Valves 2E11-F015A and 2E11-F017A

Valves 2E11-F015A and 2E11-F017A are motor operated isolation valves located about 16 feet north of column line R19 and about 29 feet (2E11-F015A) and 24 feet (2E11-F017A) west of column line RL on

elevation 130 feet of the Unit 2 Reactor Building. The valves are located in Fire Zone 2203F and in the East Water Curtain Zone on elevation 130 feet which is also covered by a linear thermal detection system. Cables for these valves will be protected with 1-hour fire protective wrapping. However, no protection is proposed for the valve operators because complete enclosure could jeopardize their operability, according to the licensee. There are no unprotected pathway 2 components within 20 feet of the valve operator.

5.2.11 Unit 2, Pathway 2, HPCI Pump Discharge Valve 2E41-F006

Valve 2E41-F006 is a motor operated HPCI pump discharge valve located about 15 feet south of column line R19 and 25 feet east of column line RA at elevation 87 feet in the torus area on the west side of the Unit 2 Reactor Building. The valve is located in Fire Zone 2205A and in the west torus water curtain zone which is covered by a linear thermal detection system. The cables to the valve will be protected with 1-hour protective wrapping. However, no protection is proposed for the valve operator because complete enclosure could jeopardize its operability, according to the licensee. There are no unprotected pathway 2 components within 20 feet of the valve operator. The combustible loading in Fire Zone 2205A is about 23,000 BTUs/square foot over 6427 square feet.

5.2.12 RCIC Steam Supply Valve MCC, Unit 2 Pathway 1 2R24-S012B

MCC 2R24-S012B contains the valve motor starter for the RCIC steam supply valve 2E51-F007. It is located about 6 feet west of column line RB and 2 feet north of column line R21 on elevation 164 feet in the chiller room in the Unit 2 Reactor Building. The chiller room is in Fire Zone 2205N and is protected by a preaction sprinkler system which is activated by ionization type smoke detectors. Cables for the valve starter will be protected with 1-hour fire protective wrapping. However, the control cables and starter for the valve are inside the MCC and further protection is not proposed. Valve 2E51-F007 is considered a passive component required to remain open. Safe shutdown does not require operability of the valve. The fire loading in Fire Zone 2205N is about 83,000 BTUs/square foot over 4204 square feet.

5.2.13 HPCI Steam Line Leak RTDs Unit 1 Pathway 2 (E41-N071) and Unit 2 Pathway 2 (2E41-N071)

The HPCI Line Leak resistance temperature detectors (RTDs) are the pipe penetration room high ambient temperature detectors. These will be located in both the Unit 1 and Unit 2 Reactor Buildings on elevation 130 feet in fire Zone 1203F and 2203F. The RTDs are designed to sense a HPCI steam line break but could respond to the heat of a fire and cause isolation of the HPCI system which is assumed lost for a fire on this side of the Reactor Building. Once the RTDs are installed, the cables to the RTDs will be protected with a 1-hour fire protective coating. However, the RTDs will not be protected. The pipe penetration rooms are located within water curtain zones covered with a fire detection system. There are no unprotected pathway 1 components within 20 feet of the RTDs.

The entire structure is protected by ionization type smoke detectors.

### 9.3 Evaluation

When transient combustibles are not present, the 8 feet minimum separation distance is sufficient protection because of the near zero fire load away from the pumps. Near the pumps, the 135°F rated sprinkler heads may be expected to fuse quick enough to suppress any fire that might result from leaking grease or oil.

During maintenance and repair activities, however, transient combustibles may present a hazard to the unprotected conduits. Therefore, the staff will require that a fire watch be maintained whenever combustibles are stored in the intake structure and during maintenance and repair activities involving the use of combustible materials.

### 9.4 Conclusion

Based on the above evaluation, the staff recommends that the exemption from the 20-foot requirement of Section III.G.2 be granted with the condition that the licensee augment its administrative procedures such that storage in or movement of transient combustibles into the intake structure, or maintenance or repair activities involving use of combustible materials, will require the initiation of a fire watch.

## 10.0 ADDITIONAL CLARIFICATION REGARDING THE EXISTING 3-HOUR BARRIER REQUIREMENT EXEMPTION

### 10.1 Areas Affected

- Unit 2 Turbine Building East Cableway, elevation 130 feet.
- Control Building East Corridor, elevation 112 feet.
- Control Building Working Floor, elevation 112 feet.
- Unit 1 Turbine Building East Cableway, elevation 130 feet.
- Unit 2 Switch Gear Hallway.

The above areas refer to items 2.2 - 2.6 in the licensee's May 16, 1986 exemption request letter providing clarification of previously granted exemptions.

### 10.2 Information Submitted

All of the above items are in the form of clarifications to and interpretations of exemptions which were granted in the staff SER dated April 18, 1984. All of the above deal with the adequacy of existing fire barriers within the plant. The submittal also provides justification (evaluation) for the clarification and interpretation.

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO EXEMPTION FROM 10 CFR 50 APPENDIX R  
GEORGIA POWER COMPANY  
EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 & 2  
  
DOCKETS NOS. 50-321 AND 50-366

1.0     Introduction

By letter dated July 1, 1982, Georgia Power Company (the licensee) submitted an Appendix R evaluation. Twelve exemptions to the technical requirements of Section III.G were requested. We evaluated this information, concluded that in five areas of the plant the level of fire safety was equivalent to that achieved by compliance with the technical requirements of Section III.G of Appendix R and concluded that the exemptions should be granted. We concluded that the fire protection in the remaining seven areas did not provide an equivalent level of safety to those of Section III.G of Appendix R and one exemption requests should be denied.

In a meeting with the licensee on March 30, 1983, and in subsequent letters dated April 28, May 27, and November 16, 30, and December 20, 1983, we received additional information. This included:

- Commitments to provide additional fire protection in these areas where we had previously concluded that exemptions should be denied;
- Revisions to the descriptions of the areas where we had concluded that exemptions should be granted;
- Requests for exemptions from Section III.G of Appendix R in 21 additional plant areas, which superseded the seven exemptions which we had previously concluded should be denied;
- A request for approval for deviations from the provisions of several National Fire Protection Association (NFPA) Codes pertaining to the installation and maintenance of fire protection systems.



This Safety Evaluation covers the exemptions for all 26 areas as well as the NFPA Code deviations.

Our requirements for the fire protection for safe shutdown are as follows:

Section III.G.2 of Appendix R requires that one train of cables and equipment necessary to achieve and maintain safe shutdown be maintained free of fire damage by one of the following means:

- a. Separation of cables and equipment and associated non-safety circuits of redundant trains by a fire barrier having a 3-hour rating. Structural steel forming a part of or supporting such fire barriers shall be protected to provide fire resistance equivalent to that required of the barrier;
- b. Separation of cables and equipment and associated non-safety circuits of redundant trains by a horizontal distance of more than 20 feet with no intervening combustibles or fire hazards. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area; or
- c. Enclosure of cable and equipment and associated non-safety circuits of one redundant train in a fire barrier having a 1-hour rating. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area.

If these conditions are not met, Section III.G.3 requires alternative shutdown capability independent of the fire area of concern. It also requires a fixed suppression system to be installed in the fire area of concern if it contains a large concentration of cables or other combustibles. These alternative requirements are not deemed to be equivalent; however, they provide equivalent protection for those configurations in which they are accepted.

Because it is not possible to predict the specific conditions under which fires may occur and propagate, the design basis protective features are specified in the rule rather than the design basis fire. Plant specific features may require protection different than the measures specified in Section III.G. In such a case, the licensee must demonstrate, by means of a detailed fire hazards analysis, that existing protection or existing protection in conjunction with proposed modifications will provide a level of safety equivalent to the technical requirements of Section III.G of Appendix R.

In summary, Section III.G is related to fire protection features for ensuring that systems and associated circuits used to achieve and maintain safe shutdown are free of fire damage. Fire protection configurations must either meet the specific requirements of Section III.G or an alternative fire protection configuration must be justified by a fire hazards analysis.

Our general criteria for accepting an alternative fire protection configuration are the following:

- The alternative assures that one train of equipment necessary to achieve hot shutdown from either the control room or emergency control stations is free of fire damage.
- The alternative assures that fire damage to at least one train of equipment necessary to achieve cold shutdown is limited such that it can be repaired within a reasonable time (minor repairs with components stored on-site.)
- Modifications required to meet Section III.G would not enhance fire protection safety above that provided by either existing or proposed alternatives.

- Modifications required to meet Section III.G would be detrimental to overall facility safety.

2.0.1 4160 Transformer Room - Unit 1

2.0.2 West 600V Switchgear Room - Unit 1

2.1 Exemptions Requested

The licensee requested exemptions from Section III.G.2 in these areas to the extent that it requires the installation of automatic fire suppression systems and requires that redundant shutdown divisions be separated by complete 3-hour fire rated barriers.

2.2.1 Discussion (4160V Transformer Room)

The room is bounded by walls, floor and ceiling of reinforced concrete and masonry block. The walls have a minimum fire resistance rating of 2 hours. All openings in the walls are protected by 3-hour fire rated doors, dampers, or penetration seals. All components associated with safe shutdown pathway 1 were assumed lost in a fire in the room. Pathway 2 systems which require protection to assure their availability during a fire are those associated with residual heat removal (RHR) and the reactor recirculation system. Combustible materials located in the room include cable insulation in conduit and fire retardant-type transformer oil, which represents a negligible fire load.

Existing fire protection consists of a smoke detection system, portable fire extinguishers and manual hose stations.

By letter dated July 1, 1982, the licensee proposed to completely protect the required pathway 2 systems in the room by a 1-hour fire rated barrier.

### 2.2.2 Discussion (West 600V Switchgear Room)

The room is enclosed by walls, floor and ceiling of reinforced concrete and masonry block. The walls have a minimum fire resistance rating of 2 hours. Openings in the walls are protected by 3-hour fire rated doors, dampers or penetration seals.

All components of safe shutdown pathway 1 were assumed lost in a fire in this room. Pathway 2 systems which require protection to assure their availability during a fire are those associated with:

1. Suppression Chamber temperature elements,
2. Reactor pressure vessel level indication,
3. Suppression chamber level indication,
4. Plant service water, and
5. Automatic depressurization system.

Combustible materials located in the room include cable insulation, which represents a fire load of 25,000 BTU/sq. ft. This material, if easily consumed, would equal a fire severity of approximately 20 minutes on the ASTM E-119 time-temperature curve.

Existing fire protection includes a smoke detection system, portable fire extinguishers, and manual hose stations.

By letter dated July 1, 1982, the licensee proposed to completely protect the required pathway 2 systems in the room by a 1-hour fire rated barrier.

The licensee justified the exemptions in these two areas on the basis of the low fire load, the existing fire protection, and the ability of the perimeter construction and proposed pathway 2 fire barrier to limit damage until the arrival of the fire brigade.

### 2.3 Evaluation

The technical requirements of Section III.G are not met in these rooms because of the lack of an area-wide automatic fire suppression system. In addition, the perimeter walls, which separate redundant shutdown divisions, are not 3-hour fire rated.

The fire protection requirements of Section III.G of Appendix R represent an aggregate, comprised of active and passive components. They act synergistically to achieve an acceptable level of fire safety. In the subject areas, the licensee has provided active protection in the form of complete smoke detection systems. These systems provide reasonable assurance of early fire awareness and response by operating personnel and the plant fire brigade.

Passive protection is achieved in these areas by the 1-hour fire rated barrier, the required shutdown pathway 2 systems and the fire rated perimeter construction.

The combustible material in these rooms is limited and widely dispersed. Consequently, we do not expect a fire to propagate rapidly and with a high heat release rate. The 2-hour rated perimeter walls and reinforced concrete ceiling will confine the fire to the room of origin until the arrival of the fire brigade. The fire brigade has sufficient manual fire fighting equipment available to extinguish the fire. Therefore, an automatic fire suppression system is not necessary to limit damage.

Until the fire brigade arrived, the 1-hour fire barrier will protect one shutdown related pathway within these rooms.

## 2.4 Conclusion

Based on our evaluation, we conclude that the existing protection, with the proposed modifications, will provide reasonable assurance that one safe shutdown division will be free of fire damage and will achieve an acceptable level of fire protection equivalent to that provided by Section III.G.2. Therefore, the licensee's request for exemption for the following rooms should be granted:

1. 4160V Transformer Room - Unit 1
2. West 600V Switchgear Room - Unit 1
- 3.0.1 Control Building Working Floor, El. 112 Feet - Unit 1
- 3.0.2 West DC Switchgear Room - Unit 1
- 3.0.3 East DC Switchgear Room - Unit 1
- 3.0.4 East 600V Switchgear Room - Unit 1
- 3.0.5 4160V Transformer Room - Unit 2
- 3.0.6 West DC Switchgear Room - Unit 2
- 3.0.7 East DC Switchgear Room - Unit 2
- 3.0.8 West 600V Switchgear Room - Unit 2
- 3.0.9 East 600V Switchgear Room - Unit 2

## 3.1 Exemptions Requested

The licensee requested exemption from Section III.G.2 in these areas to the extent that it requires that redundant shutdown divisions be separated by complete 3-hour fire rated barriers.

## 3.2 Discussions

These rooms are all bounded by walls, floors and ceilings of reinforced concrete and masonry block. Some of the walls are not 3-hour fire rated; however, all walls have a minimum fire resistance rating of 2 hours. Openings in the walls are protected by 3-hour rated doors, dampers or penetration seals.

Cables and components of only one safe shutdown pathway are vulnerable to fire damage in these rooms. Systems associated with the other required pathway are either located outside the room, in a separate fire area, or will be completely protected in a 3-hour fire rated enclosure (Control Building Working Floor - El. 112 feet).

The fire load and fire protection for these areas are tabulated below:

| <u>ROOM</u>    | <u>FIRE LOAD</u><br><u>(BTU/SQ. FT)</u> | <u>PROT.</u><br><u>EXT.</u> | <u>HOSE</u><br><u>STATION</u> | <u>FIRE</u><br><u>DETECTION</u> | <u>AUTO. FIRE</u><br><u>SUPPRESSION</u> |
|----------------|-----------------------------------------|-----------------------------|-------------------------------|---------------------------------|-----------------------------------------|
| CB, WF-1       | 36,000                                  | YES                         | YES                           | YES                             | PARTIAL                                 |
| W, DC SG-1     | 47,000                                  | YES                         | YES                           | YES                             | NO                                      |
| E, DC SG-1     | 42,000                                  | YES                         | YES                           | YES                             | NO                                      |
| E, 600V SG-1   | 21,000                                  | YES                         | YES                           | YES                             | NO                                      |
| 4160V Trans.-2 | 48,000                                  | YES                         | YES                           | YES                             | NO                                      |
| W, DC SG-2     | 48,000                                  | YES                         | YES                           | YES                             | NO                                      |
| E, DC SG-2     | 42,000                                  | YES                         | YES                           | YES                             | NO                                      |
| W, 600V SG-2   | 26,000                                  | YES                         | YES                           | YES                             | NO                                      |
| E, 600V SG-2   | 21,000                                  | YES                         | YES                           | YES                             | NO                                      |

The licensee justified the exemptions in these areas on the basis of the low fire load, existing fire protection and the availability of an unaffected shutdown capability which is outside of the fire area.

### 3.3 Evaluation

The technical requirements of Section III.G are not met in these areas because redundant shutdown divisions are not separated by complete 3-hour rated fire barriers.

The fire loading in these locations is low. Combustible materials are generally dispersed throughout the area. Therefore, a fire, if one should occur, would not be of significant magnitude or duration. Because each room is equipped with fire detectors, we expect the fire to be discovered in its initial stages before serious damage occurred. The fire brigade would then be summoned and would extinguish the fire with portable fire fighting equipment.

There is an inherent time delay between the advent of fire and the arrival of the plant fire brigade. It has been our experience that this delay can be up to half an hour. Because the minimum fire rating of the perimeter walls and floor/ceilings is at least 2 hours, we have reasonable assurance that the damaging effects of a fire will be confined within the room of origin until suppression is achieved.

Since the systems associated with the required redundant shutdown pathway are located outside the fire area, the capability to achieve and maintain safe shutdown conditions will not be affected by the fire.

### 3.4 Conclusion

Based on our evaluation, we conclude that the existing protection will provide reasonable assurance that one required safe shutdown division will be free of damage and will achieve an acceptable level of fire protection equivalent to that provided by Section III.G.2.

Therefore, the licensee's request for exemption for the following rooms should be granted:

1. Control Building Working Floor El. 112 Feet - Unit 1
2. West DC Switchgear Room - Unit 1
3. East DC Switchgear Room - Unit 1
4. East 600V Switchgear Room - Unit 1
5. 4160V Transformer Room - Unit 2
6. West DC Switchgear Room - Unit 2
7. East DC Switchgear Room - Unit 2
8. West 600V Switchgear Room - Unit 2



4.0.1 Reactor Building North of Column Line R7 - Unit 1

4.0.2 Reactor Building South of Column Line R7 - Unit 1

4.0.3 Reactor Building North of Column Line R19 - Unit 2

4.0.4 Reactor Building South of Column Line R19 - Unit 2

4.1 Exemptions Requested

The licensee requested exemptions from Section III.G.2 in these areas to the extent that redundant systems are required to be protected by either:

- 1) a 3-hour fire rated barrier; or
- 2) a 1-hour fire rated barrier and area-wide automatic fire detection and suppression system.

4.2.1 Discussion (RE: North of Column Line R7 - Unit 1)

The Unit 1 reactor building consists of two fire areas. The dividing line is approximately along column line R7. The two areas are separated from each other by a combination of existing concrete walls, the drywell and a proposed automatic sprinkler system which will be installed along the common boundary between these two areas where no physical barrier exists. The reactor building on the north side consists of seven distinct zone, one for each level of the building, the two diagonal rooms and the High Pressure Coolant Injection (HPCI) room on the lower level, and the upper levels above elevation 185 feet. However, because of open stairways, unprotected wall openings and other non-fire-rated features in the perimeter construction, these zones are considered together as a single fire area.

The north half of the reactor building primarily contains components and cables for safe shutdown pathway 2. All pathway 2 systems are assumed lost in a fire and pathway 1 systems will be relied upon to achieve and maintain safe shutdown conditions. Those pathway 1 systems that are located in the north half of the reactor building will be protected by a 1-hour fire rated barrier or will be relocated as described in the licensee's May 27, 1983 letter, revision to its Appendix R report.

Combustible material within this area consists of cable insulation, lube oil, health physics supplies and charcoal filters.

Existing fire protection includes a preaction sprinkler system and fire detection for the Heating, Ventilation and Air Conditioning (HVAC) room on elevation 164 feet, a sprinkler system in the HPCI room below elevation 130 feet, a smoke detection system at the ceiling of Working Floor elevation 130 feet, portable fire extinguishers and manual hose stations.

By letter dated May 27, 1983, the licensee proposed to install an automatic sprinkler system to protect against the spread of fire from one half of the reactor building to the other. The area covered by the system will extend from the east-west centerline of the reactor building into each fire area to a distance of 20 feet beyond the last redundant opposite train component. Where only one train of equipment exists, the area of sprinkler coverage will be 20 feet wide. On elevation 185 feet, the area south of column R7 will be sprinklered except for the decontamination room. Draft curtains at the ceiling at R7 will be installed to facilitate sprinkler operation and restrict smoke spread from one area to another. The licensee also committed to install a fire detection system in the sprinklered areas on elevation 158 feet and the torus room.

All required pathway 1 circuits located north of column line R7 will be enclosed in a 1-hour fire rated barrier. The barrier will extend throughout this fire area and extend to a point 20 feet south of the area boundary at R7. Those required pathway 1 circuits that are not protected by a fire barrier will be relocated outside of this fire area. Also, within the area protected by the proposed sprinkler system, all required safe shutdown related circuits will be enclosed in a 1-hour barrier.

#### 4.2.2 Discussion (RB South of Column Line R7 - Unit 1)

The reactor building south of R7 consists of five distinct zones, one for each level of the building and two diagonal rooms on the lower level. As described above, open stairways, unprotected wall penetrations and other non-fire-rated features in the perimeter construction necessitates that these zones be considered together as a single fire area.

The south half of the reactor building primarily contains components and cable for safe shutdown pathway 1. All pathway 1 systems are assumed lost in a fire and pathway 2 systems will be relied upon to achieve and maintain safe shutdown conditions. The required pathway 2 systems that are located south of column R7 will be protected by a 1-hour fire rated barrier or will be relocated into another fire area.

Combustible materials in this area consist of cable insulation, lube oil, health physics supplies and charcoal filters.

Existing fire protection includes a sprinkler system and fire detection system for the HVAC room on elevation 164 feet, a sprinkler system in the southwest corner room below elevation 130 feet, a smoke detection system at the ceiling of Working Floor elevation 130 feet, portable fire extinguishers and manual hose stations.

In the May 27, 1983, revision to the Appendix R report, the licensee proposed to install an automatic sprinkler system to protect against the spread of fire from one half of the reactor building to the other. This system is described in Section 4.2.1.

All required pathway 2 circuits located south of column R7 will be enclosed in a 1-hour fire rated barrier. The barrier will extend throughout this fire area and extend to a point 20 feet north of the area boundary. Those required pathway 2 circuits that are not protected by a fire barrier will be relocated outside of this fire area. Also, within the area protected by the proposed sprinkler system, all required safe shutdown related circuits will be enclosed in a 1-hour barrier.

#### 4.2.3 Discussion (RB North of Column Line R19 - Unit 2)

The Unit 2 reactor building consists of two fire areas. The dividing line is approximately along column line R19. The two areas are separated from each other by a combination of existing concrete walls, the drywell and a proposed automatic sprinkler system which will be installed along the common boundary between these two areas where no physical barrier exists. The

one for each level of the building and the two diagonal rooms on the lower level. However, open stairways, unprotected wall openings and other non-fire-rated features in the perimeter construction necessitate that these zones be considered together as a single fire area.

The north half of the reactor building primarily contains components and cables of safe shutdown pathway 1. All pathway 1 systems are assumed lost in a fire and required pathway 2 systems will be relied upon to achieve and maintain safe shutdown conditions. Those pathway 2 systems that are located north of column line R19 will either be protected by a complete 1-hour fire rated barrier or will be relocated.

Combustible materials within this area consist of cable insulation, lube oil, health physics supplies and charcoal filters.

Existing fire protection includes automatic sprinkler systems located in the northwest corner room below elevation 130 feet and in the HVAC room on elevation 164 feet, ceiling mounted smoke detectors on Working Floor elevation 130 feet, portable fire extinguishers and manual hose stations.

In the May 27, 1983, revision to the Appendix R report, the licensee proposed to install an automatic sprinkler system and draft curtains to protect against the spread of fire from one half of the reactor building to the other. The design concept for this system is described in Section 4.2.1. On elevation 185 feet the area south of column line R19 will be sprinklered except for the decontamination room.

Additional modifications include the installation of an automatic halon fire suppression system above remote shutdown panels 2C82 - P001B and 1A; upgrade and extension of the existing missile shield around and behind these panels; and installation of a noncombustible partition between these panels from the back of panel to the missile shield. Also, the licensee committed to install fire detection systems in the sprinklered areas on elevation 158 feet, for the two sprinklered areas of the torus room, and at the above referenced panels.

All required pathway 2 circuits located north of column line R19 will be enclosed in a 1-hour fire barrier. The barrier will extend throughout this fire area and extend to a point 20 feet south of the area boundary at R19. Those pathway 2 circuits that are not protected by a fire barrier will be relocated outside of the fire area.

The licensee also committed to separate circuits for two of the safety relief valves of the ADS system to achieve compliance with Appendix R.

#### 4.2.4 Discussion (RB South of Column Line R19 - Unit 2)

The reactor building south of R19 consists of eight distinct zones, one for each level of the building, the HVAC room on elevation 164 feet, two corner rooms and the HPCI room below elevation 130 feet, and the upper elevations. As described above, unprotected stairways and wall penetrations necessitate that these zones be considered together as a single fire area.

The south half of the reactor building primarily contains components and cables of safe shutdown pathway 2. Pathway 1 systems will be relied upon if a fire should occur in this area. The required pathway 1 systems that are located south of R19 will either be protected by a 1-hour fire barrier or located outside of the area.

Combustible materials in the area consist of cable insulation, lube oil, health physics supplies and charcoal filters.

Existing fire protection includes a sprinkler system in the HVAC room at elevation 164 feet and the HPCI room below elevation 130 feet, ceiling mounted smoke detectors at Working Floor elevation 130 feet, portable fire extinguishers and manual hose stations.

The proposed fire protection modifications include the installation of an automatic sprinkler system, the installation of fire barriers and the rerouting of circuits as described in Section 4.2.3.

#### Justification

The licensee justifies the exemptions in these four areas on the basis of the adequacy of the existing fire protection, the proposed modifications, and the availability of an undamaged redundant shutdown capability which is independent of the fire area.

#### 4.3 Evaluation

The technical requirements of Section III.G.2 are not met in these areas because:

1) redundant shutdown divisions in either half of the reactor building are not separated from each other by continuous 3-hour fire rated barriers; 2) redundant divisions are not separated by continuous 1-hour fire barriers and protected by area-wide automatic fire suppression and detection systems.

We had two principal concerns with the level of fire protection in these areas. The first was that because each half of the reactor building was open to the other, a fire occurring on one side could spread to the other and damage systems associated with the redundant shutdown division.

However, the licensee has proposed to install automatic sprinkler systems and draft curtains at the common boundary between the two fire areas in the reactor building where no physical barrier exists. The draft curtains, located at the ceiling, will retard smoke spread from one area to another and will also bank heat so as to facilitate sprinkler operation. The sprinkler system, consisting of close-spaced, thermally activated sprinkler heads, is expected to discharge water in a "curtain" fashion to prevent significant

horizontal fire propagation. Such systems have been used successfully to protect conveyor openings in fire walls and escalator openings in buildings. Because this is a water barrier rather than a continuous masonry wall, we expect a small quantity of smoke and heat to pass through the water curtain. However, the smoke and hot gases would be so cooled and dispersed throughout the large open areas of the reactor building so as to pose no credible threat to the redundant shutdown division.

Our second concern was that in those locations where components for redundant shutdown pathways were either not separated by the water curtain or were located in close proximity to each other on either side of the curtain, a fire could cause damage to both. An example would be panels 2C32-P001A and 1B. However, the licensee has committed to enclose vulnerable shutdown related cable in a fire rated barrier. In addition, the proposed sprinkler system will cover an area with a minimum width of 20 feet extend in some areas to 20 feet beyond locations where redundant systems are located in close proximity to one another. The panels identified above will be protected by non-combustible barriers, an automatic halon fire suppression system and fire detectors.

The existing fire detection systems and the proposed additional fire detectors will provide reasonable assurance that a fire will be detected in its initial stages before significant damage occurred. The fire would then be suppressed manually by the plant fire brigade before it represented a serious threat to shutdown systems. Until the fire brigade arrives, the fire suppression systems, fire barriers, the large open areas of the reactor building, and the existing spatial separation between redundant divisions will provide reasonable assurance that one division will remain free of fire damage to achieve and maintain safe shutdown conditions.

#### 4.4 Conclusion

Based on our evaluation, we conclude that the existing fire protection, with the proposed modifications, will achieve an acceptable level of safety equivalent to that provided by Section III.G.2. Therefore, the licensee's request for exemption in the reactor building (Units 1 & 2) should be granted.

## 5.0 Control Building Health Physics Area - Unit 2

### 5.1 Exemption Requested

The licensee requested an exemption from Section III.G.2 in this area to the extent that it requires a complete area-wide automatic fire suppression system.

### 5.2 Discussion

The area is bounded by walls, floor and ceiling of reinforced concrete and masonry construction. All penetrations of these fire barriers are protected by 3-hour fire rated doors, dampers or penetration seals.

All components of safe shutdown pathway 1 were assumed lost in a fire in this location. Pathway 2 systems which require protection to assure their availability during a fire are those associated with:

1. Diesel generator 2C and power distribution
2. Residual heat removal
3. High pressure coolant injection
4. Plant service water

Redundant systems are separated by approximately 40 feet in this area.

The fire load consists of 5160 BTU/sq. ft. which corresponds to an ASTM E-119 fire severity of less than 5 minutes.

Existing fire protection includes a smoke detection system, which provides area-wide coverage, manual hose stations and carbon dioxide hose reels.

In the May 27, 1983, revision to the Appendix R report, the licensee proposed to provide automatic sprinkler protection over the shutdown related systems in this area.



The licensee justifies the exemption on the basis of the low fire load, the existing protection and the proposed modification.

### 5.3 Evaluation

The technical requirements of Section III.G are not met because the sprinkler system does not provide complete protection for the entire area.

We were concerned that if a fire occurred in a portion of the area not protected by the sprinkler system, redundant shutdown systems would be damaged.

However, because the fire load is small, any postulated fire would tend to cause damage over a limited area. Because redundant shutdown divisions are separated by about 40 feet, we expect that damage would be sustained by only one pathway.

The area is equipped with a complete smoke detection system. Therefore, a fire would be discovered early and would be put out by the fire brigade before serious damage resulted. If a fire should propagate rapidly and produce elevated temperatures, which would represent a threat to shutdown related systems in the area, the sprinkler system would activate to protect the vulnerable systems until the arrival of the fire brigade.

### 5.4 Conclusion

Based on our evaluation, we conclude that the existing protection with the proposed modification will provide reasonable assurance that one safe shutdown division will be free of fire damage and will achieve an acceptable level of fire protection equivalent to that provided by Section III.G.2. Therefore, the licensee's request for exemption in the Control Building Health Physics Area - Unit 2 should be granted.

## 6.0 Control Building Switchgear Hallway - Unit 2

### 6.1 Exemption Requested

The licensee requested an exemption from Section III.G.2 in this area to the extent that it requires that redundant shutdown divisions be separated by complete 3-hour rated fire barriers.

### 6.2 Discussion

The area is bounded by walls, floor and ceiling of reinforced concrete and masonry block. With the exception of an opening into the control building south corridor, all penetrations of the fire area boundaries are protected against the propagation of fire.

All components of safe shutdown pathway 2 were assumed lost in a fire in this location. All pathway 1 systems will be relocated outside of the fire area. All pathway 1 systems will be relocated outside of the fire area. However, because of the opening in the perimeter wall, shutdown systems in the fire area will be separated from their redundant counterparts in the control building common corridor by the south corridor. The south corridor is 25 feet long and is equipped with smoke detectors and a sprinkler system.

Combustible material located in this area consists principally of cable insulation in four cable trays, which represents a fire load of approximately 45,000 BTU/sq. ft. This corresponds to an ASTM E-119 fire severity of approximately 1/2 hour.

Existing fire protection includes an area-wide smoke detection system, manual hose stations and carbon dioxide hose reels.

The licensee justifies the exemption on the basis of the separation between redundant shutdown systems and the fire protection for the intervening space.

### 6.3 Evaluation

The technical requirements of Section III.G.2 are not met in this area because redundant shutdown divisions are not completely separated by a 3-hour fire rated barrier.

We were concerned that because of the opening in the common wall between the subject fire area and the control building south corridor, a fire could spread to both areas and damage systems from both shutdown divisions.

However, both areas are equipped with smoke detectors. We, therefore, expect that a fire would be discovered in its initial stages before significant heat build-up occurred. While the fire brigade was responding to the emergency, the existing spatial separation between shutdown systems would provide us with reasonable assurance that only one shutdown pathway would be damaged.

If the fire were to propagate through the unprotected perimeter wall opening before the arrival of the fire brigade, the automatic sprinkler system in the south corridor would activate and discharge water in a pattern which would limit the propagation of hot gases. Therefore, the absence of a complete fire barrier would not prevent the achievement and maintenance of safe shutdown conditions.

### 6.4 Conclusion

Based on our evaluation, we conclude that the existing protection, with the proposed modifications, will provide reasonable assurance that one shutdown division will be free of fire damage and will achieve an acceptable level of fire protection equivalent to that provided by Section III.G.2. Therefore, the licensee's request for exemption in the Control Building Switchgear Hallway should be granted.

## 7.0 Control Building Station Battery Rooms - Units 1 & 2

### 7.1 Exemption Requested

The licensee requested an exemption from Section III.G.2 to the extent that it requires the installation of a 3-hour rated fire barrier between redundant trains of safe shutdown related cable and equipment.

### 7.2 Discussion

Each battery room is enclosed by walls, floor and ceiling of reinforced concrete or masonry block construction having a fire resistance rating of 3 hours. HVAC duct penetrations of the walls are protected by fire dampers. Access to these rooms is via a single watertight door that is not fire rated. Safe shutdown equipment located in the rooms consist of one safety division of station batteries and redundant circuits for the drywell air system. The licensee proposes to reroute these circuits as needed to conform to the separation criteria of Section III.G.

Combustible material located in these rooms includes cable insulation, battery casing and hydrogen gas which represent a fire load of approximately 30,000 BTU/sq. ft.

Existing fire protection consists of a smoke detection system, manual hose stations and portable fire extinguishers.

The licensee justifies the exemption on the basis that the watertight door is substantially constructed and will provide adequate protection from fire, in consideration of the existing fire loading and plant safeguards. Also, replacing this door with one that is fire rated will degrade plant safety because the station batteries must be protected from a circulatory water flood. A non-watertight fire rated door would not provide sufficient protection.

### 7.3 Evaluation

The technical requirements of Section III.G are not met because a complete 3-hour fire rated barrier does not exist to separate the redundant station battery rooms.

We were concerned whether the steel, submarine-type, watertight doors will protect the battery room contents from direct flame impingement, heat, and smoke until the fire self-extinguishes or is suppressed by the plant fire brigade. The fuel load in this area of the plant is low. If totally consumed, the combustibles would produce a fire which corresponds to a fire severity on the ASTM E-119 time temperature curve of less than 25 minutes. It is our judgment that a fire in this area, if one should occur, would not be of significant magnitude or duration. It would be discovered early by the smoke detection system and extinguished by the fire brigade using manual fire fighting equipment.

Because the door is watertight, it would prevent smoke from passing through it. Since it is constructed of 5/8-inch thick steel, the door would act as an effective radiant heat shield. The door in conjunction with the ventilation system would prevent convective heat from increasing to a significant level so as to damage safety systems. Therefore, a 3-hour rated door is not necessary to provide reasonable assurance that one safety division would remain free of fire damage.

### 7.4 Conclusion

Based on our evaluation, we conclude that the existing fire protection will achieve an acceptable level of safety equipment to that provided by Section III.G.2. Therefore, the licensee's request for exemption for the Control Building Station Battery Rooms - Units 1 and 2 should be granted.

## 8.0 Turbine Building Condenser Bay - Unit 2

### 8.1 Exemption Requested

The licensee requested an exemption from Section III.G.2 to the extent that it requires the installation of a 3-hour rated fire barrier between redundant trains of safe shutdown related cable and equipment.

### 8.2 Discussion

The area is bounded by walls, floor and ceiling constructed of reinforced concrete. However, unsealed electrical penetrations in the west perimeter wall and unsealed mechanical penetrations in the ceiling communicate with adjoining plant locations, which the licensee has designated as separate fire areas.

All components of safe shutdown pathway 1 were assumed lost in a fire in the condenser bay.

There are no pathway 2 systems located within this fire area.

The combustible material in this location consists of turbine lube oil and cable insulation which represent a fire load of about 360,000 BTU/sq. ft. or a fire severity of approximately 6 hours on the ASTM E-119 time-temperature curve.

Existing fire protection includes a preaction-type sprinkler system which protects the drain cooler area, a fire detection system, manual hose stations and portable fire extinguishers.

The licensee justifies the exemption on the basis of the existing fire protection, the ability of the reinforced concrete construction to limit fire spread, and the presence of a redundant shutdown capability located in a separate fire area.

### 8.3 Evaluation

The technical requirements of Section III.G.2 are not met in this area because the perimeter construction is not 3-hour fire rated.

We were concerned that a fire might originate within this area and propagate to adjoining plant locations. However, the principal fire hazard in the condenser bay, which is associated with a turbine oil spill, is mitigated by the presence of the automatic fire suppression system.

If a turbine oil or other fire should occur within this area, we expect the existing fire detection system to activate and summon the fire brigade.

During the time delay until the arrival of the fire brigade, the reinforced concrete perimeter walls and ceiling would, to a significant extent, confine the damaging effects of a fire to this area. A small quantity of smoke and hot gases would be expected to propagate beyond the perimeter of these fire areas because of the unprotected penetrations. However, these penetrations are located away from the redundant shutdown systems. Therefore, hot gases passing through the penetrations would not affect components or cabling of the redundant division. The remaining products of combustion would be so diluted by ambient air conditions and the temperature of the air mass would be so diminished that they would not present a threat to the redundant division. Consequently, we have reasonable assurance that if a fire were to occur within this area, safe shutdown conditions could be achieved and maintained.

### 8.4 Conclusion

Based on our evaluation, we conclude that the existing fire protection will achieve an acceptable level of safety equivalent to that provided by Section III.G.2. Therefore, the licensee's request for exemption for the Unit 2 Turbine Building Condenser Bay should be granted.

9.0.1 Turbine Building East Cableway - Unit 2

9.0.2 East Cableway - Common

9.0.3 Turbine Building West Cableway, El. 112 Feet

9.1 Exemption Requested

The licensee requested an exemption from Section III.G.2 to the extent that it requires the installation of a 3-hour rated fire barrier between redundant trains of safe shutdown related cable and equipment.

9.2.1 Discussion (East Cableway - Unit 2)

The area is bounded on two sides by 3-hour rated fire walls. The other two sides are open to an adjoining plant location. The floor and ceilings are of reinforced concrete construction.

All safe shutdown pathway 2 systems were assumed lost in a fire in this area. The required pathway 1 systems that are located within the cableway will be protected by a 1-hour fire rated barrier.

Combustible material within this area consists primarily of cable insulation and oil, which represent a fuel load of approximately 340,000 BTU/sq. ft. or a fire severity of about 4-1/2 hours.

Existing fire protection includes an area-wide automatic sprinkler system, an open-head deluge-type fire suppression system for the oil conditioner unit, and area-wide smoke detection system, portable fire extinguishers and manual hose stations.

9.2.2 Discussion (East Cableway - Common)

The area is bounded on three sides by reinforced concrete and masonry block walls having a 3-hour fire rating. The fourth side is open to an adjoining plant location. The floor and ceiling are of reinforced concrete construction.



All systems associated with one safe shutdown pathway were assumed lost due to a fire within this area. The required systems associated with the redundant pathway will be protected by a 1-hour fire barrier. In lieu of protecting the cables for the compressed nitrogen system valve (2T48-F026), the valve will be locked open to assure proper alignment for safe shutdown.

Combustible material within this area consists primarily of cable insulation which represents a fire load of approximately 220,000 BTU/sq. ft. or a fire severity of about 3 hours based on the ASTM E-119 time-temperature curve.

Existing fire protection includes an automatic sprinkler system located throughout the area, an area-wide smoke detection system, a noncombustible radiant energy shield between redundant shutdown divisions, manual hose stations and portable fire extinguishers.

### 9.2.3 Discussion (West Cableway, El. 112 ft.)

The area is bounded by walls, floor and ceiling of reinforced concrete construction.

All systems associated with safe shutdown pathway 1 were assumed lost in a fire in this area. There are no systems from the redundant shutdown capability located within the west cableway or adjoining areas.

Combustible materials located in this area consist primarily of cable insulation.

Existing fire protection includes an area-wide automatic sprinkler system and heat detection system, manual hose stations and portable fire extinguishers.

The licensee justifies the exemptions in these three areas on the basis of the existing fire protection, the proposed modifications and the availability of an undamaged redundant shutdown capability which would not be affected by a postulated fire.

### 9.3 Discussion

The technical requirements of Section III.G.2 are not met in these areas because the perimeter construction is not completely 3-hour fire rated.

There are two concerns with these areas. The first is that a fire within these locations may damage systems from both shutdown divisions. The second is that a fire that originates outside of these areas may spread into them and damage vulnerable shutdown systems.

If a fire were to occur within any of the three areas, the existing fire detection system would activate during the early stages of a fire and summon the fire brigade. If the room temperature rose significantly, the automatic sprinkler system would activate and suppress the fire while protecting the exposed shutdown systems. Until the fire burned itself out, or was extinguished manually by the fire brigade or automatically by the fire suppression system, the proposed 1-hour fire barriers would provide reasonable assurance that one shutdown division would remain free of damage.

A small quantity of smoke and hot gases would be expected to propagate beyond the perimeter of these fire areas because of the unprotected penetrations. However, these penetrations are located away from the redundant shutdown systems. Therefore, hot gases passing through the penetrations would not affect components or cabling of the redundant division. The remaining products of combustion would be so diluted by ambient air conditions and the temperature of the air mass would be so diminished that they would not present a threat to the redundant division.

If a fire were to occur outside of these areas, smoke and heat which would result from a fire would be dissipated throughout the area of fire origin. The existing smoke and heat detection systems would activate or plant operators would discover the fire and summon the plant fire brigade. The fire brigade would then extinguish the fire before shutdown systems within the areas became vulnerable. If a sufficient temperature rise did occur

within these areas, the automatic sprinkler system would activate to protect the exposed systems. Therefore, complete 3-hour fire rated walls around the cableways would not significantly enhance the level of fire protection. We, therefore, have reasonable assurance that safe shutdown conditions could be achieved and maintained.

#### 9.4 Conclusion

Based on our evaluation, we conclude that the existing fire protection, with the proposed modifications will achieve an acceptable level of safety equivalent to that provided by Section III.G.2. Therefore, the licensee's request for exemption for the following three areas should be granted:

1. Turbine Building East Cableway - Unit 2
2. East Cableway - Common
3. Turbine Building West Cableway, El. 112 feet

#### 10.0 Diesel Building Switchgear Room 2G - Unit 2

##### 10.1 Exemption Requested

The licensee requested an exemption from Section III.G.2 to the extent that it requires the installation of an area-wide automatic fire suppression system.

##### 10.2 Discussion

The room is enclosed by walls, floor and ceiling of reinforced concrete. All components of safe shutdown pathway 2 were assumed lost in a fire in this room. The pathway 1 system which requires protection to assure its availability during a fire is Diesel 1B.

Combustible material located in this room includes cable insulation which represents a fire load of 53,460 BTU/sq. ft. or a fire severity of approximately 45 minutes.

Existing fire protection consists of heat and smoke detection systems, portable fire extinguishers, a carbon dioxide hose reel and hose lines from outside hydrants.

The licensee proposed to protect the required pathway 1 system in a 1-hour fire rated barrier as described in the licensee's July 1, 1982, Appendix R report.

The licensee justifies the exemption on the basis of the low fire load, existing fire protection and the proposed modification.

### 10.3 Evaluation

The technical requirements of Section III.G are not met in this area because of the absence of an area-wide automatic fire suppression system.

The fire protection requirements of Section III.G of Appendix R represent an aggregate, comprised of active and passive components. They act synergistically to achieve an acceptable level of safety. Active protection in this area consists of the heat and smoke detection systems. We expect that they will activate in the early stages of a fire and summon the plant fire brigade which will extinguish the fire before serious damage occurs.

Passive protection is achieved by the 1-hour fire rated barrier for the shutdown pathway 1 systems and the fire rated perimeter construction.

The combustible material in this room is limited and widely dispersed. Consequently, we do not expect a fire to propagate widely or with a high heat release rate. The reinforced concrete walls, floor and ceiling will confine the fire to this room until the arrival of the fire brigade. The brigade has sufficient manual fire fighting equipment available to extinguish the fire. Therefore, an automatic fire suppression system is not necessary to limit damage.

Until the fire brigade arrives, the 1-hour fire barrier, which completely protects the systems for one shutdown pathway, will provide reasonable assurance that safe shutdown can be achieved and maintained.

#### 10.4 Conclusion

Based on our evaluation, we conclude that the existing fire protection, with the proposed modifications, will achieve an acceptable level of safety equivalent to that provided by Section III.G.2. Therefore, the licensee's request for exemption for the Diesel Building Switchgear Room 2G - Unit 2 should be granted.

#### 11.0 Control Building Corridor - Common

##### 11.1 Exemption Requested

The licensee requested exemptions from Section III.G.2 in this area to the extent that it requires: 1) a complete 3-hour fire rated barrier between redundant shutdown divisions; or 2) a 1-hour barrier between redundant divisions and area-wide automatic fire suppression and detection systems.

##### 11.2 Discussion

The area is bounded by 2- and 3-hour fire rated walls with openings protected by fire doors, fire dampers and penetration seals. However, the east portion of the south wall is open to the switchgear hallway and the west wall is open to the fan room in the service building. The floor and ceiling area of reinforced concrete construction.

It was assumed that all systems for safe shutdown pathway 1 were lost in a fire in this area. Those required pathway 2 systems that cannot be repaired in 72 hours, as stipulated in Section III.G.1, will be completely protected by a 1-hour fire rated barrier as described in the May 27, 1983, revision to the Appendix R report. However, the barrier for essential panel (R25-S002) will be open at the top but will extend from the floor to the top of the cabinet. The opening is needed for adequate ventilation.

The combustible material in this area consists primarily of cable insulation which represents a fuel load of approximately 334,000 BTU/sq. ft. In addition, a 1-inch hydrogen gas line which was a 2-inch protective pipe casing passes along the west wall of the corridor. A compressed gas cylinder containing a mixture of 10% methane and 90% argon is located in the area within a concrete block enclosure.

Existing fire protection includes an automatic sprinkler system installed at the level of the ceiling. Additional sprinklers are installed beneath the lowest cable trays in the north corridor to protect against exposure fires. The sprinkler system does not extend to the rest rooms, the decontamination rooms in the health physics area and the HVAC room, all of which are part of the same fire area, but contain no safe shutdown equipment. Additional protection includes a complete area-wide smoke detection system, portable fire extinguishers and manual hose stations.

The licensee justified the exemptions on the basis of existing fire protection, proposed modifications and the ability to make repairs to cold shutdown related systems within 72 hours.

### 11.3 Evaluation

The technical requirements of Section III.G are not met in this area because: 1) the perimeter walls are not all 3-hour fire rated; 2) the 1-hour fire rated barrier for essential panel R25-S002 is open at the top; 3) the entire fire area is not protected by an automatic fire suppression system.

We had the following concerns with the level of fire protection in this area:

1. A fire within this location may spread into adjoining fire areas;
2. A fire outside this location may propagate into the corridor and damage redundant shutdown-related systems;

3. A fire originating in the unsprinklered rooms within this area may cause damage to redundant shutdown systems; and
4. The partial height wall at panel R25-S002 might not prevent fire damage to the panel.

However, if a fire were to occur within the corridor, the existing smoke detection system would activate during the early stages of a fire and summon the fire brigade. If room temperatures rose significantly, the sprinkler system would activate and suppress the fire while protecting the exposed shutdown systems and limiting further fire spread. Until the fire was completely extinguished, adequate passive protection is available to ensure that one shutdown pathway will be free of fire damage. The passive protection includes varying degrees of spatial separation between redundant divisions and 1-hour fire rated barriers. Although the barrier at panel R25-S002 does not extend from floor to ceiling, it is high enough to protect the panel from radiant heat and direct flame impingement; coupled with the existence of the preaction sprinkler system, it will provide reasonable assurance that the panel will remain free of damage.

If a fire were to occur outside of the control building corridor, the 2- and 3-hour fire rated walls and reinforced concrete floors and ceiling would tend to limit fire propagation into this area. Because of the unprotected openings, a quantity of smoke and heat is expected to enter this fire area. However, the sprinkler system and 1-hour fire barriers are expected to limit damage to the systems associated with shutdown pathway1. The redundant pathway would then be available to achieve and maintain safe shutdown conditions.

With regard to the unsprinklered rooms within this area, no shutdown related systems are located within them. Consequently, localized fire damage would not affect safe shutdown. If the fire spread beyond these rooms, the sprinkler system in the corridor and the fire barriers would provide reasonable assurance that one shutdown division would remain free of damage.

#### 11.4 Conclusion

Based on our evaluation, we conclude that the licensee's alternate fire protection configuration, with proposed modifications, will achieve an acceptable level of safety equivalent to that provided by Section III.G.2. Therefore, the licensee's request for exemption in the Control Building Corridor - Common should be granted.

#### 12.0 River Intake Structure

##### 12.1 Exemption Requested

The licensee requested an exemption from the requirements of Section III.G.2 to the extent that it requires the installation of a complete, area-wide automatic fire suppression system.

##### 12.2 Discussion

The building is enclosed with walls, floor and ceiling of reinforced concrete. Safe shutdown equipment located within this fire area includes both safety divisions of Residual Heat Removal (RHR) service water pumps and associated cabling and motor control centers (MCC) for both units. In addition, the area contains both safety divisions of plant service water pumps and associated cabling, and MCCs for both units. Redundant safety circuits are located in conduit and cable trays and are either separated by more than 20 feet without intervening combustibles, or one train will be protected by a 1-hour fire rated barrier as described in the May 27, 1983, revision to the Appendix R report. One-half inch steel plate barriers have been installed to separate RHR service water pumps and MCCs for each unit, and to separate the service water pumps for the remainder of the equipment in the building.

Combustible materials located in the area include cable insulation and lube oil representing a fire load of 55,000 BTU/sq. ft.



Existing fire protection consists of a smoke detection system, a wetpipe automatic sprinkler system protecting the RHR and plant service water pump motors, manual hose stations and portable fire extinguishers.

The licensee justified the exemption on the basis of the low fire load, the existing protection and the proposed modifications.

### 12.3 Evaluation

The technical requirements of Section III.G.2 are not met in this area because of the absence of an area-wide automatic fire suppression system. In addition, the fire barriers between the pumps and MCCs are not 1-hour fire rated.

The fire protection requirements of Section III.G of Appendix R represent an aggregate, comprised of active and passive components. They act synergistically to achieve an acceptable level of fire safety. In this area, the licensee has provided active protection in the form of a complete smoke detection system. This system will provide reasonable assurance of early fire awareness and response by operating personnel and the plant fire brigade.

Additional protection is provided in the River Intake Structure by the automatic sprinkler system over the pump motors. Passive protection is achieved by physical separation of redundant divisions by open spaces without intervening combustibles, by partial height barriers to protect the safety components, or by complete 1-hour fire rated barriers.

The fire loading in this location, which includes anticipated transient combustibles, is low. If the combustibles were totally consumed, they would produce a fire which corresponds to a fire severity on the ASTM time-temperature curve of less than 50 minutes; but this fire would be unlikely to occur because of the existing level of fire protection.

It is our judgment that a fire, if one should occur, would not be significant and would not breach the protection provided by physical fire barriers until the fire self-extinguished or was suppressed by the plant fire brigade. We, therefore, have reasonable assurance that one safe shutdown pathway will be free of fire damage.

#### 12.4 Conclusion

Based on our evaluation, we conclude that the existing fire protection, with proposed modification, will achieve an acceptable level of safety equivalent to that provided by Section III.G.2. Therefore, the licensee's request for exemption for the River Intake Structure should be granted.

#### 13.0 East Corridor, Control and Turbine Building and Condensate Pump Area, El. 112 Feet

##### 13.1 Exemption Requested

The licensee requested an exemption from the technical requirements of Section III.G.2 to the extent that it requires that redundant shutdown divisions be separated by complete 3-hour fire rated barriers.

##### 13.2 Discussion

The area is bounded by 3-hour fire rated walls, floor and ceiling. However, the common walls between this location and the condenser and west cableway areas are of non-fire rated reinforced concrete. In addition, an open stairway connects this area with the east cableway.

It was assumed that all safe shutdown pathway 1 systems were lost due to a fire in this location. There are no pathway 2 systems within this area.

The fire load has been estimated to be approximately 34,000 BTU/sq. ft and a fire severity of about 25 minutes.

Existing fire protection includes an area-wide fire detection system, manual hose stations and portable fire extinguishers.

The licensee justifies this exemption based on the low fire loading, the existing protection and the existence of a redundant shutdown capability located outside of the fire area.

### 13.3 Evaluation

The technical requirements of Section III.G.2 are not met in this area because the area perimeter construction is not completely 3-hour fire rated.

We were concerned that a fire would occur in this area and spread to adjoining plant locations and cause damage to components associated with redundant shutdown systems.

However, combustible materials within this area are limited. We therefore, do not expect a fire to propagate rapidly or produce significantly elevated temperatures. Because of the fire detection system, we expect a fire to be detected early and suppressed by the plant fire brigade before significant damage resulted.

Because of the open stairway into the east cableway, smoke and heat from a fire is expected to propagate into this area; but, if this occurs, the automatic sprinkler system in the east cableway will activate to produce exposed shutdown related cables and limit further fire spread.

Systems from only one shutdown pathway are located within the area. These systems would be assumed to be lost if a fire occurred. However, a redundant shutdown capability is available which is outside of this location.

It is therefore our judgment that because of the masonry and reinforced concrete perimeter construction, coupled with the sprinkler system in the east cableway, fire damage would be limited and systems from just one shutdown pathway would be lost. The redundant shutdown pathway would remain free of damage so as to achieve and maintain safe shutdown conditions.

#### 13.4 Conclusion

Based on our evaluation, we conclude that the licensee's alternate fire protection configuration will achieve an acceptable level of safety equivalent to that provided by Section III.G.2. Therefore, the licensee's request for exemption for the East Corridor, Control and Turbine Building and Condensate Pump Area, El. 112 feet should be granted.

#### 14.0 National Fire Protection Association Code Deviations

##### 14.1 Discussion

The proposed fire protection modifications will be installed according to NFPA Codes and Standards.

Deviations from these Codes and Standards are occasionally necessary to deal with plant unique issues. The licensee has requested approval for the following deviations from NFPA Code requirements pertaining to the design and installation of sprinkler and fire detection systems

##### 14.2 Deviation Requested

The licensee requested a deviation from the requirements of NFPA Standards Nos. 13, 14, and 15 governing sprinkler piping hanger design, selection and spacing criteria.

##### Evaluation

The above referenced Standards do not consider seismic hanger support systems.

To achieve the necessary system integrity for a Class 1 support system, the piping configuration is subjected to an analysis for hanger location. The type of hanger assemblies required to withstand the excessive loads and movement above NFPA allowance results in each hanger assembly as a unique design requirement. The resulting installation is an engineered system of greater integrity than the generalized instructions set forth by NFPA for such structures as warehouses, health care facilities, and general office structures, which are designed to satisfy seismic design requirements, achieve a higher level of safety to those that literally conform with NFPA Code requirements and are, therefore, acceptable.

#### 14.3 Deviation Requested

The licensee requested a deviation from the criteria of NFPA Standards Nos. 13, 14, and 15 concerning the use of closed head directional spray nozzles and multibushing reductions.

#### Evaluation

Closed head directional spray nozzles in lieu of standard sprinkler heads are utilized in congested plant areas because of the ability of the nozzle to deliver better water dispersion where congestion exists. Additional considerations include the need to control random water discharge for sensitive electronic equipment and devices that might be adversely affected by water impingement.

Multibushing reductions were used in a limited number of cases in the plant because of the unavailability of ASTM A-234 forged steel reducing fittings. The licensee will verify the integrity of this arrangement via hydrostatic testing and will verify by flow tests that no significant hydraulic degradation results.

We conclude that the use of closed head directional spray nozzles and multibushing reductions, provided it does not result in hydraulic degradation, have no safety significance and are, therefore, acceptable.

#### 14.4 Deviation Requested

The licensee requested deviations from the criteria of NFPA Standard Nos. 13, 15, and 72E concerning the positioning of sprinkler heads and fire detectors.

##### Evaluation

The standards stipulate the density and location of sprinklers and fire detectors based on ordinary hazard considerations. However, because of high floor-to-ceiling distances, obstructions below the ceiling such as cable trays and ductwork, high prevailing overflow patterns, and other similar considerations, standard spacing and positioning of sprinklers and detectors at the ceiling may not assure that these systems will properly function under actual fire conditions. The licensee has indicated that NFPA Code requirements regarding sprinkler/detector spacing are followed when compliance provides reasonable assurance of adequate system performance; but where this is not the case, an engineering analysis is conducted to determine the location of the devices. We find this acceptable.

#### 14.5 Deviation Requested

The licensee requested deviations from the criteria of NFPA Standard Nos. 13, 14, 15, and 20 concerning the prohibition of welding of sections of sprinkler/standpipe piping.

##### Evaluation

The licensee states in its December 20, 1983, revision to its Appendix R report that welding operations on sprinkler/standpipe piping will follow plant hot work procedures which conform with the requirements of other NFPA Standards, including NFPA 518, "Standard for Fire Prevention in use of Cutting and Welding Processes".

With this commitment, compliance with the above referenced standards will be achieved under the Exception to Paragraph 3-12.2.2 of NFPA 13. We therefore, conclude that no deviation exists.

#### 14.6 Conclusion

Based on our evaluation, we conclude that the licensee's request for deviation from the above NFPA Code requirements should be granted.

#### 15.0 Summary

Based on our evaluation, we conclude that the level of fire safety in the areas listed below is equivalent to that achieved by compliance with the technical requirements of Section III.G of Appendix R and, therefore, the licensee's request for exemption in these areas should be granted.

1. 4160V Transformer Room - Unit 1
2. West 600V Switchgear Room - Unit 1
3. Control Building Working Floor, El. 112 Feet - Unit 1
4. West DC Switchgear Room - Unit 1
5. East DC Switchgear Room - Unit 1
6. East 600V Switchgear Room - Unit 1
7. 4160V Transformer Room - Unit 2
8. West DC Switchgear Room - Unit 2
9. East DC Switchgear Room - Unit 2
10. West 600V Switchgear Room - Unit 2
11. East 600V Switchgear Room - Unit 2
12. Reactor Building North of Column Line R7 - Unit 1
13. Reactor Building South of Column Line R7 - Unit 1
14. Reactor Building North of Column Line R19 - Unit 2
15. Reactor Building South of Column Line R19 - Unit 2
16. Control Building Health Physics Area - Unit 2
17. Control Building Switchgear Hallway - Unit 2
18. Control Building Station Battery Rooms - Units 1 & 2
19. Turbine Building Condenser Bay - Unit 2

- 20. Turbine Building East Cableway - Unit 2
- 21. East Cableway - Common
- 22. Turbine Building West Cableway, El. 112 Feet
- 23. Diesel Building Switchgear Room 2G - Unit 2
- 24. Control Building Corridor - Common
- 25. River Intake Structure
- 26. East Corridor, Control and Turbine Building and Condensate Pump Area, El. 112 Feet

Based on our evaluation, we also conclude that the licensee's request for deviations from NFPA Code requirements should be granted.

#### 16.0 Environmental Consideration

We have determined that granting the Exemption and deviations from NFPA requirements will not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that this is an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR 57.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with this action.

#### 17.0 Conclusion

We have determined that this action is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest.

Date: April 18, 1984

The following NRC personnel have contributed to this Safety Evaluation:  
Dennis Kubicki



UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
WASHINGTON, D. C. 20555

January 16, 1985

Docket Nos. 50-321  
and 50-366

Mr. J. T. Beckham, Jr.  
Vice President - Nuclear Generation  
Georgia Power Company  
P. O. Box 4545  
Atlanta, Georgia 30302

Dear Mr. Beckham:

By letters dated September 4, 1984, as supplemented by letters dated October 2, 1984, October 19, 1984, October 26, 1984, and December 20, 1984, you requested an exemption to the scheduler requirements of 10 CFR 50.48(c) which would extend the deadline from January 18, 1985, to November 30, 1986, for installation of fire protection modifications in certain areas of Hatch Units 1 and 2. These exemptions pertain only to modifications for which plant shutdown is not required in order to install them.

We have completed our evaluation of the requested exemption and the interim compensatory measures that you have proposed to take until the required modifications are completed and have granted the requested scheduler exemption as specified in the enclosed Exemption.

Sincerely,

John F. Stolz, Chief  
Operating Reactors Branch #4  
Division of Licensing

Enclosure:  
Exemption

cc w/enclosure:  
See next page

Hatch 1/2  
Georgia Power Company

50-321/366

cc w/enclosure(s):

G. F. Trowbridge, Esq.  
Shaw, Pittman, Potts and Trowbridge  
1800 M Street, N.W.  
Washington, D. C. 20036

Mr. James P. O'Reilly, Regional  
Administrator  
U. S. Nuclear Regulatory  
Commission Region II  
101 Marietta Street, Suite 3100  
Atlanta, Georgia 30303

Ruble A. Thomas  
Vice President  
P. O. Box 262:  
Southern Company Services, Inc.  
Birmingham, Alabama 35202

Louis B. Long  
Company Services, Inc.  
Post Office Box 2625  
Birmingham, Alabama 35202

Charles H. Badger Office of Southern  
Planning and Budget  
Room 610  
270 Washington Street, S.W.  
Atlanta, Georgia 30334

Chairman  
Appling County Commissioners  
County Courthouse  
Baxley, Georgia 31513

Mr. L. T. Gucwa  
Georgia Power Company  
Engineering Department  
P. O. Box 4545  
Atlanta, Georgia 30302

J. Leonard Ledbetter, Commissioner  
Department of Natural Resources  
270 Washington Street, N.W.  
Atlanta, Georgia 30334

Mr. H. C. Nix, Jr. General Manager  
Edwin I. Hatch Nuclear Plant  
Georgia Power Company  
P. O. Box 442  
Baxley, Georgia 31513

Regional Radiation Representative  
EPA Region IV  
345 Courtland Street, N.E.  
Atlanta, Georgia 30308

Resident Inspector  
U.S. Nuclear Regulatory Commission  
Route 1, P. O. Box 279  
Baxley, Georgia 31513

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the matter of

GEORGIA POWER COMPANY, ET AL

Dockets Nos. 50-321  
and 50-366

(Edwin I. Hatch Nuclear Plant,  
Units 1 and 2)

EXEMPTION

I.

The Georgia Power Company (GPC or the licensee) and three other co-owners are the holders of Facility Operating Licenses Nos. DPR-57 and NPF-5 which authorize operation of the Edwin I. Hatch Nuclear Plant, Units 1 and 2 (Hatch or the facilities) at steady state reactor power levels not in excess of 2436 megawatts thermal for each unit. The facilities are boiling water reactors located at the licensee's site in Appling County, Georgia. The licenses are subject to all rules and regulations of the Nuclear Regulatory Commission (the Commission).

II.

Subsection (c) of 10 CFR 50.48 requires that fire protection modifications for which plant shutdown is not required (other than alternate shutdown capability) be completed nine months after the effective date of Appendix R. For the items covered by this exemption, the licensee was able to take advantage of the "tolling provision," subsection (c)(6), thereby commencing the nine-month period upon issuance of the staff Safety Evaluation dated April 18, 1984. The deadline for these modifications was therefore January 18, 1985.

- 2 -

In a submittal dated September 4, 1984, supplemented by letters dated October 2, 1984, October 19, 1984, October 26, 1984, and December 20, 1984, the licensee requested an exemption from the scheduler requirements of 10 CFR 50.48(c) which would extend the deadline from January 18, 1985, to November 30, 1986, for installation of fire protection modifications in certain areas of Units 1 and 2 for which plant shutdown is not required in order to install the modifications. The proposed exemption is needed since the licensee has indicated that the installation of the non-outage related fire protection modifications in these areas of Units 1 and 2 cannot be completed on the schedule stated in 10 CFR 50.48(c) for the following reasons:

- (1) The magnitude of the overall fire protection enhancement program at plant Hatch is large and has a projected cost of 25 million dollars (excluding the alternate shutdown system for the control room/cable spreading room fire).
- (2) Currently, extensive redesign and modifications of safe shutdown related equipment and cables is underway in response to equipment qualification, operational safety enhancement and plant reliability improvement projects. These projects are interdependent with the fire protection program and the design for Appendix R cableway barriers must, in many cases, follow the final design of the equipment qualification project.
- (3) Design sequences of the Appendix R modifications are complex and the final bill of materials and specifications for the bidding of installation contracts cannot proceed until the design is near its

final stages. Following design, implementation must await rerouting of cables from Appendix R or equipment qualification modifications.

The first of these reasons, the overall extent and cost of the fire protection program at Hatch, is not by itself an acceptable basis for extension of the schedule. Based on the information provided, the Hatch program is commensurate with programs at other facilities both in extent and cost. This Exemption is therefore not based on this factor. The second and third reasons, having to do with the interrelationship between non-outage-related and outage-related work and the inability to perform certain tasks before a final design has been completed, are acceptable bases on which a schedule extension can be granted.

The licensee indicated that in each area for which schedular exemptions are requested, the vulnerable systems will be protected by one of the following means: (1) a fire watch; (2) automatic fire detection and fire suppression systems; (3) complete, noncombustible fire barriers or a combination of (2) and (3).

In those locations where a fire watch will be provided, an individual will be present to detect and respond to any fire emergency. This provides reasonable assurance that a fire will be discovered in its initial stages before significant damage occurs and will be suppressed manually by either the fire watch or the plant fire brigade. Under these circumstances, fire damage will be limited, and no loss of safe shutdown capability should occur.

- 4 -

In several locations, the licensee has proposed to install a complete noncombustible fire barrier to protect one shutdown division. If a fire were to occur, the existing fire detection systems or a plant operator would detect a fire and summon the fire brigade. One shutdown division would be protected by the barrier until fire extinguishment was effected. Consequently, the Commission's staff has reasonable assurance that safe shutdown could be achieved and maintained via the undamaged shutdown division.

Based on the considerations discussed above, the Commission concludes that the licensee has provided reasonable and acceptable interim post-fire safe shutdown capability or interim fire protection measures to support the exemption request.

### III.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12(a), an exemption as requested by the licensee's letter of September 4, 1984, and supplemented by letters dated October 2, 1984, October 19, 1984, October 26, 1984, and December 20, 1984, is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest. The Commission hereby grants an exemption from the requirements of 10 CFR 50.48(c) to extend the deadline for completion of fire protection modifications not requiring plant shutdown at the Edwin I. Hatch Nuclear Plant, Units 1 and 2, until November 30, 1986, for each Unit.

- 5 -

Pursuant to 10 CFR 51.32, the Commission has determined that the issuance of the exemption will have no significant impact on the environment (50 FR 2113).

This Exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Edson G. Case, Acting Director  
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland  
this 16th day of January 1985.

UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
WASHINGTON, D. C. 20555

May 14, 1985

Docket Nos. 50-321  
and 50-366

Mr. J. T. Beckham, Jr.  
Vice President - Nuclear Generation  
Georgia Power Company  
P. O. Box 4545  
Atlanta, Georgia 30302

Dear Mr. Beckham:

By letter dated April 16, 1985, you requested an exemption to the schedular requirements of 10 CFR 50.48 (c) which would extend the deadline for installation of fire protection modifications in certain areas of Hatch Units 1 & 2 to November 30, 1986. This exemption pertains only to modifications for which plant shutdown is required in order to install them.

We have completed our evaluation of the requested exemption and the interim compensatory measures that you have proposed to take until the proposed modifications are completed and have granted the requested schedular exemption as specified in the enclosed Exemption.

Sincerely,

John F. Stolz, Chief  
Operating Reactors Branch #4  
Division of Licensing

Enclosure:  
Exemption

cc w/enclosure  
See next page



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the matter of

GEORGIA POWER COMPANY, ET AL

Dockets Nos. 50-321  
and 50-366

(Edwin I. Hatch Nuclear Plant,  
Units 1 and 2)

EXEMPTION

I.

The Georgia Power Company (GPC or the licensee) and three other co-owners are the holders of Facility Operating Licenses Nos. DPR-57 and NPF-5 which authorize operation of the Edwin I. Hatch Nuclear Plant, Units 1 and 2 (Hatch or the facilities) at steady state reactor power levels not in excess of 2436 megawatts thermal for each unit. The facilities are boiling water reactors located at the licensee's site in Appling County, Georgia. The licenses are subject to all rules and regulations of the Nuclear Regulatory Commission (the Commission).

II.

Subsection (c) of 10 CFR 50.48 requires that fire protection modifications for which plant shutdown is not required (other than alternate shutdown capability) be completed before startup following the first refueling outage that commences 180 days or more after the effective date of Appendix R. For the items covered by this exemption, the licensee was able to take advantage of the "tolling provision," subsection (c) (6), thereby commencing the 180-day period upon issuance of the staff Safety Evaluation

dated April 18, 1984. The deadlines for these modifications were therefore startup following the refueling outage that is scheduled to commence in the fall of 1985 for Hatch Unit 1 and startup following the refueling outage that commenced on April 5, 1985 for Hatch Unit 2.

In a submittal dated April 16, 1985 the licensee requested an exemption for the schedular requirements of 10 CFR 50.48 (c) which would extend the deadline from startup following the above stated refueling outages, to November 30, 1986, for installation of fire protection modifications in certain areas of Unit 1 and 2 for which plant shutdown is required in order to install the modifications. The proposed installation is needed since the licensee has indicated that the installation of the outage related fire protection modifications in these areas of Unit 1 and 2 cannot be completed on schedule stated on 10 CFR 50.48 (c) for the following reasons:

- (1) The magnitude of the overall fire protection enhancement program at the Hatch plant is large and has a projected cost of 25 million dollars (excluding the alternate shutdown system for the control room/cable spreading room fire).
- (2) Currently, extensive redesign and modifications of safe shutdown related equipment and cables is underway in response to equipment qualification, operational safety enhancement, and plant reliability improvement projects. These projects are interdependent with the fire protection program and the design for Appendix R cableway

barriers must, in most cases, follow the final design of the equipment qualification project.

- (3) Design sequences of the Appendix R modifications are complex and the final bill of materials and specifications for the bidding of installation contracts cannot proceed until the design is near its final steps. Following design, implementation must await rerouting of cables from Appendix R or equipment qualification modifications.

The first of these reasons, the overall extent and cost of the fire protection program at Hatch, is not by itself an acceptable basis for extension of the schedule. Based on the information provided, the Hatch program is commensurate with programs at other facilities both in extent and cost. This exemption is therefore not based on this factor. The second and third reasons, having to do with the interrelationship between non-outage-related and outage-related work and the inability to perform certain tasks before a final design has been completed, are acceptable bases on which a schedule extension can be granted.

The licensee indicated that in each area for which schedular exemptions are requested, the vulnerable systems will be protected by one of the following means: (1) a fire watch, or (2) automatic fire detection and fire suppression systems.

In those locations where a fire watch will be provided, an individual

will be permitted to detect and respond to any fire emergency. This provides reasonable assurance that a fire will be discovered in its initial stages before significant damage occurs and will be suppressed manually by either the fire watch or the plant fire brigade. Under these circumstances, fire damage will be limited, and no loss of safe shutdown capability should occur.

In those locations where automatic fire detection and suppression systems are located, we expect a fire to be detected in its formative stages, before significant fire propagation or temperature rise occurs. The fire would then be suppressed by the fire brigade using manual fire fighting equipment. If rapid fire spread occurred before the arrival of the fire brigade, we expect the sprinkler system to actuate and control the fire, reduce room temperatures, and protect the vulnerable shutdown systems.

Based on the considerations discussed above, the Commission concludes that the licensee has provided reasonable and acceptable interim post-fire safe shutdown capability or interim fire protection measures to support the exemption request.

### III.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12 (a), an exemption as requested by the licensee's letter of April 16, 1985, is authorized by law and will not endanger life or property or the

common defense and security and is otherwise in the public interest. The Commission hereby grants an exemption from the requirements of 10 CFR 50.48 (c) to extend the deadline for completion of fire protection modifications requiring plant shutdown at Edwin I. Hatch Nuclear Plant, Units 1 and 2, until November 30, 1986, for each Unit.

Pursuant to 10 CFR 51.32, the Commission has determined that the issuance of the exemption will have no significant impact on the environment (50 FR 2113).

The Exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Harold R. Denton, Director  
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland  
this 14th day of May 1985.

## **13.2 Detection Scope Document**

**PROFESSIONAL LOSS CONTROL, INC.**

DESIGN PHILOSOPHY  
FOR  
FIRE DETECTORS  
AT  
E. I. HATCH NUCLEAR PLANT, UNITS 1 and 2

Prepared by:

*Robert J. O'Laughlin*  
Robert J. O'Laughlin, P.E., CSP  
Senior Fire Protection Engineer

Reviewed by:

*Donald J. Perrault*  
Donald J. Perrault, P.E.  
Senior Fire Protection Engineer

Issued:

| Rev. | Date    | Description     |
|------|---------|-----------------|
| 0    | 12/2/85 | ISSUED DOCUMENT |
| 1    | 3/18/86 | ADDED COMMENTS  |
| 2    | 8/2/86  | ADDED COMMENTS  |
|      |         |                 |

## TABLE OF CONTENTS

| <u>Subject</u>                                         | <u>Page</u> |
|--------------------------------------------------------|-------------|
| 1.0 Purpose and Scope . . . . .                        | 1           |
| 2.0 Introduction . . . . .                             | 2           |
| 2.1 Fire Development . . . . .                         | 2           |
| 2.2 Tests of Fire Detectors . . . . .                  | 4           |
| 2.3 Types of Detectors . . . . .                       | 6           |
| 2.4 Design Parameters for Detector Placement . . . . . | 8           |
| 3.0 Specific Plant Areas . . . . .                     | 15          |
| See SCS calculation SMNH 93-058.                       |             |
| 4.0 References . . . . .                               | 16          |



DESIGN PHILOSOPHY  
FOR  
FIRE DETECTORS  
AT  
E. I. HATCH NUCLEAR PLANT, UNITS 1 and 2  
REV. 2

1.0 PURPOSE AND SCOPE

This report examines the current state-of-the-art in fire detector technology as it relates to the detection of fires at Plant Hatch for nuclear safety considerations, for operational continuity of electrical generation, and for property protection.

The purpose of this report is the development of a design philosophy for the placement of fire detectors within fire hazardous areas which could jeopardize the plant's safety. This report reviews fire development, both smoldering type fires and flaming mode fires, and the testing of heat and smoke detectors for determining performance requirements of fire detectors. Operating principles of each detector type applicable to Plant Hatch are discussed in terms of application and threshold of operation. Following a discussion on design and operation of fire detectors, detector placement parameters are analyzed to determine their influence on detector sensitivity and response time.

Following the introductory section, each building and major fire area within Plant Hatch will be analyzed based upon detector placement parameters to determine the most appropriate type of detector for each major fire area. The main thrust of detector placement will be compliance with the National Fire Protection Association's Standards on fire detection systems which the NRC references in their regulatory guidelines and accessibility of fire detectors for ease of maintenance and surveillance.

The design philosophy expressed in this report does not address the type or design of the fire detection system to be installed in Plant Hatch. This report is only concerned with the type of fire detector to be used in each fire area and the placement of these detectors.

## 2.0 INTRODUCTION

### 2.1 Fire Development

The primary purpose of the fire detection system is to respond to a fire and to transpose this response into an audio-visual signal such that plant personnel can take appropriate actions. Fire detection systems are designed to detect some phase of activity occurring during one or more of the four stages of fire development. These four phases of fire development involving solid combustible materials are:

- Incipient - products of combustion are invisible with no visible smoke, flame or heat generated.
- Smoldering - products of combustion are visible with significant amounts of smoke and fire gases given off. Flame and heat production are very limited.
- Flame - the initial fuel source is producing flame but significant thermal energy release is not yet present.
- Heat - uncontrolled thermal energy release along with other products of combustion.<sup>1</sup>

The incipient stage is the earliest stage of fire development where pyrolysis and gasification produce submicron size aerosols. The smoldering stage is one in which the thermal decomposition reaction is further advanced and visible particulates are evolved. During the incipient and smoldering stages, aerosols and smoke travel depends primarily on local air flow conditions (HVAC systems).

The duration of the flaming stage covers the period from initial flame occurrence to the fully developed fire. The thermal energy release during the heat stage is sufficient to result in a significant temperature rise at the ceiling level and sufficient radiant thermal energy is evolved to be detected at considerable distance from the fire. This radiant energy preheats surrounding combustible materials for continued fire propagation.<sup>2</sup>

The length of time associated with these individual fire stages varies with the type, chemistry, and geometry of the combustible material, and the heat release rate of the ignition source. As an example, the time required for a lubricating oil fire from a turbine bearing to pass through the incipient and smoldering fire stages is insignificant. Almost instantly this type of fire would be in the flaming and heat generation modes; and, therefore, detectors that are sensitive to heat and flame would be most appropriate for a typical flammable and combustible liquid fire. Another example would be a fire initiated in cable insulation which probably would have a relatively long time during the incipient and smoldering fire stages. Detectors most sensitive to fire gases and smoke particulates would be appropriate for the early phases of fire development.

These detectors, generally referred to as early warning or "smoke" detectors, are particularly useful when the type of fire anticipated would produce significant quantities of smoke and combustion products before heat. As pyrolysis progresses towards the ignition temperature, the concentration of aerosols increases to the point where large particles are formed by coagulation. The detection mode best suited for the smaller invisible aerosols is the ionization chamber detector and the detection mode best suited for the large visible aerosols is the light scattering photoelectric detector.<sup>3</sup> Common application of these detectors is in areas where early warning is required for postulated fires in plastic materials, such as cable insulation and jacketing material, and in cellulosic products, such as wood products and natural clothing material.

Detectors sensitive to heat operate when the convected thermal energy from a fire causes an increase in the ambient air temperature adjacent to the detectors. The operation of any fixed temperature heat sensitive device is dependent upon the transfer of thermal energy from the heated air to the device, since the device will only operate when the temperature of the device itself reaches its operating temperature. There is a time lag between the time the heated air reaches the operating temperature of the detector and the time the detector operates. Time required for release of sufficient energy to produce significant convected thermal energy varies from less than one minute for rapidly developing fires to hours for slowly developing or smoldering deep seated fires. The detection mode best suited for thermal energy release is the fixed temperature and rate compensation type of heat detectors. Common application of these types of detectors is in areas where rapid fire development is expected, such areas containing combustible and flammable liquids.

## 2.2 Tests of Fire Detectors

Fire tests for smoke detectors are conducted based upon only one set of conditions, that being a 22' x 36' room with a 10 foot high smooth ceiling, no air movement and no physical obstructions -- not the typical conditions found in a nuclear power plant which normally has high ceilings, HVAC systems producing significant air movement, and major obstructions in the upper half of most rooms. These conditions present detector location problems because they vary from the ideal test configuration.

During UL fire tests for smoke detectors, ionization and photoelectric types are required to alarm at less than 7% smoke obscuration per foot. These detectors must alarm when installed

about 17 feet horizontally from the test fire in a 36 x 22-foot room with a 10-foot high smooth ceiling with no forced ventilation and no obstructions under four conditions:

- 1) within four minutes when exposed to a shredded paper fire,
- 2) within two minutes when exposed to a foam polystyrene fire,
- 3) within three minutes when exposed to a leaded gasoline fire, and
- 4) within four minutes when exposed to a wood brand fire.

It should be noted that for smoke detectors, no specific spacing criteria are assigned by the approving test laboratory.<sup>1,4</sup>

Fire tests for heat detectors are conducted based upon pan fires of flammable liquid of various sizes. In each test, the time of operation of 160°F automatic sprinklers installed on a 10' x 10' spacing and time of operation of the detectors are measured. The test conditions are a smooth ceiling construction of ordinary height, generally regarded as the most favorable condition for the distribution of heated air currents resulting from a fire. The fire tests are conducted in a 60 x 60 ft. room having a 15 ft. 9 in. high smooth ceiling and minimum air movement. Again, these are not the typical conditions found in a nuclear power plant. The test fire of denatured alcohol is located approximately 3 ft. above the floor and is of an intensity so that sprinkler operation is achieved within 2 minutes. The heat detector must operate before the automatic sprinkler and within two minutes when the detector is installed on its maximum spacing. The key point is the fact that the point of comparison is the operation of a sprinkler.

The distance that heat detectors are located from the fire source is representative of the spacing for which the detector is being tested. This distance is also the maximum distance from the fire



that is allowed for proper installation, and thus, produces the slowest acceptable detector response.<sup>1,4</sup>

The fire test conditions do not reflect the typical configurations found in nuclear power plants. Therefore, conservative spacing is warranted in nuclear plants due to high ceiling heights, obstructed ceilings configurations, and high air flow patterns in most areas of the plant.

### 2.3 Types of Detectors

Early warning fire detectors are generally two types, ionization and photoelectric. The ionization detectors ionize the air within the detector by the bombardment of alpha or beta particles from a reactivity source such as Americium 241 or Nickel 63. A minute but measurable current flow is produced through the ionized field in the chamber. The detector responds best to particle sizes between 0.01 and 1.0 micron. When combustion aerosols enter the detection chamber, they attach themselves to the ions causing a reduction in current flow. This reduction is used to trigger an alarm signal. To reduce the susceptibility to false alarms, ionization detectors employ a dual chamber detection method. The second or inner chamber is usually arranged similarly to the first, except that it is shielded from combustion products. This chamber compensates for the effects of temperature, humidity, and pressure on the first or outer chamber.

Two common types of photoelectric detectors are the light-obscuration type and light-scattering type. The light obscuration detectors operate when a change in current results from the partial blocking of light emitted from a diode light source by particulate matter (visible smoke) between the light source and a receiving element at 7% or less smoke obscuration per foot (generally less than 2%). The light scattering detectors contain a light source, a reflection chamber for the smoke to enter, and a light sensitive photocell. The light, reflected by smoke parti-

cles, is used to change the conductivity of a circuit by striking the photocell within a single detector.

Three types of heat (thermal) detectors will be discussed, the fixed temperature thermostatic cable, linear thermistor and the rate compensation thermal detector. The thermostatic cable is a "line" type of detector which consists of a pair of tensioned metal conductors separated from each other by heat sensitive electrical insulation. A protective covering is used to both hold the wire pair in close proximity to each other and to prevent mechanical damage. At a specific temperature, the heat-sensitive covering in the area of the fire melts, permitting the two wires to contact, initiating an alarm. This detection device is often used to trace cable trays and conduit since it will detect a fire occurring anywhere along the run of detector cable. Following a fire, the thermostatic cable involved in the fire can be repaired by splicing in a new section.

Linear thermistors are another line type heat (thermal) detector. A metallic sheath contains a ceramic-like thermistor material in which are embedded the electrical conductors. The thermistor changes its electrical resistance between the conductors with temperature. At normal ambient temperatures, resistance is high but drops rapidly as the sensor is heated. A control unit switches on the alarm when the resistance of the sensor drops to the pre-set level. When the fire or overheat condition has been eliminated, the sensor resistance rises again, the control unit resets automatically and is immediately available for further detecting duty. The sensing element consists, essentially, of an infinite number of unit thermistors electrically connected in parallel along its length. The resistance of the sensing element, thus, is a function of the length heated, as well as the temperature involved. Heating of less than the full length of element will require that portion to be heated to a higher temperature to achieve the same total resistance. As a result the system responds, not to a fixed alarm temperature, but

to the sum of the resistance (in parallel). This feature permits the alarm point to be set close to the maximum general ambient temperature, giving greater sensitivity to a general overheat or fire, without being subject to false alarms from localized non-hazardous warm spots.

The rate compensation detector is sensitive to the rate of temperature rise as well as to a predetermined fixed temperature level. Generally, rate compensation detectors employ long cylindrically shaped outer shells housing struts that are held in compression, on which contact points are mounted. The shell and struts are made of materials that possess different rates of thermal expansion. As the temperature rises, the shell elongates faster than the struts, thereby closing contacts and initiating an alarm. Should the rate of temperature rise be slow, the shell and struts will elongate together, relieving the compression on the struts to a point where the contacts meet, sounding an alarm at a fixed temperature. These detectors operate somewhat faster than ordinary rate-of-rise and combination fixed temperature/rate-of-rise types. They also perform well in damp and/or exterior locations. However, their use is limited because they respond only to heat.

#### 2.4 Design Parameters for Detector Placement

Properly locating fire detectors in a large industrial complex, such as a nuclear power plant, requires consideration of many parameters during an engineering survey.

One of the key parameters for detector placement is conformance to NFPA No. 72D (Proprietary Protective Signaling Systems) and NFPA No. 72E (Automatic Fire Detectors) due to the high emphasis placed on these two standards by the NRC. The standards provide guidance on the maximum spacing and location of detectors once



the types have been selected. Some of the rules in NFPA 72E pertinent to Plant Hatch with respect to heat (thermal) detectors are:

- 3-4.1 Spot-type detectors shall be located upon the ceiling not less than 4 in. from the side wall or on the side walls between 4 in. and 12 in. down from the ceiling.

In the case of beam construction where beams are less than 12 in. in depth and less than 8 ft. on center, detectors may be installed on the bottom of beams.

- 3-4.2 Line type heat (thermal) detectors shall be located upon the ceiling or on the side walls not more than 20 in. from the ceiling.

- 3-5.1 Smooth Ceiling Spacing. One of the following rules shall apply:

- (a) The distance between detectors shall not exceed their listed spacing and there shall be detectors within a distance of one-half the listed spacing, measured at a right angle, from all walls or partitions extending to within 18 inches of the ceiling;
- (b) All points on the ceiling shall have a detector within a distance equal to 0.7 times the listed spacing. This will be useful in calculating locations in corridors or irregular areas.

3-5.3 Beam Construction - it shall be treated as a smooth ceiling if the beams project no more than 4 inches below the ceiling. If the beams project more than 4 inches below the ceiling, the spacing of spot-type heat detectors at right angles to the direction of beam travel shall be not more than two-thirds the smooth ceiling spacing allowable under paragraphs 3-5.1. If the beams project more than 18 inches below the ceiling and are more than 8 feet on centers, each bay formed by the beams shall be treated as a separate area.

In addition to meeting the requirements of NFPA 72E, the location and spacing of linear thermal detectors in cable trays should be per the manufacturer's instructions. Generally, linear thermal detectors are installed in a sine wave pattern IN a cable tray. The length along the cable tray of the sine wave should be approximately 6 ft. The linear thermal detector should be positioned on top of the exposed cables in the trays.

However, in areas where trays are stacked and it is difficult to install the linear thermal detector in the above manner, the following alternative method may be used if certain parameters are met. The linear thermal detector may be run in a straight line approximately down the middle of the cable tray and loosely attached to a wire or cable in the tray, if the tray is no more than 30 inches wide. Alternately, it may be attached to the tray above if the trays are no more than 18 inches apart.

The criteria for "in-tray" linear thermal detectors are as follows:

- If the solid bottom tray is enclosed, either by fire barrier wrap or by metal tray cover, it does not require "in-tray" detection.

-If the tray contains only armored cable, it does not require "in-tray" detection.

-If the tray is solid bottom and has lay-in fire barrier (Kaowool), it does not require "in-tray" detection.

-If the tray is open ladder type and has metal covers or lay-in fire barrier, it does not require "in-tray" detection as long as it remains in the horizontal position. If the tray makes a transition to the vertical and runs for more than 3'-0", it will require linear thermal detection on the open side (one side only). See Figure 1.

Other sections of NFPA 72E regarding smoke detector spacing and location are:

#### 4-3.5 Smooth Ceiling Spacing.

4-3.5.1 Spot-type Detectors - on smooth ceilings, spacing of 30 feet may be used as a guide. In all cases, the manufacturer's recommendations shall be followed. Other spacing may be used depending on ceiling height, different conditions or response requirements.

#### 4-3.7 Beam Construction.

4-3.7.1 Ceiling construction where beams are 8 inches or less in depth shall be considered equivalent to a smooth ceiling.

4-3.7.2 If beams are over 8 inches in depth, the spacing of spot-type detectors in the direction perpendicular to the beams shall be reduced. The spacing of line-type detectors run perpendicularly to the

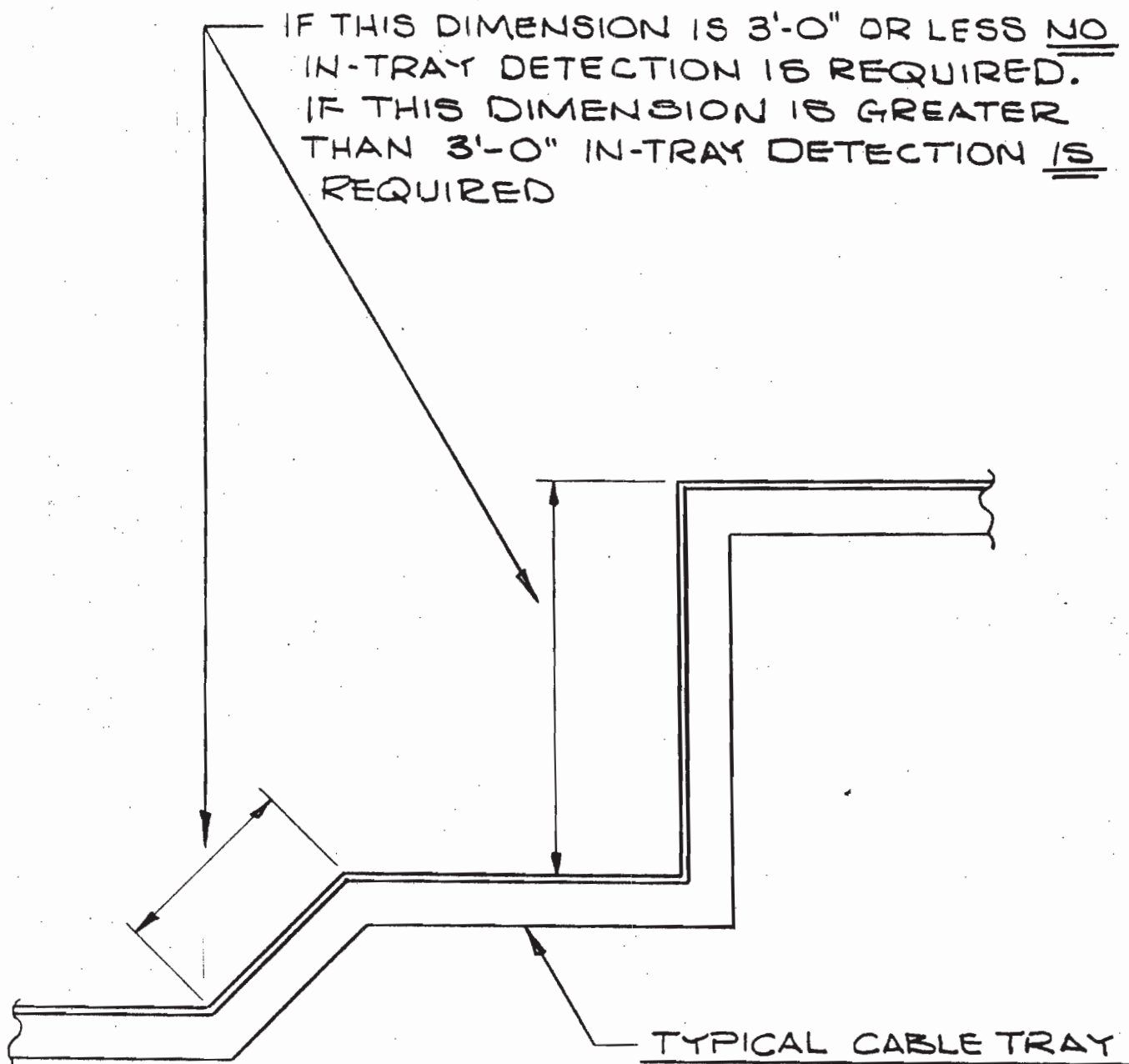


FIG. 1

beams need not be reduced; however, if the line-type detectors are run parallel to the beams the spacing shall be reduced.

4-3.7.3 If the beams exceed 18 inches in depth and are more than 8 feet on centers, each bay shall be treated as a separate area requiring at least one spot-type or line-type detector.<sup>6</sup>

4-3.8 Sloped Ceilings (peaked or Shed-Type). A row of detectors shall first be spaced and located within 3 feet of the peak measured horizontally. The number and spacing of additional detectors, if any, shall be based on the horizontal projection of the ceiling.

In addition to meeting the intent of the NFPA standards, another important parameter that has to be addressed is the accessibility of detectors within the plant. Detectors require maintenance and periodic testing to assure reliable operations during fire occurrences. Accessibility is defined such that detectors can be reached from the floor, ladder, or scaffold. Climbing on cable trays, HVAC ducts, conduit, electrical or mechanical equipment to test and maintain detectors is discouraged within the plant.

Ceiling heights is another major parameter that must be considered for proper detector placement. Thermal detectors are only tested in a room with the ceiling height 15 ft. 9 in. and smoke detectors are only tested in a room with a 10 ft. high smooth ceiling. One of the major problems encountered when trying to detect an incipient or smoldering fire in a high ceiling room is stratification of smoke. This occurs when the temperature of the smoke reaches that of the ambient air in the room. Complicating this problem, the temperature of the air near the ceiling is usually a few degrees higher than the air near the floor. Sufficient thermal lift must be available in the smoke plume to overcome the ceiling heat barrier in order to reach the detectors.

As for Plant Hatch, reduced spacing of smoke detectors will be essential in the Reactor Building due to the high ceilings combining with a postulated smoldering cable insulation fire.

In addition to high ceilings, HVAC ventilation will reduce the sensitivity of detectors to a given fire. Detector spacing will be reduced where there is an increase in air flow such as near supply ventilation diffusers. Air velocities in air flow patterns need to be assessed in the evaluation of the fire detection design to determine stratification problems. Again, this effect is particularly important for ionization and photoelectric detectors where the stratification of air in a room may hinder air containing smoke particles from reaching ceiling mounted detectors.

In regard to heat (thermal) detector placement, detectors will not be located adjacent to high temperature heat sources such as room heaters or light bulbs. In addition, linear thermal detectors will be required in open cable trays and at an intermediate level to provide a quick response to an incipient fire. Temperature ratings of the detectors shall be selected based on the following table:

| <u>Temperature<br/>Classification</u> | <u>Temp. Rating<br/>Range °F</u> | <u>Max. Room Ceiling<br/>Temp. °F</u> |
|---------------------------------------|----------------------------------|---------------------------------------|
| Low*                                  | 100 to 134                       | 20 below†                             |
| Ordinary                              | 135 to 174                       | 100                                   |
| Intermediate                          | 175 to 249                       | 150                                   |
| High                                  | 250 to 324                       | 225                                   |
| Extra High                            | 325 to 399                       | 300                                   |
| Very Extra High                       | 400 to 499                       | 375                                   |
| Ultra High                            | 500 to 575                       | 475                                   |

\*Intended only for installation in controlled ambient areas. Units marked to indicate maximum ambient installation temperature.

†Maximum ceiling temperature has to be 20°F or more below detector rated temperature.

NOTE: The difference between the rated temperature and the maximum ambient should be as small as possible to minimize the response time.



With respect to detector placement (dimensions between detectors and from walls), tolerances should be limited to a maximum of  $\pm 1$  foot. However, the distances between detectors should not exceed 30 ft. nor 15 ft. from walls (measured at right angle). In addition, all points on the ceiling shall have a detector within a distance equal to 0.7 times the listed spacing.

Though the standard requires manual pull stations, the deletion of this requirement can be justified as follows:

- The plant is equipped with an in-house phone system. This will allow for direct contact with the unit control room. Plant personnel are trained to use the in-house phone system in an emergency.

- Automatic smoke and heat detectors are provided throughout most of the critical plant areas.

- The plant operating staff conducts periodic rounds of the various plant areas during each shift.

### 3.0 SPECIFIC PLANT AREAS

For information on the selection and placement of detectors in specific plant areas, see SCS calculation SMNH 93-058.

#### 4.0 REFERENCES

1. Fire Protection Reference Text: Power Plants, Professional Loss Control, Inc. April 1983.
2. Bryan, J.L., Fire Suppression and Detection Systems, Glencoe Press, Beverly Hills, CA, 1974.
3. Bright, R.G., and Custer, R.L.P., NBS Technical Note 839, Fire Detection: State-of-the-art, June 1974.
4. UL-268, Smoke Detectors for Fire Protective Signaling Systems, Underwriters Laboratories, Inc. copyright 1979.
5. UL 521, Heat Detectors for Fire Protective Signaling Systems, Underwriters Laboratories, Inc. copyright 1978.
6. NFPA No. 72E, "Standard on Automatic Fire Detectors, "National Fire Protection Association, Boston, MA 1982.

K:\wp\fsarh\tha\app-f



### **13.3 Response to Generic Letter 81-12**

330 Peachtree Avenue  
Atlanta, Georgia 30308  
Telephone 404-526-6606

Atlanta, Georgia 30308  
Atlanta, Georgia 30308



Georgia Power

the southern electric system

G. F. Head  
Vice President and General Manager  
Fossil and Hydro Generation

May 18, 1981

Director of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

NRC DOCKETS 50-321, 50-366  
OPERATING LICENSES DPR-57, NPF-5  
EDWIN I. HATCH NUCLEAR PLANT UNITS 1, 2  
SUPPLEMENTAL RESPONSE TO 10 CFR 50.48 AND APPENDIX R

Gentlemen:

Georgia Power Company hereby submits the information requested in Enclosure 1. Section 8 of the NRC's letter dated February 20, 1981. The enclosed information addresses NRC concerns with the remote shutdown system and supplements the general system description submitted with our March 19, 1981, letter to the NRC on 10 CFR 50.48 and Appendix R.

Should you have any questions or comments with regard to this submittal, please contact this office.

G. F. Head states that he is Vice President of Georgia Power Company and is authorized to execute this oath on behalf of Georgia Power Company, and that to the best of his knowledge and belief the facts set forth in this letter are true.

GEORGIA POWER COMPANY

By: G. F. Head

G. F. Head

Sworn to and subscribed before me this 18th day of May, 1981.

Mae H. Battle

Notary Public, Georgia, State at Large  
My Commission Expires Sept. 20, 1983

Notary Public

WEB/mb

Enclosure

xc: M. Manry  
R. F. Rogers, III

RESPONSE TO ENCLOSURE 1 SECTION 8  
OF THE  
U.S.N.R.C. FEBRUARY 20, 1981 LETTER  
ON THE SUBJECT OF  
FIRE PROTECTION RULE 45 FR 76602, NOV. 19, 1980  
(Generic Letter 81-12)

(a)

UNIT 1 AND 2 RESPONSE

A description of the Remote Shutdown System for Units 1 and 2 has been submitted to the U.S.N.R.C. in Georgia Power Company's March 19, 1981 response to 10 CFR 50.48 and Appendix R. The system description is of an existing system. Any modifications to this existing system as a result of Georgia Power's ongoing review of the "Protection Of Safe Shutdown Equipment" will be presented on or before March 19, 1982. This commitment was made in Section IV of Georgia Power's March 19, 1981 response to the U.S.N.R.C. on 10 CFR 50.48 and Appendix R.

(a)

(b)

# UNIT 1 AND 2 RESPONSE

Elementary drawings H-27970 thru H-27980 for Unit 2, and H-19610 thru H-19614 plus H-19572 and H-19573 are attached. These elementary drawings show the remote (alternate) control portion of one train of shutdown equipment. These same elementary drawings reference the particular elementary drawings, also attached, which show the normal (main control room) control portion of this same train of shutdown equipment. Also shown are those portions of the control circuits which are common to both remote and normal shutdown control. These circuits are common because they do not pass through the Fire Area which is hereby defined as the Cable Spreading and Main Control Room. Furthermore, the elementary drawings show that portion of the shutdown system which is "dedicated". This dedicated portion, generally instrumentation, is related only to remote shutdown, and as such, is not involved with the fire area.

Power circuits, either 600 VAC or 250 VDC for motor operated valves and small pumps or 4160 VAC for large pumps, are also shown on the elementary drawings. These power circuits are common to the remote and normal shutdown systems and are not involved with the fire area. These circuits are routed from the electrical busses directly to the shutdown components, both of which are not in the fire area. By explicit design practice these power cables are not permitted in the cable spreading or main control room.

Control power circuits, both 120 VAC and 125 VDC, are also shown on the elementary drawings. These circuits are routed from the distribution power panels directly to the remote shutdown panels both of which are not in the fire area.

Section b also requests that the location of components and the wiring in and out of the fire area be submitted. In compliance with that request the following materials are attached. Note that each of the material packages is packaged and identified as follows:

- A - ELEMENTARY DRAWINGS UNIT 1
- B - ELEMENTARY DRAWINGS UNIT 2
- C - PHYSICAL RACEWAY DRAWINGS UNIT 1
- D - PHYSICAL RACEWAY DRAWINGS UNIT 2
- E - ELECTRICAL CIRCUIT SCHEDULES UNIT 1
- F - ELECTRICAL CIRCUIT SCHEDULES UNIT 2
- G - SUPPLEMENTAL CIRCUIT AND RACEWAY DATA UNIT 1
- H - SUPPLEMENTAL CIRCUIT AND RACEWAY DATA UNIT 2
- I - BLOCK DIAGRAMS UNIT 2 (Unit 1 block diagrams are either included in A or were not used in design.)

The following is a general discussion of how the above listed material can be used to locate components, and wiring in or out of the fire area.

The first step, using package A and B, is to locate the elementary diagram of both the normal and remote portions of a particular shutdown component such as a motor operated valve or pump. Next, all the circuit (cable) numbers on the elementary diagram are identified. Note that the circuit numbers

(b1)

for Unit 1 are found on the elementary drawings package A, and the circuit numbers for Unit 2 are found in package I. Following this, the electrical circuit schedule, package E and F are referenced. These documents identify the cable number, the "from and to" ends of the cable, and most importantly the raceway in which the cable is routed. Finally, the physical raceway drawings, packages C and D are referenced as to the particular location of the raceway in the plant relative to the fire area. Note that packages G and H, supplemental circuit and raceway data, can be used to locate all the remote shutdown circuits in a particular raceway as well as the particular drawing associated with each raceway.

As an additional aid in using the attached packages, the following is added:

1. Each cable number on the elementary or block diagram related to the shutdown components is highlighted in yellow. Additionally, a code is assigned to each cable. This code, made expressly for this review is as follows:
  - 1 - Control or control power cable that does not enter fire area.
  - 2 - Cable enters fire area but is switched out of control circuit upon actuation of the transfer switch. This includes either switching out the particular cable, or "effectively" switching out the cable by switching out another of the shutdown cables.
  - 3 - Cable does enter fire area but does not affect remote shutdown. For example, an annunciator cable associated with the main control room.
  - 4 - Power cables, either 600 VAC, 250 VDC, or 4160 VAC, which do not enter the fire area. These cables are not identified in the submitted circuit and raceway packages because by design they are excluded from the cable spreading and control room.
2. Each cable number on the electrical circuit schedules, related to this review, is highlighted in yellow and assigned a code as as explained above.
3. Each raceway that contains cables related to this review is highlighted in yellow on the physical raceway drawings. Additionally, each shutdown component is this review and the cable spreading and control room are highlighted in yellow on the physical raceway drawings.



(c)

UNIT 2 RESPONSE

In addition to the quality and seismic classification and system analysis provided in the FSAR, the following is included to demonstrate that the interface between the Remote Shutdown System and other safety systems does not degrade those other safety systems.

The interfaces between the Remote Shutdown System and other safety systems is by way of manual transfer switches. These transfer switches are located on Remote Shutdown Panels 2C82-P001 and 2H21-P173. Access to these panels and hence access to the transfer switches is administratively controlled. Specifically, both remote shutdown panels are located in a locked metal partition. Furthermore, each transfer switch is wired to an annunciator located in the Main Control Room. This annunciator will alarm if any of the transfer switches are in the emergency position. Additionally, the Main Control Room indicating lights for any component, that is interfaced with the Remote Shutdown System, will go out if its respective transfer switch is in the emergency position. Thus, the Main Control Room operators are at all times aware of the position of the transfer switches.

All of the transfer switches are General Electric type SB-1 manufactured and tested to the same quality standards as any of the switches on other safety systems. Furthermore, the environmental qualifications of these switches have been thoroughly reviewed as part of NRC IE Bulletin 79-01B. Reference to Georgia Power's "Response To IE Bulletin 79-01B" Volume 2 Section C.2.2.2 Sheet 11, Section C.2.2.7 Sheet 20, and Section C.2.2.10 Sheet 19 will show that all environmental considerations have been favorably addressed.

The Remote Shutdown Panels and the transfer switches have appropriate seismic qualification. In addition to the analyses provided in the FSAR, two additional seismic reports are available for review and are identified as follows:

1. Seismic Analysis Of 2H21-P173 Panel - Access Number SX-28813
2. Seismic Qualification Summary Remote Shutdown Vertical Board - Access Number SX-24095 (includes SB-1 Switches)

The Remote Shutdown transfer switches are interfaced with other safety systems in such a manner as to comply with the Single Failure Criterion. Specifically, any failure of a single transfer switch does not jeopardize a Class 1E safety function. This is readily apparent by examining the elementary, wiring, and physical layout drawings

(c1)

of the Remote Shutdown System. Note that no one transfer switch is associated with more than one safety division. Furthermore, note that each Class 1E division (wiring and individual components) are enclosed in separate panels or in separate bays of a panel completely isolated from other bays by metallic barriers.

#### UNIT 1 RESPONSE

The Unit 1 Remote Shutdown System did not initially include transfer switches but Amendment 3 of February 1978 to the "Evaluation Of The Hatch Nuclear Plant Fire Protection Program" committed Georgia Power to add interfacing transfer switches similar to the Unit 2 design. The following is included to demonstrate that the interface between the Remote Shutdown System and other safety systems does not degrade those other safety systems.

The interfaces between the Remote Shutdown System and other Safety systems is by way of manual transfer switches. These transfer switches are located on Remote Shutdown Panels H21-P173, H21-P175, H21-P176, H21-P177, C82-P001, and C82-P002. (Note that as a matter of record, the transfer switches located in Panels H21-P176 and H21-P177 do not interface with Class 1E Systems.) Access to all of the transfer switches is administratively controlled. Panels H21-P173, C82-P001, and C82-P002 have locked doors which provide controlled access to the transfer switches. Although Panels H21-P175, H21-P176, AND H21-P177 are not provided with doors, access to the control of the transfer switches is controlled by lockable covers. Unauthorized operation of individual component control switches on these latter three panels is of no consequence because control is blocked by the transfer switch. The Main Control Room operator's awareness of the position of the transfer switches is assured in an identical manner as described in the Unit 2 response.



All of the transfer switches are Electros witch type Series 40. The control switches for individual component remote control on Panels C82-P001 and C82-P002 are Electros witch type Series 20. This latter fact is significant because those control switches are interfaced with existing safety systems regardless of the position of the transfer switch (reference the response to section i). Both the control and transfer switches are qualified and tested to the same quality standards as any of the switches on other safety systems. The environmental qualifications of both the transfer and control switches have been thoroughly reviewed as part of NRC IE Bulletin 79-01B. Reference to Georgia Power's "Response to IE Bulletin 79-01B" Volume 2 Section C.2.1.21 Sheets 95 and 96 will show that all environmental considerations have been favorably addressed.

Both the transfer switches and control switches have appropriate seismic qualification. Engineering test reports are available for review and are as follows:

1. Electro Switch Corp. Engineering Test Report No. 2070-1 of May 24, 1976. --Report of Seismic Qualification Tests of the Series 10, Series 20, Series 24, and Series 40 Switches, and the Lock-Out Relay (LOR), Electric Reset Lock-Out Relay (LOR/ER), and Control Switch Relya (CSR).
2. Electro Switch Corp. Engineering Test Report No. 1981-2 of November 20, 1975. --Report Of Seismic Qualification Tests of the Series 10 and 20 Switches.

Remote Shutdown Panels H21-P173, C82-P001, and C82-P002 have appropriate seismic qualification. Documentation is available for review and is as follows:

1. Seismic Integrity Analysis of Panel H21-P173--Access No. SX-16959.
2. Seismic Analysis of the Remote Shutdown Panels C82-P001 and C82-P002--Access No. SX-18318.

Remote Shutdown Panels H21-P175 and H21-P176 and associated transfer switches do not interface with any safety systems and as such no seismic information is provided.

Documentation of the seismic structural integrity of Remote Shutdown Panel H21-P177 is not available at this time. This panel interfaces with only one safety division of existing safety systems by way of seismically qualified transfer switches. Seismic documentation will be supplied when available. Submittal is expected on or prior to March 19, 1982. This date coincides with commitments made in the Section (a) Response.

The information supplied relative to the Single Failure Criterion for Unit 2 is applicable in full to Unit 1.

(d)

UNIT 1 AND 2 RESPONSE

A detailed review of the wiring of the alternate shutdown cricuitry was made to ensure that this circuitry is indeed independent of the fire area. A demonstration of the methods used can be found by referencing the response to section b.

(d)

(e)

UNIT 1 AND 2 RESPONSE

The alternate shutdown power sources circuit breakers, the circuit breakers control circuits (trip & close), and the relationship between those control circuits and the fire area (cable spreading and control room) is as follows:

1. 4 KV bus main incoming feeder breakers for both the offsite power sources and the onsite emergency diesel generators -

The 125 VDC control circuits for these circuit breakers are not disconnected from the fire area. However, procedures exist (HNP-1-1908 and HNP-2-1908) for manually closing or tripping the circuit breakers within a time frame which ensures the unimpaired maintenance of a safe shutdown condition. These procedures basically involve disconnecting the 125 VDC control power to the circuit breaker operating mechanism and manually (mechanically) operating the circuit breakers.

2. 4 KV bus feeder breakers for those pumps (RHR, RHRSW, PSW, and CRD) controlled from the Remote Shutdown Panels -

The 125 VDC control circuits for these circuit breakers are disconnected from the fire area and control is transferred to the Remote Shutdown Panels after actuation of the remote shutdown transfer switches. In the event the control power circuit breaker trips before the remote shutdown transfer switch is actuated, the operators are instructed by procedures (HNP-1-1908 and HNP-2-1908) to either reset the control circuit breaker or to manually operate the 4 KV circuit breaker as indicated in "1." above.

3. 4 KV bus feeder breakers to the 4160/600 VAC station service transformers which supply power to the 600 VAC busses -

The statements made in "1." are applicable.

4. 600 VAC bus main incoming feeder breakers and 600 VAC feeder breakers to the motor control centers -

The statements made in "1." are applicable.

(e1)

5. 600 VAC feeder breakers to the 600/208 VAC distribution transformers which supply power to the 120 VAC distribution cabinets and 600 VAC feeder breakers to the battery chargers which support the DC systems-

None of the circuit breakers are provided with control from the Main Control Room and as such their control circuits do not enter the fire area.

6. 250 VDC breaker for battery charger, and 250 VDC feeder breaker for the DC motor control centers and 125 VDC distribution panels-

The statements made in "5." are applicable.

(f)

UNIT 1 AND 2 RESPONSE

Both Units 1 and 2 have existing procedures (HNP-1908 & HNP-2-1908) which detail the methods used to achieve hot and cold shutdown from outside the Main Control Room.

The procedures begin with the determination by the Shift Foreman that continued operation from the Main Control Room is not conducive to safe plant operation. At this point the Shift Foreman directs all operators to report to the Remote Shutdown Panel where they are given two-way radios and/or sound-powered telephones as well as various assignments depending on the particular situation.

The following is a summary of the key aspects of implementing the procedures.

If for any reason the reactor was not put in the SHUTDOWN mode before evacuation from the Main Control Room, the Plant Operator will SCRAM the reactor by tripping the circuit breakers feeding the APRM circuitry or by manually actuating the scram discharge volume high-high level switches.

If the main turbine was not tripped from the Main Control Room, the Plant Operator will trip the turbine at the front standard.

The Plant Operators will operate the transfer switches at the Remote Shutdown Panels. This will disconnect control of the shutdown components from the Main Control Room and assure control from the Remote Shutdown Panels.

The feedwater control system should maintain normal reactor water following the SCRAM and turbine trip. The pressure regulator should open the bypass valve, as required to maintain the pressure setpoint.

If reactor level cannot be controlled as stated above, the Plant Operator will operate the relief valves and initiate RCIC operation from the Remote Shutdown Panel. The RCIC system will be secured when reactor water level reaches +45" as measured from the bottom of the steam dryer skirt.

When reactor pressure decays to approximately 840 psi the MSIV's will isolate. A Plant Operator will close the SJAE inlet steam valves and trip the RFP turbine locally.

With the MSIV's closed reactor pressure will be controlled by operation of the steam relief valves from the Remote Shutdown Panels. Reactor water level is controlled from the Remote Shutdown Panel using the RCIC system.



The Plant Operator will confirm that each scram inlet and outlet valve is open, close the CRD charging water header valve, verify isolation of the scram discharge volume drain valve, and maintain CRD flow control. The CRD is secured when reactor level reaches +60" as measured from the bottom of the steam dryer skirt.

The Plant Operator initiates torus cooling from the Remote Shutdown Panel by starting RHR pump, RHR service water pump, and aligning the required valves. The procedures specify which valves can be operated from the Remote Shutdown Panel and which valves are operated locally using the valve handwheel.

When the reactor pressure reaches 135 psig RHR shutdown cooling mode is initiated by the Plant Operator. The procedures specify which valves can be operated from the Remote Shutdown Panel and which valves are operated locally using the valve handwheel.

At this point cooldown of the reactor proceeds at less than or equal to 100° F per hour, and attempts are made to regain entry to the Main Control Room.

If at any time during performance of the above procedures, the Shift Foreman determines, from loss of area lighting and/or loss of power to electrical busses, that a loss-of offsite power or loss of power source to essential busses has occurred, the Plant Operators are directed to restore power. Detailed procedures on how to accomplish this are contained in Appendices to the main procedures.

(g)

UNIT 1 AND 2 RESPONSE

The implementation of the Hatch Unit 1 and 2 procedures for shutting down the plant from outside the control room does not require spare fuses. Generally, actuation of the transfer switches not only disconnects control from the Cable Spreading and Control Room, but switches in a new source of control power complete with a set of protective fuses. Reference the procedures noted in Section f, and Section 5.2.3 of the Remote Shutdown Description submitted in Georgia Power Company's March 19, 1981 response to 10 CFR 50.48 and Appendix R.

(g)

## UNIT 1 AND 2 RESPONSE

(h)

Unit 2 Technical Specifications Appendix A Section 6.2.2 Paragraph f mandates requirements relating to fire protection and the safe shutdown of Units 1 & 2. Paragraph f reads "A Fire Team of at least five members shall be maintained onsite at all times. The Fire Team shall not include the minimum shift crew necessary for safe shutdown of Units 1 and 2 or any personnel required for other essential functions during a fire emergency."

Tables 1 and 2 of Procedure HNP-16 (Manning of Main Control Room) establishes the minimum number of personnel required for manning the control room during various operational conditions of each unit. Excluding the cases where one of the units is in either cold shutdown or refueling, that number is eight, consisting of five licensed operators and three non-licensed operators. Excluding one licensed operator, namely one of the shift foreman who must respond to the fire as required by Procedure HNP-4200 (General Fire Procedure), seven personnel, four of whom are licensed operators, are available to bring both Units 1 and 2 to a safe shutdown from outside the control room utilizing remote shutdown procedures HNP-1-1908 and HNP-2-1908.

An example of how each of the seven people can be deployed in performing remote shutdown follows. However, the actual deployment and duties depend on the particular circumstances as evaluated by the shift-foremen.

### UNIT 2

The team consist of three people, two licensed operators, and one non-licensed operator. One licensed operator who is responsible for directing the shutdown of Unit 2 monitors the instrumentation and manipulates controls on remote shutdown panels 2H21-P173 and 2C82-P001. (Note panels are adjacent) The other licensed operator is available to SCRAM the reactor, monitor the CRD system, and assist the non-licensed operator in restoring electrical power. The non-licensed operator is available for restoring essential power to electrical busses, tripping and monitoring the main and feed pump turbine, and manually operating (handwheel operation) valves.

### UNIT 1

The team consist of four people, two licensed operators and two non-licensed operators. One licensed operator who is responsible for directing the shutdown of Unit 1 monitors instrumentation and manipulates controls on remote shutdown panel H21-P173. The other licensed operator is available to SCRAM the reactor and manipulate controls on remote shutdown panels C82-P001 and C82-P002. One non-licensed operator is available for restoring essential power to electrical busses, monitoring the CRD system, tripping and monitoring the main and feed pump turbine, and manually operating (handwheel operation) valves. The other non-licensed operator is available to manipulate local controls on the

(h1)



the diesel building remote shutdown panels H21-P175, H21-P176, H21-P177, and for restoring power to electrical busses in the diesel building.

(1)

UNIT 1 AND 2 RESPONSE

The Unit 2 Remote Shutdown System including transfer switches is part of the original design of Unit 2 and thus was part of the preoperational testing program (Preop. 2C82-3510) performed prior to startup as to be in compliance with 10 CFR 50.55a. The Unit 1 Remote Shutdown System was modified after the issuance of the operating license in order to add the transfer switch capability. This recent modification made under 10 CFR 50.59 was functionally tested (DCR 78-201 functional test) to ensure the design intent was met.

Procedure HNP-2-10428 was performed to demonstrate that Unit 2 could be brought from a normal initial steady-state power level to the point where cooldown is initiated and under control, and the reactor vessel pressure and water level are controlled using equipment and controls located outside the main control room. The Unit 1 Remote Shutdown System was similarly tested during initial startup.

The following is added to clarify the Hatch Remote Shutdown System relative to the operation of the Remote Shutdown Transfer Switches (RSTS) and Remote Shutdown Control Switches (RSCS) located on the Remote Shutdown Panels. In all cases but one the following applies. With the RSTS in the "Normal" position operation of components from the main control room is assured and operation of components using the RSCS is electrically blocked. With the RSTS in the "Emergency" position operation from the main control room is blocked and operation of components from the remote shutdown panels using the RSCS is assured. The exception noted to the above concerns the RSCS on the Unit 1 shutdown panels C82-P001 and C82-P002. In this case operation of all switches is the same as above when the RSTS are in the "Emergency" position. However, operation of the RSCS are not electrically blocked when the RSTS are in the "Normal" position. Unauthorized operation of the RSCS in this mode is positively precluded by locking the remote shutdown panel doors. Furthermore, realizing that the RSCS are interfaced with existing safety systems when the RSTS are in the "Normal" position, the RSCS are designed and qualified as any other Class IE component. (Reference response to section c)

(j)

UNIT 1 AND 2 RESPONSE

At this time the existing Technical Specifications do not define the frequency of which the Remote Shutdown System interfaces with shut down components should be checked for operability.

As a matter of record it is noted that Unit 2 Technical Specification section 3/4.3.6 page 3/4 3-50 defines the "Limiting Conditions For Operation and Surveillance Requirements" of the Remote Shutdown System Monitoring Instrumentation.

A review of desirable and necessary changes to the surveillance requirements and limiting conditions for operation of both the Unit 1 and 2 Remote Shutdown Systems will be made. If the results of that review indicate a need for technical specifications changes, they will be proposed. This submittal is expected to be made by March 19, 1982. This date coincides with the commitments made in the Section (a) Response.

(j)

(k)

UNIT 1 AND 2 RESPONSE

The "Remote Shutdown System Description" submitted to the NRC as an attachment to Georgia Power Company's March 19, 1981 reply to 10 CFR 50.48 and Appendix R demonstrates the capability to achieve hot and cold shutdown from outside the Main Control Room. Included as part of that description are the design basis and a related system's interface which addresses each of the systems (equipment) in Sections 6 and 7 of Enclosure 1 to the NRC's February 20, 1981 letter.

(k)

(L)

UNIT 1 & 2 RESPONSE

The implementation of the Hatch Unit 1 and 2 procedures for shutting down the plant from outside the Main Control Room does not require any repairs. Reference is made to Procedures HNP-1-1908 and HNP-2-1908 as summarized in Section f.

(L)

#### **13.4 Fire Resistance of Concrete Block at HNP**

**SECTION 9.10**

**APPENDIX J**

**FIRE RESISTANCE OF CONCRETE BLOCK AT HNP\***

\* The calculations that demonstrate the fire resistance of concrete block have been removed from Appendix J and re-established as calculation SMNH94-046.

### **13.5 Combustibility of Askarels**



**SECTION 9.11**

**APPENDIX K**

**COMBUSTIBILITY OF ASKARELS\***

\* The calculations that demonstrate the combustibility of askarels have been removed from Appendix K and re-established as calculation SMNH94-047.

## **13.6 Miscellaneous Supporting Calculations**

**SECTION 9.12**

**APPENDIX L**

**MISCELLANEOUS SUPPORTING CALCULATIONS\***

\* The calculations that document miscellaneous fire protection criteria have been removed from Appendix L and re-established as calculation SMNH94-048.

### **13.7 Fire Detection Systems Phased Implementation Database**

**SECTION 9.13**

**APPENDIX M**

**FIRE DETECTION SYSTEMS**  
**PHASED IMPLEMENTATION DATABASE\***

\*Implementation has been completed. Since this database ceases to serve any function, it has been removed from the FHA.