GE Energy

David H. Hinds
Manager, ESBWR

PO Box 780 M/C L60
Wilmington, NC 28402-0780
USA

T 910 675 6363
F 910 362 6363
david.hinds@ge.com

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Enclosure 1 contains the subject partial ESBWR Probabilistic Risk Assessment (PRA) document (Revision 1).

If you have any questions about the information provided here, please let me know.

Sincerely,

Kathy Sedney for

David H. Hinds
Manager, ESBWR

D068

Enclosure:

1. MFN 06-171 – NEDO-33201, Revision 1, "ESBWR Probabilistic Risk Assessment:"
   - Section 12 – Probabilistic Fire Analysis
   - Section 13 – Probabilistic Flood Analysis

cc:	WD Beckner	USNRC (w/o enclosures)
	AE Cubbage	USNRC (with enclosures)
	LA Dudes	USNRC (w/o enclosures)
	GB Stramback	GE/San Jose (with enclosures)
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ENCLOSURE 1

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NEDO-33201, Revision 1, "ESBWR Probabilistic Risk Assessment"

- **Section 12 – Probabilistic Fire Analysis**
- **Section 13 – Probabilistic Flood Analysis**

12 PROBABILISTIC FIRE ANALYSIS

Contents

12.1 INTRODUCTION 12.1-1
12.2 METHODOLOGY 12.2-1
12.3 IDENTIFICATION OF PLANT FIRE AREAS 12.3-1
12.3.1 Separation Criteria 12.3-1
12.3.2 Plant Fire Areas 12.3-2
12.4 CALCULATION OF THE FIRE IGNITION FREQUENCY 12.4-1
12.4.1 Calculation of the Full Power Fire Ignition Frequency 12.4-1
12.4.1.1 Control Building, DCIS Class 1E Electrical Rooms 12.4-3
12.4.1.2 Reactor Building Divisional Zones 12.4-3
12.4.1.3 Non-divisional Areas of Electrical Building; Service Water Building; Control Building non-1E DCIS Rooms; and RCCW and IAS Zones in Turbine Building 12.4-4
12.4.1.4 Turbine Building 12.4-6
12.4.1.5 Fuel Building 12.4-6
12.4.1.6 Control Room 12.4-7
12.4.2 Calculation of the Shutdown Fire Ignition Frequency 12.4-7
12.4.2.1 Control Building DCIS Class 1E Electrical Room 12.4-8
12.4.2.2 Reactor Building Zones 12.4-8
12.4.2.3 Non-Divisional Areas of Electrical Building; Service Water Building; Control Building Non-1E DCIS Rooms; and RCCW and IAS Zones in Turbine Building 12.4-8
12.4.2.4 Turbine Building 12.4-9
12.4.2.5 Fuel Building 12.4-9
12.4.2.6 Control Room 12.4-9
12.4.2.7 Fire Frequencies per Operating Mode 12.4-9
12.5 CALCULATION OF CORE DAMAGE FREQUENCIES 12.5-1
12.5.1 Calculation of At Power Core Damage Frequencies 12.5-1
12.5.1.1 Control Building, DCIS Class 1E Electrical Rooms 12.5-1
12.5.1.2 Reactor Building Divisional Zones 12.5-2
12.5.1.3 Non-divisional Areas of Electrical Building; Service Water Building; Control Building non-1E DCIS Rooms; and RCCW and IAS Zones in Turbine Building 12.5-2
12.5.1.4 Turbine Building 12.5-3
12.5.1.5 Fuel Building 12.5-3
12.5.1.6 Control Room 12.5-3
12.5.2 Calculation of Shutdown Core Damage Frequencies 12.5-4
12.5.2.1 Control Building, DCIS Class 1E Electrical Rooms 12.5-4
12.5.2.2 Reactor Building Divisional Zones 12.5-4
12.5.2.3 Non-divisional Areas of Electrical Building; Service Water Building; Control Building non-1E DCIS Rooms; and RCCW and IAS Zones in Turbine Building 12.5-5
12.5.2.4 Turbine Building 12.5-5

12.5.2.5 Fuel Building 12.5-5
12.5.2.6 Control Room 12.5-5
12.6 RESULTS 12.6-1
12.7 INSIGHTS 12.7-1
12.8 CONCLUSIONS 12.8-1
12.9 REFERENCES 12.9-1

List of Tables

Table 12-1 Fire Ignition Frequencies Weighting Factors for Plant-Specific Locations 12.9-2
Table 12-2 At Power Plant Location Fire Ignition Sources and Frequencies 12.9-3
Table 12-3 At Power Fire Ignition Frequency: Control Building DCIS Zones 12.9-6
Table 12-4 At Power Fire Ignition Frequency: Reactor Building Divisional Zones 12.9-7
Table 12-5 At Power Fire Ignition Frequency: Non Divisional Areas 12.9-8
Table 12-6 At Power Fire Ignition Frequency: Turbine Building 12.9-9
Table 12-7 At Power Fire Ignition Frequency: Fuel Building 12.9-10
Table 12-8 At Power Fire Ignition Frequency: Control Room 12.9-11
Table 12-9 Shutdown Fire Ignition Frequencies Per Plant Location 12.9-12
Table 12-10 Shutdown Fire Ignition Frequencies Per Year Outage 12.9-13
Table 12-11 Operating Mode Durations 12.9-14
Table 12-12 Shutdown Fire Ignition Frequencies Per Operating Mode 12.9-15
Table 12-13 At Power Fire Damage Scenarios 12.9-16
Table 12-14 Shutdown Fire Damage Scenarios 12.9-17
Table 12-15 Full Power Core Damage Frequency Due to Internal Fires 12.9-18
Table 12-16 Shutdown Core Damage Frequencies Due to Internal Fires 12.9-19
Table 12-17 Internal Fire Full-Power Cutset Report 12.9-20
Table 12-18 Internal Fire Shutdown Cutset Report 12.9-55
Table 12-19 Internal Fire Full-Power Importance Measure Report 12.9-107
Table 12-20 Internal Fire Shutdown Importance Measure Report 12.9-117

12 PROBABILISTIC FIRE ANALYSIS

This section documents the internal fire analysis of the ESBWR PRA.

12.1 INTRODUCTION

The probabilistic fire analysis is performed taking into account that the specifics of cable routings, ignition sources, or target locations in each zone of the plant are not known. Because of this limitation, a simplified conservative and bounding approach is used in this analysis.

The aim of the analysis is to show that core damage frequency due to fire is a non-significant contributor to ESBWR core damage risk.

The scope of the analysis includes both at-power and shutdown fire-induced accident scenarios.

12.2 METHODOLOGY

The ESBWR internal fires probabilistic risk assessment is performed per the Fire Vulnerability Evaluation (FIVE) Methodology (Reference 12-1) developed by the Electric Power Research Institute (EPRI). The FIVE methodology provides procedures for identifying fire compartments for evaluation purposes, defining fire ignition frequencies, and performing quantitative analyses of fire risk.

The FIVE methodology involves the following three major steps:

(1) Identification of plant areas

(2) Calculation of fire ignition frequencies

(3) Calculation of fire-induced core damage frequencies

Fire ignition frequencies for power operation at each area are estimated, using the FIVE methodology and data. Fire frequencies for shutdown conditions are estimated using the information included in Reference 12-2.

Fires are conservatively assumed to propagate unchecked in each fire area (no suppression is credited) and damage all functions in the fire area.

The internal events PRA accident sequence structures and system fault trees and success criteria are used in the calculation of the fire CDF.

The fire risk analysis is performed using conservative assumptions due, in part, to the status of the development of the design. The key conservative assumptions are summarized below:

(1) Fire areas are grouped to simplify the analysis. The fire frequency contributions from all the fire areas in the group are added together. The analysis assumes the worst effects of fire on all the equipment and systems located in each group of fire areas. Consequently, the analysis assumes that any fire in any fire area in the group will cause the worst damage.

(2) In the case of the reactor building, the fire frequencies from certain pumps located in the building (RWCU and CRD) and the fire frequencies from panels, battery chargers and batteries are added together despite the fact that these items are located in well-separated locations inside the building. Fires initiated in these separated locations are highly unlikely to affect divisional equipment.

(3) The analysis assumes that a fire ignition in any fire area continues to grow unchecked into a fully-developed fire. The analysis does not take credit for any fire suppression (i.e., self-extinguishment, installed suppression systems, nor manual fire fighting activities).

(4) The analysis assumes that all fires disable all potentially affected equipment in the area. The analysis does not take credit for the distance between fire sources and targets.

(5) The analysis assumes that all fire-induced equipment damage occurs at t=0.

(6) Every fire in the reactor building is conservatively assumed to result in an IORV initiating event. This is conservative because only a few cables in the reactor building could result in spurious opening of SRVs. In addition, a specific fire-induced circuit failure would be required to cause the IORV.

For these reasons, it is inappropriate to add these fire CDF results to the internal events core damage frequencies.

12.3 IDENTIFICATION OF PLANT FIRE AREAS

This section discusses the division of the plant into fire areas for the purpose of the probabilistic internal fires analysis. This division considers separation design criteria and the systems considered significant to the risk profile. The separation design criteria and the resulting fire areas are discussed below.

12.3.1 Separation Criteria

The "Electrical Equipment Separation" design specification provides the basic criteria concerning separation, both physical and electrical, of redundant safety equipment. These specifications are as follows:

- NRC Regulatory Guide 1.75 and IEEE Standard 384 require physical separation and electrical isolation. In addition, the more stringent NRC Policy Statement SECY-89-013 (Paragraph 2.3.c) requires capability for safe shutdown assuming all equipment in any one fire area has been rendered inoperable by fire. In all areas except the Control Room and the primary containment, redundant electrical divisions should be placed in different fire areas separated by fire barriers rated in accordance with the Fire Prevention and Protection Specification.
- Exceptions are anticipated, but must be individually justified. The Control Room is exempted on condition that independent alternate shutdown capability is provided that is physically and electrically independent of the Control Room (i.e., the Remote Shutdown System). The primary containment design should ensure, to as great an extent as possible, that one shutdown division is free of fire damage.

Fire protection is achieved through an adequate balance of:

- Preventing fires from starting
- Detecting fires quickly, suppressing those fires by controlling and extinguishing them quickly, and limiting their damage; and
- Designing plant safety and safety-related systems so that a fire that starts and burns for considerable time does not prevent essential plant safety functions.

The plant is divided into separate fire areas, and the redundant cables and equipment are separated with fire barriers to limit any damage caused by a fire and to provide a means to ensure that there is sufficient capacity to perform safety functions in case of fire,

The ESBWR plant design has three-hour fire rated barriers separating:

(1) Safety-related systems from any potential fires in nonsafety-related areas that could affect their ability to perform their safety function;

(2) Redundant divisions or trains of safety-related systems so that both are not subject to damage from a single credible fire that could consume everything within the given fire area; fires within inerted containment during plant operation are not considered credible;

(3) Components within a single safety division that could present a fire hazard to other safety-related components;

(4) Each remote shutdown panel from the other remote shutdown panel.

The application of these separation criteria ensures an adequate independence of each safety system division, such that a single fire can only affect one safety system division. These criteria are used in this analysis to support definitions of the major fire areas.

ESBWR non-safety systems with the potential (significance) to adversely affect safety are designed with similar separation considerations.

12.3.2 Plant Fire Areas

The ESBWR is divided into the following six major areas for the purpose of this analysis:

(1) DCIS Class 1E Cabinet Areas: This major area contains the control and information cabinets of the four safety divisions in the control building. Each of the four safety divisions is located in a separate fire area. These areas contain the equipment needed for the actuation of safety systems. It is assumed that a fire at any location in a divisional fire area results in the immediate loss of function of that division.

(2) Divisional Areas within the Reactor Building: This major area contains cabinets and electrical equipment associated with each of the 1E class safety divisions. This electrical equipment includes the batteries and the DC distribution panels for all safety equipment. The electrical equipment is distributed on elevations -6400, -1000, 4650 and 9060 within the Reactor Building. Each division is located in a separate fire area, which in some cases include areas on more than one elevation. Each divisional fire area is bounded on all sides by three-hour rated fire barriers. Likewise, it is also assumed that the routing of associated cables respects the separation criteria. It is assumed that a fire at any location in a divisional fire area results in the immediate loss of function of that division.

The Reactor Building also contains other systems that are credited in the PRA models, such as the Reactor Water Cleanup (RWCU) and the Control Rod Drive (CRD) systems. The pumps and heat exchangers of each RWCU train are located in different fire areas. It is assumed that separation criteria are applied using fire barriers such that a single fire affects only a single RWCU train.

The CRD system has been designed per RTNSS using plant investment protection requirements and separation criteria have been applied to the cable routing of this system. Nevertheless, both pumps are located in the same fire area. The CRD pump area location is separated from the rest of the reactor building such that no safety related cables are routed through the CRD pump area. The only fire with the potential to disable both CRD pumps is a fire in the CRD pump area itself. Because such a fire scenario does not impact any safety related components, the contribution to fire CDF from a fire in this area is non-significant. The analysis conservatively addresses fires that disable the CRD pumps by assuming for analysis purposes that the CRD pumps are located in the divisional areas of the reactor building rather than modeling the CRD pump room as a separate area.

(3) Non-Divisional Areas of the Electrical Building; Service Water Building; DCIS Non-Class 1E Panel Areas of the Control Building; and RCCW Pump and Heat Exchanger Areas and Instrument Air Compressor Areas:

The Electrical Building contains the AC and DC distribution systems, with the exception of the class 1E systems that, as mentioned above, are located in the Reactor Building. The diesel generator rooms are attached to the Electrical Building. The electrical systems are divided into two divisions. The cable spreading rooms, batteries, and other electrical equipment of each division are located in separate fire areas. Separation with fire barriers is assumed between both divisions.

It is assumed that the service water pumps in the Service Water Building are located in separate fire areas, consistent with the separation for pumps and heat exchangers of the RCCW system.

The DCIS non-class 1E panels are located at elevation 4650 of the Control Building. They are divided into two separate fire areas corresponding to divisions A and B.

The RCCW system pumps and heat exchangers and the instrument air compressors are located in the Turbine Building, independent from the other Turbine Building areas. Therefore, these areas are analyzed separately from the rest of the Turbine Building and included here with this group of areas. It is assumed that the routing of cables associated with this equipment maintains the same separation criteria.

(4) Turbine Building: The Turbine Building is analyzed as a single fire area, with the exception of the RCCW and instrument air compressor fire areas discussed previously. It is assumed that a fire in the Turbine Building causes loss of the condensate and feedwater systems, and the service air compressors.

(5) Fuel Building: Given that the only relevant system located in the Fuel Building is FAPCS, the entire Fuel Building is analyzed as a single fire area. It is assumed that any fire in the Fuel Building results in a complete failure of the FACPS system.

(6) Control Room: The Control Room contains safety-related equipment for all four divisions in a single fire area and as such is analyzed separately.

Primary containment is not a significant fire area because it is inerted during plant operation. There are certain shutdown conditions in which the drywell head is removed and thus the primary containment is not inerted; however, the small quantity of combustible materials and spatial separation prevent damage to the redundant divisional circuits in this area.

Fire in non safety-related buildings, other than those listed above, is not explicitly analyzed as the buildings are separated from the equipment required for safe shutdown.

12.4 CALCULATION OF THE FIRE IGNITION FREQUENCY

Section 12.4.1 documents the fire ignition frequency calculations for at-power operation.

Section 12.4.2 documents the fire ignition frequency calculations for shutdown conditions.

12.4.1 Calculation of the Full Power Fire Ignition Frequency

This section documents the calculations of the fire ignition frequency during power operation for each of the major fire areas of this analysis. The fire ignition frequency calculation is performed consistent with the guidance and data of Reference 12-1, and includes the following steps:

(1) Select appropriate plant locations

(2) Determine location weighting factors

(3) Determine ignition source weighting factors

(4) Sum individual ignition source contributors to determine fire area ignition frequency

The Reference 12-1 fire ignition frequency data is provided as a function of general plant area and ignition source types. The Reference 12-1 general plant areas are listed in Table 12-1, along with the guidance in determining the location weighting factors (which are used to apportion the general fire frequencies of Reference 12-1). In this analysis, the reactor building is considered to include the control, reactor, fuel and electrical buildings. It does not include the containment.

The Reference 12-1 fire ignition source frequencies, and associated ignition source weighting factor information, are summarized in Table 12-2.

The calculation of weighting factors for certain plant-wide fire ignition sources requires an estimate of the total number of plant fire areas. The total number of plant fire areas is as follows:

Building	Fire Areas
Reactor Building	34
Fuel Building	6
Control Building	11
Turbine Building	20
Electrical Building	33
Service Water Building	6
Total:	110

In addition, the calculation of weighting factors for certain other ignition sources requires an estimate of the total number of the ignition source type across the plant (or in multiple specific areas). These total estimates are discussed below. The estimates are performed based on review of ESBWR general layout drawings.

- Electrical cabinets: This ignition source type is applicable to electrical cabinets in the control, reactor, fuel and electrical buildings of the ESBWR plant design. An estimate of the number of electrical cabinets located in each of these buildings has been performed and is discussed below.

  The control building contains 72 electrical panels. This total is based on an estimate of 12 cabinets for each DCIS area in the control building, which makes a total of 48 cabinets in divisional DCIS areas of the control building, plus an estimate of 24 cabinets in the non-divisional DCIS areas of the control building.

  The reactor building contains 140 electrical panels. This total is based on an estimate of 35 panels per division. This estimate includes the DC and AC motor control centers, and the power distribution centers.

  The fuel building is estimated to contain 20 electrical panels.

  In addition, it is estimated that there are 24 electrical cabinets in the electrical building that do not correspond to the electrical panels of a switchgear room (i.e., switchgear electrical panels are treated separately, see below).

  A total of 256 electrical panels in these areas are obtained from the above data.

- Pumps: Twelve pumps are located in the reactor building: four sump pumps, two CRD pumps, four RWCU/SDC pumps and two associated backwash transfer pumps. Six pumps are located in the fuel building: two sump pumps, two FAPCS pumps and two associated backwash transfer pumps. The six RCCW pumps are located in the turbine building, though in separate fire areas. A total of 24 pumps are estimated in these areas.

- Switchgear room: Four medium voltage switchgear areas are located in the electrical building.

- Battery room: Six battery areas are located in the reactor building, as well as seven more in the electrical building. The reactor building contains the divisional batteries, four 24-hour batteries (one per division) and two 72-hour batteries (one each for Division I and II). The electrical building has seven battery rooms (A, A1, A2, B, B1, B2, C)).

- Fire protection panels: A total of 50 fire protection panels are estimated across the plant.

- Transformers: Twenty low voltage indoor transformers are estimated for the plant.

- Battery chargers: It is assumed that the number of plant wide battery chargers is the same as the number of battery rooms (i.e., six in the reactor building and seven in the electrical building).

- Air compressors: Two instrument air compressors and two service air compressors are located in the plant, four compressors in total.

12.4.1.1 Control Building, DCIS Class 1E Electrical Rooms

There are four DCIS 1E class electrical cabinet areas located on the first floor of the control building. Each of these areas contains equipment associated with a class 1E safety system division. Each area is a separate fire area. The fire ignition frequency is calculated for the Division I area and is assumed to be applicable to each of the four areas due to similarity in number and distribution of equipment.

Based on the information summarized in Table 12-2, the reactor building is selected as the most representative Reference 12-1 general location corresponding to the DCIS area cabinets.

The location weighting factor for the reactor building is 1.0, calculated as the number of units per site (1) divided by the number of reactor building per site (1).

The following ignition sources are estimated for the division I area:

- Electrical Cabinets: Twelve electrical cabinets are estimated for each DCIS area.
- Fire Protection Panels: Two fire protection panels out of a plant-wide total of 50 panels.
- Transients: Only "extension cord" and "heaters" are considered for these areas; it is assumed to be a non-smoking area, with no candles or hot pipes, and no risk due to overheating (due to low power and the use of optical fiber).

The ignition source weighting factor for "cable fires caused by welding" and "transient fires caused by welding and cutting" in the Division I area of the control building is 1/110=0.009.

Refer to Table 12-3 for a summary of the fire ignition frequency calculation. The ignition frequency calculation in Table 12-3 applies to each one of the four DCIS 1E areas in the control building.

12.4.1.2 Reactor Building Divisional Zones

There are four areas in the reactor building containing class 1E safety system divisional equipment. Each area is a separate fire area. Each divisional area encompasses a number of individual separated fire areas. The fire ignition frequency is calculated for the Division I area and is assumed to be applicable to each of the four areas due to similarity in number and distribution of equipment in each of the areas. Use of Division I is slightly conservative given that Divisions I and II have one more battery each than do Divisions III and IV. This ignition frequency is used to model fire-induced accidents initiated in each of the four areas (refer to Section 12.5).

Based on the information summarized in Table 12-2 and due to the existence of safety batteries in the reactor building, the reactor building and the battery room are selected as the most representative Reference 12-1 general locations.

The location weighting factor for the battery room is used to apportion the battery ignition sources in an area. The location weighting factor for a single battery room is 1/13, calculated as the number of units per site (1) divided by the number of battery rooms per site (13). As the division I area contains two battery rooms, the battery room location factor is increased by a factor of two to 2/13.

The location weighting factor for the reactor building is 1.0, calculated as the number of units per site (1) divided by the number of reactor buildings per site (1).

The following ignition sources are estimated for this area:

- Electrical Panels: Thirty-five electrical panels per division.
- Pumps: Three pumps are estimated for each division.
- Fire Protection Panels: Four fire protection panels out of a plant-wide total of 50 panels.
- Transformers: Two transformers are estimated for each area, out of a plant-wide total of 20 transformers.
- Battery chargers: The number of battery chargers in this area is the same as the number of battery rooms in the area, i.e., two.
- Transients: Only "extension cord", "heaters", "overheating" and "hot pipe" are considered for these areas: it is assumed to be a non-smoking area with no candles.

As the Division I area encompasses eight individual fire areas, the ignition source weighting factor for "junction box in qualified cables", "cable fires caused by welding" and "transient fires caused by welding and cutting" in the reactor building Division I area is 8/110=0.073.

Refer to Table 12-4 for a summary of the fire ignition frequency calculation. The ignition frequency calculation in Table 12-4 applies to each one of the four divisional areas in the reactor building.

12.4.1.3 Non-divisional Areas of Electrical Building; Service Water Building; Control Building non-1E DCIS Rooms; and RCCW and IAS Zones in Turbine Building

These locations include those fire areas with non-1E system equipment and cables. As indicated in Section 12.3, the ESBWR separation design maintains the non-1E divisions separately from each other using similar features as that for the 1E divisions. As such, fires in one non-1E divisional area will not impact the other non-1E divisions. The fire ignition frequency is calculated for Division A and is assumed to be applicable to both non-1E divisions due to similarity in number and distribution of equipment (Division B has one extra battery room, the swing battery room, but the impact on the ignition frequency calculation is non-significant). Each non-1E divisional area encompasses a number of individual separated fire areas.

Based on the information summarized in Table 12-2, the reactor building, diesel generator room, switchgear room, battery room and intake structure are selected as the most representative Reference 12-1 general locations.

The location weighting factor for the reactor building is 1.0, calculated as the number of units per site (1) divided by the number of reactor building per site (1).

The location weighting factor for "A" the diesel generator room is 1/2, calculated as the number of diesel generators in the rooms (1) divided by the number of DG rooms per site (2).

The location weighting factor for a switchgear room is 0.25, calculated as the number of units per site (1) divided by the number of switchgear rooms per site (4). As the Division A areas contain two switchgear rooms, the location weighting factor is increased by a factor of two to 0.50.

The location weighting factor for a battery room is 1/13, calculated as the number of units per site (1) divided by the number of battery rooms per site (13). As the Division A areas contain three battery rooms, the location weighting factor is increased by a factor of three to 3/13.

The location weighting factor for the intake structure is 1.0 (number of units per site=1 / number of intake structures =1).

The following ignition sources are estimated for the division A areas:

- Electrical Panels: Twelve panels for each DCIS non-1E area, and twelve panels in the Division A areas of the electrical building (i.e., a total of 24 panels).
- Pumps: Three pumps are estimated for a division.
- Fire Protection Panels: Twenty fire protection panels in the Division A areas, out of a plant-wide total of 50 panels.
- Transformers: Ten transformers are estimated in the Division A areas, out of a plant-wide total of 20.
- Battery chargers: The number of battery chargers in Division A is the same as the number of battery rooms in these areas, i.e., three.
- Air compressors: One instrument air compressor in a division.
- Transients: Only "Extension cord", "heaters", "overheating" and "hot pipe" are considered for these areas; they are assumed to be non-smoking areas with no candles.

As the Division A area encompasses twenty-four individual fire areas, the ignition source weighting factor for "junction box in qualified cables", "cable fires caused by welding" and "transient fires caused by welding and cutting" in the Division A area is 24/110=0.218.

Refer to Table 12-5 for a summary of the fire ignition frequency calculation. The ignition frequency calculation in Table 12-5 applies to each one of the non-1E Division A and B areas.

12.4.1.4 Turbine Building

This location includes the fire areas of the turbine building excluding the fire areas containing the RCCW pumps and instrument air compressors.

Based on the information summarized in Table 12-2, the turbine building is selected as the most representative Reference 12-1 general location.

The location weighting factor for the turbine building is 1.0, calculated as the number of units per site (1) divided by the number of turbine buildings per site (1).

The following ignition sources are estimated for this area:

- Fire Protection Panels: Five fire protection panels out of a plant-wide total of 50 panels.
- Transformers: Two transformers are estimated in each area, out of a plant-wide total of twenty.
- Air compressors: Two service air compressors.
- Transients: Only "Extension cord", "heaters", "overheating" and "hot pipe" are considered for these areas; they are assumed to be non-smoking areas with no candles.

This location has 20 fire areas; as such, the applicable ignition source weighting factor for the "junction box in qualified cables", "cable fires caused by welding" and "transient fires caused by welding and cutting" is 20/110 =0.182.

Refer to Table 12-6 for a summary of the fire ignition frequency calculation for this area.

12.4.1.5 Fuel Building

This location includes the fire areas in the fuel building.

Based on the information summarized in Table 12-2, the reactor building is selected as the most representative Reference 12-1 general location.

The location weighting factor for the reactor building is 1.0, calculated as the number of units per site (1) divided by the number of reactor buildings per site (1).

The following ignition sources are estimated for this area:

- Electrical Panels: Twenty panels are estimated in this area.
- Pumps: Six pumps are estimated in this area.
- Fire Protection Panels: Two fire protection panels out of a plant-wide total of 50 panels.
- Transients: Only "extension cord", "heaters", "overheating" and "hot pipe" are considered for these areas; it is assumed that they are non-smoking areas with no candles.

This location contains six fire areas; as such, the applicable ignition source weighting factor for "junction box in qualified cables", "cable fires caused by welding" and "transient fires caused by welding and cutting" is 6/110=0.055.

Refer to Table 12-7 for a summary of the fire ignition frequency calculation for this area.

12.4.1.6 Control Room

Based on the information summarized in Table 12-2, the control room is selected as the most representative Reference 12-1 general location.

The location weighting factor for the control room is 1.0, calculated as the number of units per site (1) divided by the number of control room per site (1).

The following ignition sources are estimated for this area:

- Fire Protection Panels: One fire protection panel out of a plant-wide total of 50 panels.
- Transients: Only "Extension cord" and "heaters" are considered for this area; it is assumed to be a non-smoking area with no candles.

This location contains one fire area; as such, the applicable ignition source weighting factor for "junction box in qualified cables" is 1/110=0.009.

Refer to Table 12-8 for a summary of the fire ignition frequency calculation for this area.

12.4.2 Calculation of the Shutdown Fire Ignition Frequency

This section documents the fire ignition frequency calculations for shutdown conditions. The fire ignition frequencies are calculated for all six groups of plant locations selected for analysis.

The estimation of fire ignition frequencies in shutdown conditions is performed using the information provided in the document RES/OERAB/S02-01 "Fire Events – Update of U.S. Operating Experience", 1986 – 1999", (Ref. 12-2). This document expands and updates the information of AEOD/S97-03 "Special Study, Fire Events – Feedback of U.S. Operating Experience", June 1997, (Ref. 12-3). Reference 12-2 summarizes information on fire events that occurred during power operation and during shutdown conditions, and provides estimation of fire frequencies both in power and shutdown operation for different types of buildings and locations.

Table ES-2 "Shutdown Fire Frequencies by Plant Location", Ref. 12-2, summarizes estimated fire frequencies for different plant locations on the basis of the reports gathered from different sources of information described in the report. The Reference 12-2 shutdown fire ignition frequencies are summarized here in Table 12-9. The frequencies shown in Table 12-9 are per year of shutdown operation.

The definition of buildings in Reference 12-2, as shown in Table 12-9, does not correspond identically to the definition of buildings of the ESBWR plant. Therefore, it is necessary to establish a correspondence in order to assign the Reference 12-2 shutdown fire ignition frequencies to the ESBWR buildings. The criteria followed to perform this assignment are described below.

12.4.2.1 Control Building DCIS Class 1E Electrical Room

There are four DCIS 1E class electrical cabinet areas located on the first floor of the control building. Each area group contains equipment associated with a class 1E safety system division. Each area is a separate fire area; therefore the fire frequency is determined for each area, assuming that the number and distribution of equipment is similar for each one of them.

The auxiliary building of Table 12-9 is selected as the most representative location for the DCIS area cabinets. However, as discussed in Section 12.4.2.3, the Table 12-9 auxiliary building location is also judged representative of the ESBWR electrical building non-divisional areas; service water building; control building non-1E DCIS rooms; and the RCCW and IAS zones in the turbine building.

Accordingly, half of the Table 12-9 auxiliary building fire ignition frequency is assigned to the ESBWR DCIS class 1E areas, the remainder is assigned to the areas discussed in Section 12.4.2.3.

12.4.2.2 Reactor Building Zones

There are four area groupings defined in the fire analysis for the reactor building. Each area group contains equipment associated with a division of class 1E safety systems. The fire frequency is determined for each location, assuming that the number and distribution of equipment in each area is similar.

The reactor building and the battery room of Table 12-9 are selected as the representative locations for the ESBWR reactor building zones. The battery room is assigned due to the existence of safety batteries in the reactor building. However, as discussed in Section 12.4.2.3, the Table 12-9 battery room location is also assigned to the ESBWR electrical building. Accordingly, half of the Table 12-9 battery room fire ignition frequency is assigned to the ESBWR reactor building zones, the remainder is assigned to the ESBWR electrical building (refer to Section 12.4.2.3).

Therefore, the shutdown fire frequency for the ESBWR reactor building is calculated by adding the Table 12-9 reactor building shutdown fire frequency and half the frequency of the battery room.

12.4.2.3 Non-Divisional Areas of Electrical Building; Service Water Building; Control Building Non-1E DCIS Rooms; and RCCW and IAS Zones in Turbine Building

This group of locations includes those fire areas with non-1E system equipment and cables.

This group of locations includes the cable distribution areas in the electrical building, the bus and the 13.8 kV and 6.9 kV circuit breaker areas, the diesel generator areas and the areas corresponding to the essential service pump house.

The following Table 12-9 locations are determined applicable to these ESBWR areas: cable spreading room, switchgear room, auxiliary building, battery room, EDG building, SWS pumphouse, and switchyard.

Half of the shutdown fire ignition frequency for the Table 12-9 battery room location is already assigned to ESBWR reactor building zones (as discussed in Section 12.4.2.2). The remaining half of the battery room shutdown fire ignition frequency is assigned to these ESBWR areas.

Similarly, half of the shutdown fire ignition frequency for the Table 12-9 auxiliary building location is already assigned to ESBWR DCIS class 1E areas (as discussed in Section 12.4.2.1). The remaining half of the battery room shutdown fire ignition frequency is assigned to these ESBWR areas.

Therefore, the shutdown fire ignition frequency for these ESBWR areas is calculated by adding the Table 12-9 frequencies for the cable spreading room, switchgear room, EDG building, SWS pumphouse, switchyard, and half of the frequencies for the Table 12-9 auxiliary building and battery room locations.

12.4.2.4 Turbine Building

This group of locations includes the fire areas of the turbine building, with the exception of fire areas containing the RCCW pumps and instrument air compressors.

The turbine building of Table 12-9 is selected as the representative location.

12.4.2.5 Fuel Building

This group of locations includes the fire areas in the fuel building.

The reactor building of Table 12-9 is selected as the representative location. However, the Table 12-9 reactor building fire frequency has already been assigned to the ESBWR reactor building areas (refer to Section 12.4.2.2). As such, the shutdown fire frequency for the ESBWR fuel building is estimated as ten percent of the Table 12-9 reactor building location frequency.

12.4.2.6 Control Room

The control room of Table 12-9 is selected as the representative location for the ESBWR Control Room.

12.4.2.7 Fire Frequencies per Operating Mode

Using the Reference 12-2 data summarized in Table 12-9, and the correspondence of ESBWR buildings to Reference 12-2 buildings as summarized above, the shutdown fire ignition frequencies as a function of ESBWR fire PRA area are determined. The resulting frequencies are summarized in Table 12-10.

In order to obtain ignition frequencies in units of calendar year, the values in Table 12-10 are multiplied by the fraction per calendar year that the ESBWR will be in shutdown. Only one refueling outage every two years is foreseen in the ESBWR design and the expected refueling outage duration is 546 hours. The portion of the calendar year in which the ESBWR power plant is shutdown is estimated as:

$$\frac{546}{2 \times 8760} = 0.0312$$

As the various shutdown operational modes have an influence on timings and other accident progression issues for postulated shutdown accidents, the calendar year based shutdown fire frequencies are further calculated on an operational mode basis. The fractions per calendar year per shutdown operating mode are summarized in Table 12-11. Refer to Section 16.2.1 for descriptions of the operating modes.

The resulting fire ignition frequencies per shutdown operating mode used in this risk analysis are summarized in Table 12-12.

12.5 CALCULATION OF CORE DAMAGE FREQUENCIES

The calculation of the fire induced core damage frequency for each fire scenario requires the determination of the type of initiating event resulting from the fire damage as well as the fire-induced damage to mitigating systems credited in the PRA. Mitigating systems in the PRA include both safety and non-safety equipment.

The fire ignition frequencies for each fire area are discussed in the previous section. A fire in each of the analyzed fire areas of this analysis is assumed to damage all equipment in the area. The sections below describe the type of initiating event that best represents each fire scenario, and the associated core damage accident sequence frequency quantification.

The internal events PRA accident sequence structures and system fault trees and success criteria are used in the calculation of the fire CDF. The CDF quantifications are performed at a quantification truncation limit of 1E-13/yr.

Both at-power and shutdown fire-induced accident sequences are discussed.

12.5.1 Calculation of At Power Core Damage Frequencies

The following paragraphs describe the initiating events and the equipment damage assumed for each of the fire scenarios defined during power operation. Table 12-13 summarizes the damage caused by the fire in each selected location.

12.5.1.1 Control Building, DCIS Class 1E Electrical Rooms

A General Transient initiating event is assumed in these areas. A fire-induced inadvertent opening of an SRV (IORV) is not possible in these rooms because of the specific ESBWR design.

Failure of the corresponding safety system division is assumed for a fire in each of the DCIS 1E areas.

According to the FIVE methodology, the existence of fire detection and extinction systems and firewall barriers and adequate monitoring and supervision means that it can be assumed that fire propagation to the neighboring zones separated by those barriers is a relatively negligible contribution. Nevertheless, the potential propagation of a fire started in one of the divisions of the building and propagating to another divided area is considered in this analysis.

A value of 7.4E-03 is taken as the fire propagation probability from one divisional fire area to another. This probability represents failure of a fire door and is obtained from Reference 12-4. This analysis assumes that the fire ignition does not self-extinguish, but grows to a fully developed fire, and no credit for fire suppression is taken in the analysis.

The multi-divisional area fire scenarios assume that the fire fails two complete divisions. Two such scenarios are analyzed, one failing divisions I and III, and one failing divisions II and IV.

The CDF results for the single divisional area fire scenarios, and for the multi-divisional area fire scenarios, are summarized in Table 12-15. The CDF frequencies for all the fire

scenarios in these areas constitute a negligible risk (all cutsets are below the quantification truncation limit).

12.5.1.2 Reactor Building Divisional Zones

It is conservatively assumed that a fire in these areas causes an inadvertent opening of an SRV (IORV). This spurious operation disables the ICS while preserving the full requirement for depressurizing the plant. If multiple valves are opened due to the fire, depressurization to allow passive GDCS to operate becomes increasingly more reliable.

Failure of the corresponding safety system division is assumed for a fire in each of the reactor building divisional areas. Failure of the RWCU and CRD systems, that are located in this building, is also assumed as follows:

- Train A of RWCU and CRD is assumed failed for fires in the Division I or IV areas.
- Train B of RWCU and CRD is assumed failed for fires in the Division II or III areas.

According to the FIVE methodology, the existence of fire detection and extinction systems and firewall barriers and adequate monitoring and supervision means that it can be assumed that fire propagation to the neighboring zones separated by those barriers is a relatively negligible contribution. Nevertheless, the potential propagation of a fire started in one of the divisions of the building and propagating to another divided area is considered in this analysis.

As discussed previously, a probability of 7.4E-03 is used as the probability of fire propagation from one area to another. The analysis assumes that the fire ignition does not self-extinguish, but grows to a fully-developed fire, and no credit for fire suppression is taken in the analysis.

The multi-divisional area fire scenarios assume that the fire fails two complete divisions. Four such scenarios are analyzed: 1) I and II failed; 2) I and IV failed; 3) II and III failed; and 4) III and IV failed.

The CDF results for the single divisional area fire scenarios, and for the multi-divisional area fire scenarios, are summarized in Table 12-15.

12.5.1.3 Non-divisional Areas of Electrical Building; Service Water Building; Control Building non-1E DCIS Rooms; and RCCW and IAS Zones in Turbine Building

A General Transient initiating event is assumed for a fire in these areas.

According to the FIVE methodology, the existence of fire detection and extinction systems and firewall barriers and adequate monitoring and supervision means that it can be assumed that fire propagation to the neighboring zones separated by those barriers is a relatively negligible contribution. Nevertheless, the potential propagation of a fire started in one fire area and propagating to another divided area is considered in this analysis.

As discussed previously, a probability of 7.4E-03 is used as the probability of fire propagation from one area to another. The analysis assumes that the fire ignition does

not self-extinguish, but grows to a fully-developed fire, and no credit for fire suppression is taken in the analysis.

The multi-divisional area fire scenario assumes that the fire fails both non-1E Divisions A and B.

The CDF results for the single divisional fire scenarios, and for the multi-divisional area fire scenario, are summarized in Table 12-15.

12.5.1.4 Turbine Building

Turbine building fires are assumed to fail the feedwater and condensate systems; as such, the loss of feedwater initiator is assumed for a turbine building fire. In addition, the analysis assumes complete failure of the service air system.

The CDF for the turbine building fire scenario is provided in Table 12-15.

12.5.1.5 Fuel Building

A General Transient initiating event is assumed for fires in the fuel building. The fire is assumed to fail the FAPCS system.

The CDF for the fuel building fire scenario is provided in Table 12-15. Fire scenarios in the fuel building constitute a negligible risk (all cutsets are below the quantification truncation limit).

12.5.1.6 Control Room

The analysis of fires in the control room assumes that the fire forces control room evacuation; as such, no credit is given to manual actuations that must be performed from within the control room. However, it is assumed that automatic signals are not affected because they are generated in panels located outside the control room.

Recovery of the actuation of certain systems is credited due to the existence of remote shutdown panels located outside the control room. However, operator actions are not required to be performed at the remote shutdown panels; the plant proceeds to a safe shutdown without the need for operator intervention. If automatic actuations fail, the operators may manually perform the necessary actuations from the remote shutdown panels.

The recovery credit given to actuation from the remote shutdown panels can vary depending upon the time available:

- A failure probability of 1E-01 is assumed for short-term sequences.
- A failure probability of 1E-02 is assumed for long-term sequences.

In both cases it is assumed that the operators are sufficiently trained to carry out the required tasks from the remote shutdown panels.

A General Transient initiating event is assumed for the control room fire analysis. A fire-induced inadvertent opening of an SRV (IORV) in this room is not possible because of the ESBWR optical fiber design.

12.5.2 Calculation of Shutdown Core Damage Frequencies

The next paragraphs describe the initiating events and the equipment damage assumed for each of the fire scenarios defined during shutdown conditions.

Fire scenarios during Mode 6-Flooded are not explicitly quantified in the accident sequence analysis. Fires cause loss of DHR scenarios, but during Mode 6-Flooded the time to reach RCS boiling is very long. As such, the risk contribution from Mode 6-Flooded fire scenarios is not significant.

Table 12-14 summarizes the damage caused by the fire in each selected location.

12.5.2.1 Control Building, DCIS Class 1E Electrical Rooms

No initiating event that could be caused by a fire in the Control Building, DCIS class 1E Electrical Rooms during shutdown conditions has been identified.

12.5.2.2 Reactor Building Divisional Zones

Mode 5

It is conservatively assumed for operational Mode 5 that a fire in these areas could cause an inadvertent opening of an SRV (IORV).

Failure of the corresponding safety system division is assumed for a fire in each of the Reactor Building divisional areas. Failure of the RWCU and CRD systems, that are located in this building, is also assumed as follows:

- Train A of the RWCU and the CRD is assumed to fail due to fires in Division I or IV areas.
- Train B of the RWCU and the CRD is assumed to fail due to fires in Division II or III areas.

Like the at-power fire analysis, four multi-divisional area shutdown fire scenarios are analyzed for the reactor building divisional zones: 1) I and II failed; 2) I and IV failed; 3) II and III failed; and 4) III and IV failed.

The CDF results for these shutdown fire scenarios are summarized in Table 12-16.

Mode 6-Unflooded

The RWCU pumps are located in the reactor building and therefore it is possible that the entire system could fail due to a fire in this building.

As indicated in previous sections, the two RWCU system trains are assumed to be separated by fire barriers and therefore one fire could not affect both trains simultaneously. The only possible fire event that could lead to a loss of RWCU initiating event is a fire propagating between Divisions I and II, or between Divisions III and IV (RWCU Train A is assumed to fail due to fires in Division I or IV areas, and RWCU Train B is assumed to fail due to fires in Division II or III areas). The total loss of the RWCU and CRD systems, as well as the loss of the corresponding divisions, is assumed in such cases. The frequency of occurrence of the initiating event is the product of fire frequency determined for the group of areas, multiplied by the failure probability of the

fire barriers that separate these areas. The same 7.4E-03 fire propagation probability used in the at-power fire sequences is also used in the shutdown fire sequences. It is acknowledged that during shutdown conditions fire doors may be open for shutdown activities. However, the same probability is judged appropriate because when a fire barrier is not intact a fire watch is posted that will offset the increased fire propagation risk from the open barrier.

Four such scenarios are analyzed: 1) fire in I propagates to II; 2) fire in II propagates to I; 3) fire in III propagates to IV; and 4) fire in IV propagates to III.

The CDF results for these shutdown fire scenarios are summarized in Table 12-16.

12.5.2.3 Non-divisional Areas of Electrical Building; Service Water Building; Control Building non-1E DCIS Rooms; and RCCW and IAS Zones in Turbine Building

Mode 5

The fire areas included in these groups are divided into train A and train B areas separated by fire barriers. A fire that affects only one train (A or B) will not result in a shutdown initiating event. A fire-induced shutdown initiator will only result if the fire propagates and disables both divisions A and B. The frequency of such a fire is the product of the fire ignition frequency and the failure probability of the fire barriers separating these areas (the value of 7.4E-03 is used). Two such scenarios are analyzed: 1) fire in A propagates to B; and 2) fire in B propagates to A.

The CDF results for these shutdown fire scenarios are summarized in Table 12-16.

Mode 6-Unflooded

As discussed above for Mode 5, failure of both divisions A and B is required to result in an initiator during shutdown. The same two fire propagation scenarios analyzed for Mode 5 are also analyzed for the Mode 6-Unflooded case.

The CDF results for these shutdown fire scenarios are summarized in Table 12-16.

12.5.2.4 Turbine Building

No initiating event that could be caused by a fire in the turbine building during shutdown conditions has been identified.

12.5.2.5 Fuel Building

No initiating event that could be caused by a fire in the fuel building during shutdown conditions has been identified.

12.5.2.6 Control Room

The analysis of fires in the control room assumes that the fire forces control room evacuation; as such, no credit is given to manual actuations that must be performed from within the control room. However, it is assumed that automatic signals are not affected because they are generated in panels located outside the control room.

Recovery of the actuation of certain systems is credited due to the existence of remote shutdown panels located outside the control room. However, operator actions are not required to be performed at the remote shutdown panels; the plant proceeds to a safe shutdown without the need for operator intervention. If automatic actuations fail, the operators may manually perform the necessary actuations from the remote shutdown panels.

The recovery credit given to actuation from the remote shutdown panels can vary depending upon the time available. A failure probability of 1E-01 is assumed for short-term sequences.

It is assumed that the operators are sufficiently trained to carry out the required tasks from the remote control panels.

Mode 5

A fire-induced inadvertent opening of an SRV (IORV) is not possible because of the ESBWR optical fiber design.

It is assumed that a fire in the control room forces its evacuation. It is conservatively assumed that the evacuation causes a loss of control of residual heat removal with the RWCU/SDC system, and is assumed to be equivalent to a loss of RWCU/SDC system event.

Mode 6-Unflooded

The same control room fire scenario modeled for Mode 5 is also modeled for Mode 6-Unflooded.

The CDF results for these shutdown fire scenarios are summarized in Table 12-16.

12.6 RESULTS

This analysis is a bounding approach that begins by dividing the plant into major fire areas and then assigning a fire ignition frequency to each fire area. The fire is assumed to grow unchecked and disable all equipment in the area.

The core damage frequency results of the ESBWR probabilistic internal fires analysis are summarized in the following tables:

- CDF Contribution of At-Power Fire Scenarios (Table 12-15)
- CDF Contribution of Shutdown Fire Scenarios (Table 12-16)

Each table lists the fire area, scenario description, fire scenario initiation frequency, and the resulting core damage frequency. As can be seen from these tables, this conservative analysis shows that all the analyzed scenarios have a CDF lower than the internal events CDF.

The top 200 cutsets for the at-power internal fires CDF are provided in Table 12-17, and those for shutdown internal fires CDF are provided in Table 13-18.

The risk importance measures for the at-power internal fires CDF are provided in Table 12-19, and those for shutdown internal fires CDF are provided in Table 12-20.

This is a screening analysis that incorporates a number of conservative assumptions (refer to Section 12.2). For these reasons, it is inappropriate to add these fire CDF results to the internal events core damage frequencies.

12.7 INSIGHTS

The ESBWR probabilistic internal fire analysis highlights the following key insights regarding the fire mitigation capability of the ESBWR:

(1) The ESBWR, due to its basic layout and safety design features, is inherently capable of mitigating potential internal fires. Safety system redundancy and physical separation by fire barriers ensure that in all cases a single fire limits damage to a single safety system division or DID system redundancy. Fire propagation to neighboring areas presents a relatively minor risk contribution.

(2) Fires in the control room are assumed to affect the execution of human actions from there. One feature relevant to the design is that a fire in the control room does not affect the automatic actuations of the safety systems. Additionally, the existence of remote shutdown panels allows the opportunity to perform manual actuations for failed automatic actuations that may occur.

(3) A redundant separated valve to valve F302 of the FACPS system should be added to the design to reduce the importance of this valve during postulated fire scenarios.

12.8 CONCLUSIONS

The main conclusion that can be drawn from the ESBWR probabilistic internal fires analysis is that the risk from internal fires is acceptably low. The estimated core damage frequency for each of the analyzed scenarios even when using a conservative analysis is lower than the internal events CDF.

The ESBWR is inherently safe with respect to internal fire events. All potential fires have been analyzed and it has been shown that the plant can be safely shut down at low risk to plant personnel and the general public.

12.9 REFERENCES

12-1 "Fire Vulnerability Evaluation Methodology, FIVE, Plant Screening Guide", Electric Power Research Institute, September 26, 1991.

12-2 RES/OERAB/S02-01, January 2002, Fire Events – Update of U.S. Operating Experience, 1986 – 1999.

12-3 AEOD/S97-03, "Special Study, Fire Events – Feedback of U.S. Operating Experience", June 1997.

12-4 Report EPRI 1011989 NUREG/CR-6850, September 2005, Fire PRA Methodology for Nuclear Power Facilities, Vol. 2: Detailed Methodology.

12-5 ESBWR Design Control Document, 26A6642 Rev. 01.

Table 12-1

Fire Ignition Frequencies Weighting Factors for Plant-Specific Locations

(Weighting Factors used for Adjusting General Location Fire Frequencies for Application to Plant-Specific Locations - From Table 1.1 of Reference 12-1)

PLANT LOCATION	WEIGHTING FACTORS[1] (WF_L)
Auxiliary Building (PWR)	The number of units per site / divided by the number of auxiliary buildings
Reactor Building (BWR)	The number of units per site / divided by the number of reactor buildings = 1/1
Diesel Generator Room	The number of diesels per site / divided by the number of diesel generator rooms per site = 1/2
Switchgear Room	The number of units per site / divided by the number of switchgear rooms per site = 1/4 (2)
Battery Room	The number of units per site / divided by the number of battery rooms per site. = 2/13 (3)
Control Room	The number of units per site / divided by the number of control rooms per site = 1/1
Cable Spreading Room	The number of units per site / divided by the number of cable spreading rooms per site
Intake Structure	The number of units per site / divided by the number of intake structures = 1/1
Turbine Building	The number of units of units per site / divided by the number of turbine buildings = 1/1
Radwaste Area	The number of units per site / divided by the number of radwaste areas
Transformer Yard	The number of units per site / divided by the number of switchyards. = 1/1
Plant-Wide Components (4)	The number of units per site.

Notes:

(1) The analyst must identify the number of like locations when determining the number of buildings, e.g., a 480 volt load center is "like" a switchgear room.

(2) Division A Location Weighting Factor = 1/2.

(3) The location weighting factor for each class 1E area is calculated as 1 unit divided by 13 battery rooms, then multiplied by two because there are 2 battery rooms in each class 1E area. Division A Location Weighting Factor = 3/13. Division B Location Weighting Factor = 4/13.

(4) Components such as, cables, transformers, elevator motors, hydrogen recombiner/analyzer.

Table 12-2

At Power Plant Location Fire Ignition Sources and Frequencies

(Full Power Fire Ignition Sources and Frequencies by Applicable Plant Location From Table 1.2 of Reference 12-1).

PLANT LOCATION	FIRE IGNITION FUEL SOURCE	IGNITION SOURCE WEIGHTING FACTOR METHOD	FIRE FREQUENCIES[1,2]
Auxiliary Building (PWR)	Switchgear Electrical cabinets Pumps motors	B B B	1.6×10^{-2} 2.0×10^{-2} 1.9×10^{-2}
Reactor Building (BWR) [2]	Electrical cabinets Pumps	B B	4.9×10^{-2} 2.5×10^{-2}
Diesel Generator Room	Diesel generators Electrical cabinets	A A	2.5×10^{-2} 2.3×10^{-3}
Switchgear Room	Electrical cabinets	A	1.6×10^{-2}
Battery Room	Batteries	A	3.1×10^{-3}
Control Room	Electrical cabinets	A	9.3×10^{-3}
Cable Spreading Room	Electrical cabinets	A	3.9×10^{-3}
Intake Structure	Electrical cabinets Fire pumps Others	A A A	2.3×10^{-3} 3.9×10^{-3} 3.1×10^{-3}
Turbine Building	T/G Excitor T/G Oil T/G Hydrogen Electrical cabinets Other pumps Main feedwater pumps Boiler	B B B B B A B	3.9×10^{-3} 1.4×10^{-2} 5.4×10^{-3} 1.3×10^{-2} 7.0×10^{-3} 4.3×10^{-3} 1.6×10^{-3}
Radwaste Area	Miscellaneous components	A	8.5×10^{-3}
Transformer Yard	Yard transformers propagating to Turbine Building Yard transformers (LOSP) Yard transformers (Others)	A A F	3.9×10^{-3} 1.6×10^{-3} 1.5×10^{-2}

Table 12-2

At Power Plant Location Fire Ignition Sources and Frequencies

(Full Power Fire Ignition Sources and Frequencies by Applicable Plant Location From Table 1.2 of Reference 12-1).

PLANT LOCATION	FIRE IGNITION FUEL SOURCE	IGNITION SOURCE WEIGHTING FACTOR METHOD	FIRE FREQUENCIES[1,2]
Plant-Wide Components (cables, transformers, elevator motors, hydrogen recombiner/analyzer).	Fire protection panels	F	2.3×10^{-3}
	RPS MG sets	F	5.4×10^{-3}
	Non-qualified cable run	E	6.2×10^{-3}
	Junction box/Splice in non-qualified cable	E	1.6×10^{-3}
	Junction box in qualified cable	E	1.6×10^{-3}
	Transformers indoor	F	7.8×10^{-3}
	Battery chargers	F	3.9×10^{-3}
	Off-gas H_2 Recombiner (BWR)	G	8.4×10^{-2}
	Hydrogen Tanks	G	3.1×10^{-3}
	Other Hydrogen Fires	C	3.1×10^{-3}
	Gas Turbines [5]	G	3.1×10^{-2}
	Air Compressors	F	4.7×10^{-3}
	Ventilation subsystem (fan motors, compressor motors)	F	9.3×10^{-3}
	Elevator motors	F	6.2×10^{-3}
	Driers	F	8.5×10^{-3}
	Transients [3,4]	D	1.4×10^{-3}
	Cable fires caused by welding [4]	C	5.6×10^{-3}
	Ordinary combustible fires caused by welding and cutting [4].	C	2.8×10^{-2}

Notes for Table 12-2:

(1) Frequencies are per reactor year unless otherwise noted.

(2) Fire frequencies are per fraction of ignition sources per year.

(3) Fire frequency represents one event. The thirteen transient events that occurred during power operation are considered by the weighting factor.

(4) Fire frequency represents years at power operation.

(5) Fire frequency represents an estimated 130 gas-turbine-operating years.

Notes for Ignition Source Weighting Factor Method:

Values can be estimated using methods other than direct counting, including engineering judgment. Attempt to estimate values within about 25%.

A. No ignition source weighting factor is necessary.

B. Obtain the ignition source weighting factor by dividing the number of ignition sources in the fire area by the number in the selected location.

C. Obtain the ignition source weighting factor by calculating the inverse of the number of Appendix R fire areas in the location for which this fire ignition source could be present. Exclude any areas contained in other locations in this table.

D. Obtain the ignition source weighting factor by summing to D factors for ignition sources that are allowed in the zone and dividing by the number of zones in the location in this table. For example, if cigarette smoking is prohibited do not include the cigarette smoking factor in this calculation. The factors are:

- Cigarette smoking 3
- Extension cord 3
- Heater 2
- Candle 2
- Overheating 2
- Hot pipe 1

Overheating addresses errors while heating potential combustibles, e.g. battery terminal grease.

E. Obtain the ignition source weighting factor by dividing the weight (or BTUs) of cable insulation in area by the total weight (or BTUs) of cable insulation in Appendix R fire areas not including fire areas in either the radwaste area or the containment. Cable insulation weight (or BTUs) is provided in Appendix R combustible loadings. (Junction boxes and splices are assumed to be distributed in proportion to the amount of cable).

F. Obtain the ignition source weighting factor by dividing the number of ignition sources in the fire area by the total number in all the locations in this table.

G. Obtain the ignition source weighting factor by dividing the number of ignition sources in the fire area by the total number in all plant locations that were not specified in this table.

Table 12-3

At Power Fire Ignition Frequency: Control Building DCIS Zones

Fire Area Description	**Control Building, DCIS Class 1E Division I**					
Reference 12-1 Plant Location	Reactor Building					
Location Weighting Factor (WF_L)	1					
Ignition Source Frequency (F_{if})						
Fire Area Ignition Sources	**(WF_L)**	**(A)**	**(B)**	**WF_{Is}=A/B**	**F_f (1)**	**F_{if} (2)**
Electrical Cabinets	1	12	256 (3)	0.047	4.90E-02	2.30E-03
Plant Wide Ignition Sources	**(WF_L)**	**(A)**	**(C)**	**WF_{Is}=A/C**	**F_f (1)**	**F_{if} (2)**
Fire Protection Panels	1	2	50	0.040	2.30E-03	9.20E-05
Transients	1	5	110	0.046	1.40E-03	6.36E-05
Cable Fires caused by welding	1	1	110	0.009	5.60E-03	5.09E-05
Transient Fires caused by welding and cutting	1	1	110	0.009	2.80E-02	2.55E-04
Fire Area Ignition Frequency (per year)						2.76E-03

Notes:

1. F_f is the Fire Frequency obtained from Table 12-2.
2. $F_{if} = Ff \bullet WF_{Is}$ or $F_{if} = Ff \bullet WF_L$ as applicable.
3. 256: Corresponds to total number of electrical cabinets in RB; CB; FB and EB.

Table 12-4

At Power Fire Ignition Frequency: Reactor Building Divisional Zones

Fire Area Description	**Reactor Building Divisional Zones (Division I)**					
Reference 12-1 Plant Location	Reactor Building (RB); Battery Room (BR)					
Location Weighting Factor (WF_L)	RB = 1; BR = 2/13					
Ignition Source Frequency (F_{if})						
Fire Area Ignition Sources	**(WF_L)**	**(A)**	**(B)**	**WF_{ls}=A/B**	**F_f (1)**	**F_{if} (2)**
Electrical Cabinets (RB)	1	35	256 (3)	0.137	4.90E-02	6.70E-03
Pumps (RB)	1	3	24 (4)	0.125	2.50E-02	3.13E-03
Batteries (BR)	0.15	n/a	n/a	n/a	3.10E-03	4.77E-04
Plant Wide Ignition Sources	**(WF_L)**	**(A)**	**(C)**	**WF_{ls}=A/C**	**F_f (1)**	**F_{if} (2)**
Fire Protection Panels	1	4	50	0.080	2.30E-03	1.84E-04
Junction box in qualified cables	1	8	110	0.073	1.60E-03	1.17E-04
Transformers	1	2	20	0.100	7.80E-03	7.80E-04
Battery Chargers	1	2	13	0.154	3.90E-03	6.00E-04
Transients	1	8	110	0.073	1.40E-03	1.02E-04
Cable Fires caused by welding	1	8	110	0.073	5.60E-03	4.09E-04
Transient Fires caused by welding and cutting	1	8	110	0.073	2.80E-02	2.04E-03
Fire Area Ignition Frequency (per year)						1.45E-02

Notes:

1. F_f is the Fire Frequency obtained from Table 12-2.
2. $F_{if} = Ff \cdot WF_{ls}$ or $F_{if} = Ff \cdot WF_L$ as applicable.
3. 256: Corresponds to total number of electrical cabinets in RB; CB; FB and EB.
4. 24: Corresponds to total number of pumps in RB, FB and the RCCW in the TB.

Table 12-5

At Power Fire Ignition Frequency: Non Divisional Areas

Fire Area Description	**Non-divisional Areas of Electrical Building; Service Water Building; Control Building non-1E DCIS Rooms; and RCCW and IAS Zones in Turbine Building**					
Reference 12-1 Plant Location	Reactor Building (RB); Diesel Generator Room (DG); Switchgear Room (SR); Battery Room (BR); Intake Structure (IS); Transformer Yard (TY)					
Location Weighting Factor (WF_L)	RB = 1; DG = 1/2; SR = 0.50; BR = 3/13; IS = 1; TY =1					
Ignition Source Frequency (F_{if})						
Fire Area Ignition Sources	**(WF_L)**	**(A)**	**(B)**	**WF_{ls}=A/B**	**F_f (1)**	**F_{if} (2)**
Electrical Cabinets (RB)	1	24 (4)	256 (3)	0.094	4.90E-02	4.59E-03
Pumps (RB)	1	3	24	0.125	2.50E-02	3.13E-03
Diesel Generator (DG)	0.5	n/a	n/a	n/a	2.50E-02	1.25E-02
Electrical Cabinets (DG)	0.5	n/a	n/a	n/a	2.30E-03	1.15E-03
Electrical Cabinets (SR)	0.5	n/a	n/a	n/a	1.60E-02	8.00E-03
Batteries (BR)	0.23	n/a	n/a	n/a	3.10E-03	7.15E-04
Electrical Cabinets (IS)	1	n/a	n/a	n/a	2.30E-03	2.30E-03
Fire Pumps (IS)	1	n/a	n/a	n/a	3.90E-03	3.90E-03
Other Pumps (IS)	1	n/a	n/a	n/a	3.10E-03	3.10E-03
Yard Transformers (TY)	1	n/a	n/a	n/a	1.60E-03	1.60E-03
Plant Wide Ignition Sources	**(WF_L)**	**(A)**	**(C)**	**WF_{ls}=A/C**	**F_f (1)**	**F_{if} (2)**
Fire Protection Panels	1	20	50	0.400	2.30E-03	9.20E-04
Junction box in qualified cables	1	24	110	0.218	1.60E-03	3.49E-04
Transformers	1	10	20	0.500	7.80E-03	3.90E-03
Battery Chargers	1	3	13	0.231	3.90E-03	9.0E-03
Air Compressors	1	1	4	0.250	4.70E-03	1.18E-03
Transients	1	8	110	0.073	1.40E-03	1.02E-04
Cable Fires caused by welding	1	24	110	0.218	5.60E-03	1.22E-03
Transient Fires caused by welding and cutting	1	24	110	0.218	2.80E-02	6.10E-03
Fire Area Ignition Frequency (per year)						5.57E-02

Notes:

1. F_f is the Fire Frequency obtained from Table 12-2.
2. $F_{if} = Ff \cdot WF_{ls}$ or $F_{if} = Ff \cdot WF_L$ as applicable.
3. 256: corresponds to total number of electrical cabinets in RB; CB; FB and EB.
4. 24: corresponds to total number of pumps in RB, FB and the RCCW in the TB.

Table 12-6

At Power Fire Ignition Frequency: Turbine Building

Fire Area Description	**Turbine Building**					
Reference 12-1 Plant Location	Turbine Building (TB); Transformer Yard (TY)					
Location Weighting Factor (WF_L)	TB = 1; TY = 1					
Ignition Source Frequency (F_{if})						
Fire Area Ignition Sources	**(WF_L)**	**(A)**	**(B)**	**WF_{ls}=A/B**	**F_f (1)**	**F_{if} (2)**
T/G Excitor (TB)	1	n/a	n/a	n/a	3.90E-03	3.90E-03
T/G Oil (TB)	1	n/a	n/a	n/a	1.40E-02	1.40E-02
T/G Hydrogen (TB)	1	n/a	n/a	n/a	5.40E-03	5.40E-03
Electrical Cabinets (TB)	1	n/a	n/a	n/a	1.30E-02	1.30E-02
Other Pumps (TB)	1	n/a	n/a	n/a	7.00E-03	7.00E-03
Main Feedwater Pumps (TB)	1	n/a	n/a	n/a	4.30E-03	4.30E-03
Yard Transformers (TY)	1	n/a	n/a	n/a	3.90E-03	3.90E-03
Plant Wide Ignition Sources	**(WF_L)**	**(A)**	**(C)**	**WF_{ls}=A/C**	**F_f (1)**	**F_{if} (2)**
Fire Protection Panels	1	5	50	0.100	2.30E-03	2.30E-04
Junction box in qualified cables	1	20	110	0.182	1.60E-03	2.91E-04
Transformers	1	2	20	0.100	7.80E-03	7.80E-04
Air Compressors	1	2	4	0.500	4.70E-03	2.35E-03
Transients	1	8	110	0.073	1.40E-03	1.02E-04
Cable Fires caused by welding	1	20	110	0.182	5.60E-03	1.02E-03
Transient Fires caused by welding and cutting	1	20	110	0.182	2.80E-02	5.10E-03
Fire Area Ignition Frequency (per year)						6.14E-02

Notes:

1. F_f is the Fire Frequency obtained from Table12-2.
2. $F_{if} = Ff \bullet WF_{ls}$ or $F_{if} = Ff \bullet WF_L$ as applicable.

Table 12-7

At Power Fire Ignition Frequency: Fuel Building

Fire Area Description	**Fuel Building**					
Reference 12-1 Plant Location	Reactor Building					
Location Weighting Factor (WF_L)	1					
Ignition Source Frequency (F_{if})						
Fire Area Ignition Sources	**(WF_L)**	**(A)**	**(B)**	**WF_{ls}=A/B**	**F_f (1)**	**F_{if} (2)**
Electrical Cabinets	1	20	256 (3)	0.078	4.90E-02	3.83E-03
Pumps	1	6	24 (4)	0.250	2.50E-02	6.25E-03
Plant Wide Ignition Sources	**(WF_L)**	**(A)**	**(C)**	**WF_{ls}=A/C**	**F_f (1)**	**F_{if} (2)**
Fire Protection Panels	1	2	50	0.040	2.30E-03	9.20E-05
Junction box in qualified cables	1	6	110	0.055	1.60E-03	8.80E-05
Transients	1	8	110	0.073	1.40E-03	1.02E-04
Cable Fires caused by welding	1	6	110	0.055	5.60E-03	3.08E-04
Transient Fires caused by welding and cutting	1	6	110	0.055	2.80E-02	1.54E-03
Fire Area Ignition Frequency (per year)						1.22E-02

Notes:

1. F_f is the Fire Frequency obtained from Table 12-2.
2. $F_{if} = Ff \cdot WF_{ls}$ or $F_{if} = Ff \cdot WF_L$ as applicable.
3. 256: Corresponds to total number of electrical cabinets in RB; CB; FB and EB.
4. 24: Corresponds to total number of pumps in RB, FB and the RCCW in the TB.

Table 12-8

At Power Fire Ignition Frequency: Control Room

Fire Area Description	**Control Room**					
Reference 12-1 Plant Location	Control Room					
Location Weighting Factor (WF_L)	1					
Ignition Source Frequency (F_{if})						
Fire Area Ignition Sources	**(WF_L)**	**(A)**	**(B)**	**WF_{ls}=A/B**	**F_f (1)**	**F_{if} (2)**
Electrical Cabinets	1	n/a	n/a	n/a	9.30E-03	9.30E-03
Plant Wide Ignition Sources	**(WF_L)**	**(A)**	**(C)**	**WF_{ls}=A/C**	**F_f (1)**	**F_{if} (2)**
Fire Protection Panels	1	1	50	0.020	2.30E-03	4.60E-05
Junction box in qualified cables	1	1	110	0.009	1.60E-03	1.44E-05
Transients	1	5	110	0.046	1.40E-03	6.44E-05
Cable Fires caused by welding	1	0	110	0.0	5.60E-03	0.00E+00
Transient Fires caused by welding and cutting	1	0	110	0.0	2.80E-02	0.00E+00
Fire Area Ignition Frequency (per year)						9.42E-03

Notes:

1. F_f is the Fire Frequency obtained from Table 12-2.
2. $F_{if} = Ff \bullet WF_{ls}$ or $F_{if} = Ff \bullet WF_L$ as applicable.

Table 12-9

Shutdown Fire Ignition Frequencies Per Plant Location

Plant Location	Shutdown Fire Frequencies		
	5%	Mean	95%
Containment	8.93E-04	2.30E-01	8.70E-01
Reactor building	1.30E-03	3.30E-01	1.30E+00
Auxiliary building	1.10E-03	2.80E-01	1.10E+00
Turbine building	1.40E-03	3.60E-01	1.40E+00
Control room	8.90E-05	2.80E-02	8.70E-02
Cable spreading room	1.30E-05	3.20E-03	1.20E-02
Switchgear room	2.00E-04	5.20E-02	2.00E-01
EDG building	2.40E-04	6.20E-02	2.40E-01
SWS pumphouse	5.10E-05	1.30E-02	5.00E-02
Switchyard	2.00E-04	5.20E-02	2.00E-01
Battery room	1.30E-05	3.20E-03	1.20E-02

Note:
This table is reproduced here from Table ES-2 "Shutdown Fire Frequencies by Plant Location", Reference 12-2.

Table 12-10

Shutdown Fire Ignition Frequencies Per Year Outage

ESBWR Fire PRA Area	Frequency per Year Outage
Control building DCIS class 1E	1.40E-01
Reactor building	3.32E-01
Non-divisional areas	3.24E-01
Turbine building	3.60E-01
Fuel building	3.30E-02
Control room	2.80E-02

Table 12-11

Operating Mode Durations

Description	Duration (Hrs)	Fraction per outage	Fraction per year
Mode 4	8	0.0073	4.57E-04
Mode 5	238	0.2179	1.36E-02
Mode 6-Unflooded	59	0.0540	3.37E-03
Mode 6-Flooded	241	0.2207	1.38E-02
Total	546		

Table 12-12

Shutdown Fire Ignition Frequencies Per Operating Mode

ESBWR Fire PRA Area	Mode 4	Mode 5	Mode 6-Unflooded	Mode 6-Flooded(4)
Control building(1)	6.39E-05	1.90E-03	4.71E-04	1.93E-03
Reactor building(2)	1.51E-04	4.50E-03	1.12E-03	4.56E-03
Non-divisional areas(3)	1.48E-04	4.40E-03	1.09E-03	4.45E-03
Turbine building(1)	1.64E-04	4.89E-03	1.21E-03	4.95E-03
Fuel building(1)	1.51E-05	4.48E-04	1.11E-04	4.54E-04
Control room	1.28E-05	3.80E-04	9.43E-05	3.85E-04

Notes:

(1) As discussed in Section 12.5.2, fires in these areas are not quantified in the accident sequence analysis because fires in these areas do not create shutdown initiators.

(2) These frequencies are divided by four in the accident sequence analysis, and applied to each of the four reactor building divisional fires.

(3) These frequencies are divided by two in the accident sequence analysis, and applied to each of the two non-divisional area fires.

(4) Fire scenarios during Mode 6-Flooded are not explicitly quantified in the accident sequence analysis. Fires cause loss of DHR scenarios, but during Mode 6-Flooded the time to reach RCS boiling is very long. As such, the risk contribution from Mode 6-Flooded fire scenarios is not significant.

Table 12-13

At Power Fire Damage Scenarios

Fire Area	PRA Initiating Event[1]	Damage States
Control Building DCIS Class 1E Electrical Rooms	General Transient	One class 1E division
		Two class 1E divisions
Reactor Building Divisional Zones	Inadvertent Opening of an SRV (IORV)	One class 1E division, plus one train of RWCU and one of CRD
		Two class 1E divisions, plus one train of RWCU and one of CRD
		Two class 1E divisions, plus both trains of RWCU and CRD
Non-divisional Areas of Electrical Building; Service Water Building; Control Building non-1E DCIS Rooms; and RCCW and IAS Zones in Turbine Building	General Transient	Non-class 1E Division A or B
		Both non-class 1E Divisions A and B
Turbine Building	Loss of Feedwater	Feedwater, Condensate, Service Air RCCW failed
Fuel Building	General Transient	Fuel and Auxiliary Pools Cooling System (FAPCS)
Control Room	General Transient	Control Room evacuation

Notes:

(1) Identifies the accident sequence structure used in the CDF quantification. Refer to Section 3 for event tree figures.

Table 12-14

Shutdown Fire Damage Scenarios

Fire Area	Mode	PRA Initiating Event	Damage
Control Building DCIS Class 1E Electrical Rooms	5	No initiating event	n/a
	6	No initiating event	n/a
Reactor Building Divisional Zones	5	Inadvertent Opening of an SRV (IORV)	One class 1E division, plus one train each of RWCU and CRD
			Two class 1E divisions, plus one train of RWCU and one of CRD
			Two class 1E divisions, plus both trains of RWCU and CRD
	6	Loss of RWCU	Two class 1E divisions, plus both trains of RWCU and CRD
Non-divisional Areas of Electrical Building; Service Water Building; Control Building non-1E DCIS Rooms; and RCCW and IAS Zones in Turbine Building	5	Loss of RWCU	Non-class 1E divisions A and B
	6	Loss of RWCU	Non-class 1E divisions A and B
Control Room Complex	5	Loss of RWCU	Control Room evacuation
	6	Loss of RWCU	Control Room evacuation
Turbine Building	5	No initiating event	n/a
	6	No initiating event	n/a
Fuel Building	5	No initiating event	n/a
	6	No initiating event	n/a

Table 12-15

Full Power Core Damage Frequency Due to Internal Fires

Fire Area	Scenario[1]	Fire Scenario Frequency (per year)	Core Damage Frequency (per year)
Control Building DCIS Class 1E Electrical Rooms[2]	Division I Fire (FIRE-CONTROL-BUILD-TGEN-DIVI)	2.76E-03	Negligible
	Division II Fire (FIRE-CONTROL-BUILD-TGEN-DIVII)	2.76E-03	1E-13
	Division III Fire (FIRE-CONTROL-BUILD-TGEN-DIVIII)	2.76E-03	Negligible
	Division IV Fire (FIRE-CONTROL-BUILD-TGEN-DIVIV)	2.76E-03	Negligible
Reactor Building Divisional Zones[2]	Division I Fire (FIRE-REACT-BUIL-DIVI)	1.45E-02	7.42E-10
	Division II Fire (FIRE-REACT-BUIL-DIVII)	1.45E-02	7.76E-10
	Division III Fire (FIRE-REACT-BUIL-DIVIII)	1.45E-02	3.61E-10
	Division IV Fire (FIRE-REACT-BUIL-DIVIV)	1.45E-02	3.88E-10
Non-divisional Areas of Electrical Building; Service Water Building; Control Building non-1E DCIS Rooms; and RCCW and IAS Zones in Turbine Building[2]	Division A Fire (FIRE-NON-DIVISIONAL-REDA)	5.57E-02	5.83E-11
	Division B Fire (FIRE-NON-DIVISIONAL-REDB)	5.57E-02	5.83E-11
Turbine Building	Turbine Building Fire (FIRE-TURBINE-BUILD)	6.14E-02	9.69E-09
Fuel Building	Fuel Building Fire (FIRE-FUEL-BUILD)	1.22E-02	Negligible
Control Room	Control Room Fire (FIRE-CONTROL-ROOM-TGEN)	9.42E-03	7.97E-12

Notes:

(1) Parameters shown in parentheses are the fire scenario initiator IDs used in the accident sequence analysis (refer to Tables 12-17 and 12-19).

(2) The CDF results for these scenarios include both single division fire scenarios and multi-divisional fire scenarios (as described in Section 12.5.1 and Table 12-13).

Table 12-16

Shutdown Core Damage Frequencies Due to Internal Fires

Fire Area	Mode[1]	Scenario[2]	Fire Scenario Frequency (per year)	Core Damage Frequency (per year)
Reactor Building Divisional Zones[3]	5	Division I Fire (FIRE-REACT-BUILD-DIVI-M5)	1.12E-03	7.23E-09
		Division II Fire (FIRE-REACT-BUILD-DIVII-M5)	1.12E-03	7.72E-09
		Division III Fire (FIRE-REACT-BUILD-DIVIII-M5)	1.12E-03	3.63E-09
		Division IV Fire (FIRE-REACT-BUILD-DIVIV-M5)	1.12E-03	4.02E-09
	6 Unflooded	Division I Fire (FIRE-REACT-BUILD-DIVI-M6)	2.80E-04	4.53E-11
		Division II Fire (FIRE-REACT-BUILD-DIVII-M6)	2.80E-04	4.53E-11
		Division III Fire (FIRE-REACT-BUILD-DIVIII-M6)	2.80E-04	6.02E-11
		Division IV Fire (FIRE-REACT-BUILD-DIVIV-M6)	2.80E-04	6.02E-11
Non-divisional Areas of Electrical Building; Service Water Building; Control Building non-1E DCIS Rooms; and RCCW and IAS Zones in Turbine Building	5	Division A Fire Propagates to Division B (FIRE-NON-DIVISIONAL-REDA-M5)	2.20E-03	8E-13
		Division B Fire Propagates to Division A (FIRE-NON-DIVISIONAL-REDB-M5)	2.20E-03	8E-13
	6 Unflooded	Division A Fire Propagates to Division B (FIRE-NON-DIVISIONAL-REDA-M6)	5.45E-04	1.92E-10
		Division B Fire Propagates to Division A (FIRE-NON-DIVISIONAL-REDB-M6)	5.54E-04	1.95E-10
Control Room	5	Control Room Fire (FIRE-CONTROL-ROOM-M5)	3.80E-04	2E-13
	6 Unflooded	Control Room Fire (FIRE-CONTROL-ROOM-M6)	9.43E-05	4.56E-11

Notes:

(1) Fire scenarios during Mode 6-Flooded are not explicitly quantified in the accident sequence analysis. Fires cause loss of DHR scenarios, but during Mode 6-Flooded the time to reach RCS boiling is very long. As such, the risk contribution from Mode 6-Flooded fire scenarios is not significant.

(2) Parameters shown in parentheses are the fire scenario initiator IDs used in the accident sequence analysis (refer to Tables 12-18 and 12-20).

(3) The CDF results for these scenarios include both single division fire scenarios and multi-divisional fire scenarios (as described in Section 12.5.2 and Table 12-14).

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report
Fire Full Power
Core Damage Frequency = 1.21E-08/year
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
1	3.42E-10	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
2	3.42E-10	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
3	3.42E-10	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
4	3.42E-10	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
5	3.42E-10	4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
6	3.42E-10	4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report
Fire Full Power
Core Damage Frequency = 1.21E-08/year
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
7	3.42E-10	4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
8	3.42E-10	4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
9	2.37E-10	1.60E-03	B21-UV_-CC-F102B	CHECK VALVE #1 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
10	2.37E-10	1.60E-03	B21-UV_-CC-F102B	CHECK VALVE #1 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
11	2.37E-10	1.60E-03	B21-UV_-CC-F103B	CHECK VALVE #2 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
12	2.37E-10	1.60E-03	B21-UV_-CC-F103B	CHECK VALVE #2 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report
Fire Full Power
Core Damage Frequency = 1.21E-08/year
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
13	2.37E-10	1.60E-03	C12-UV -CC-F022	CHECK VALVE F022 FAILS TO OPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
14	2.37E-10	1.60E-03	C12-UV -CC-F022	CHECK VALVE F022 FAILS TO OPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
15	1.02E-10	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
16	1.02E-10	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
17	1.02E-10	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
18	1.02E-10	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report
Fire Full Power
Core Damage Frequency = 1.21E-08/year
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
19	1.02E-10	4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
20	1.02E-10	4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
21	1.02E-10	4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
22	1.02E-10	4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
23	8.54E-11	1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
24	8.54E-11	1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report
Fire Full Power
Core Damage Frequency = 1.21E-08/year
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
25	8.54E-11	1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
26	8.54E-11	1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
27	8.54E-11	1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
28	8.54E-11	1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
29	8.54E-11	1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
30	8.54E-11	1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report
Fire Full Power
Core Damage Frequency = 1.21E-08/year
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
31	8.54E-11	1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
32	8.54E-11	1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
33	7.07E-11	1.60E-03	B21-UV_-CC-F102B	CHECK VALVE #1 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
34	7.07E-11	1.60E-03	B21-UV_-CC-F102B	CHECK VALVE #1 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
35	7.07E-11	1.60E-03	B21-UV_-CC-F103B	CHECK VALVE #2 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
36	7.07E-11	1.60E-03	B21-UV_-CC-F103B	CHECK VALVE #2 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report
Fire Full Power
Core Damage Frequency = 1.21E-08/year
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
37	7.07E-11	1.60E-03	C12-UV -CC-F022	CHECK VALVE F022 FAILS TO OPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
38	7.07E-11	1.60E-03	C12-UV -CC-F022	CHECK VALVE F022 FAILS TO OPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
39	3.26E-11	5.57E-02	FIRE-NON-DIVISIONAL-REDA	FIRE IN ELECTRICAL BUILDING ZONE A
		5.85E-02	B21-SYS-FF-1/9OPEN	1 OUT OF 9 SRV FAIL TO CLOSE AFTER OPENING
		1.00E-08	C71-SYS-FF-SCRAM	SCRAM FAILURE
40	3.26E-11	5.57E-02	FIRE-NON-DIVISIONAL-REDB	FIRE IN ELECTRICAL BUILDING ZONE B
		5.85E-02	B21-SYS-FF-1/9OPEN	1 OUT OF 9 SRV FAIL TO CLOSE AFTER OPENING
		1.00E-08	C71-SYS-FF-SCRAM	SCRAM FAILURE
41	2.87E-11	3.12E-05	C62-VLU-CF-DIDALL	CCF OF VOTER LOGIC UNITS
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
42	2.87E-11	3.12E-05	C62-VLU-CF-DIDALL	CCF OF VOTER LOGIC UNITS
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
43	2.85E-11	4.00E-03	C12-MOV-CC-F014A	MOTOR OPER. VALVE F014A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
44	2.85E-11	4.00E-03	C12-MOV-CC-F014A	MOTOR OPER. VALVE F014A FAILS TO OPEN

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report Fire Full Power Core Damage Frequency = 1.21E-08/year Top 200 Cutsets				
No	Cutset Prob	Event Prob	Event	Description
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
45	2.85E-11	4.00E-03	C12-MOV-CC-F014A	MOTOR OPER. VALVE F014A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
46	2.85E-11	4.00E-03	C12-MOV-CC-F014A	MOTOR OPER. VALVE F014A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
47	2.85E-11	4.00E-03	C12-MOV-CC-F014B	MOTOR OPER. VALVE F014B FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
48	2.85E-11	4.00E-03	C12-MOV-CC-F014B	MOTOR OPER. VALVE F014B FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
49	2.85E-11	4.00E-03	C12-MOV-CC-F014B	MOTOR OPER. VALVE F014B FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report
Fire Full Power
Core Damage Frequency = 1.21E-08/year
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
50	2.85E-11	4.00E-03	C12-MOV-CC-F014B	MOTOR OPER. VALVE F014B FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
51	2.85E-11	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
52	2.85E-11	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
53	2.85E-11	4.00E-03	C12-MOV-CC-F020B	MOTOR OPER. VALVE F020B FAILS TO OPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
54	2.85E-11	4.00E-03	C12-MOV-CC-F020B	MOTOR OPER. VALVE F020B FAILS TO OPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
55	2.55E-11	1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report
Fire Full Power
Core Damage Frequency = 1.21E-08/year
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
56	2.55E-11	1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
57	2.55E-11	1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
58	2.55E-11	1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
59	2.55E-11	1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
60	2.55E-11	1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report
Fire Full Power
Core Damage Frequency = 1.21E-08/year
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
61	2.55E-11	1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
62	2.55E-11	1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
63	2.55E-11	1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
64	2.55E-11	1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
65	2.22E-11	3.13E-03	C12-MOV-FC-F020A	FLOW CONTROL A FAILS WIDE OPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
66	2.22E-11	3.13E-03	C12-MOV-FC-F020A	FLOW CONTROL A FAILS WIDE OPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report Fire Full Power Core Damage Frequency = 1.21E-08/year Top 200 Cutsets				
No	Cutset Prob	Event Prob	Event	Description
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
67	2.22E-11	3.13E-03	C12-MOV-FC-F020B	FLOW CONTROL B FAILS WIDE OPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
68	2.22E-11	3.13E-03	C12-MOV-FC-F020B	FLOW CONTROL B FAILS WIDE OPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
69	2.14E-11	3.00E-03	C12-SYS-TM-TRAINB	TRAIN B IN MAINTENANCE
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
70	2.14E-11	3.00E-03	C12-SYS-TM-TRAINB	TRAIN B IN MAINTENANCE
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
71	2.14E-11	1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
72	2.14E-11	1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report Fire Full Power Core Damage Frequency = 1.21E-08/year Top 200 Cutsets				
No	Cutset Prob	Event Prob	Event	Description
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
73	2.14E-11	1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
74	2.14E-11	1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
75	2.14E-11	1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
76	2.14E-11	1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
77	2.14E-11	1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report Fire Full Power Core Damage Frequency = 1.21E-08/year Top 200 Cutsets				
No	Cutset Prob	Event Prob	Event	Description
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
78	2.14E-11	1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
79	2.14E-11	1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
80	2.14E-11	1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
81	2.14E-11	1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
82	2.14E-11	1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
83	2.08E-11	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE
		6.00E-04	C74-DTM-FC-DIV3	DTM OF SSLC DIV. 3 FAILS TO TRIP

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report
Fire Full Power
Core Damage Frequency = 1.21E-08/year
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
84	2.08E-11	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE
		6.00E-04	C74-DTM-FC-DIV4	DTM OF SSLC DIV. 4 FAILS TO TRIP
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
85	2.08E-11	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE
		6.00E-04	H23-EMS-FC-DIV3	ESSENTIAL MULTIPLEXING SYSTEM DIV 3 FAILS TO FUNCTION
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
86	2.08E-11	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE
		6.00E-04	H23-EMS-FC-DIV4	ESSENTIAL MULTIPLEXING SYSTEM DIV 4 FAILS TO FUNCTION
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
87	2.08E-11	1.45E-02	FIRE-REACT-BUIL-DIVII	FIRE IN REACTOR BUILDING DIVISION II ZONE
		6.00E-04	C74-DTM-FC-DIV3	DTM OF SSLC DIV. 3 FAILS TO TRIP
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
88	2.08E-11	1.45E-02	FIRE-REACT-BUIL-DIVII	FIRE IN REACTOR BUILDING DIVISION II ZONE
		6.00E-04	C74-DTM-FC-DIV4	DTM OF SSLC DIV. 4 FAILS TO TRIP
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report
Fire Full Power
Core Damage Frequency = 1.21E-08/year
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
89	2.08E-11	1.45E-02	FIRE-REACT-BUIL-DIVII	FIRE IN REACTOR BUILDING DIVISION II ZONE
		6.00E-04	H23-EMS-FC-DIV3	ESSENTIAL MULTIPLEXING SYSTEM DIV 3 FAILS TO FUNCTION
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
90	2.08E-11	1.45E-02	FIRE-REACT-BUIL-DIVII	FIRE IN REACTOR BUILDING DIVISION II ZONE
		6.00E-04	H23-EMS-FC-DIV4	ESSENTIAL MULTIPLEXING SYSTEM DIV 4 FAILS TO FUNCTION
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
91	1.71E-11	2.40E-03	C12-MP_-FS-C001BOIL	MOTOR-DRIVEN AUX. OIL PUMP FOR C001B FAILS TO START
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
92	1.71E-11	2.40E-03	C12-MP_-FS-C001BOIL	MOTOR-DRIVEN AUX. OIL PUMP FOR C001B FAILS TO START
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
93	1.71E-11	2.40E-03	C12-MPC-FS-C001B	MOTOR-DRIVEN PUMP C001B FAILS TO START
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
94	1.71E-11	2.40E-03	C12-MPC-FS-C001B	MOTOR-DRIVEN PUMP C001B FAILS TO START
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report
Fire Full Power
Core Damage Frequency = 1.21E-08/year
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
95	1.37E-11	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE
		6.00E-04	C74-DTM-FC-DIV3	DTM OF SSLC DIV. 3 FAILS TO TRIP
		1.31E-03	N21-ACV-OC-F018	AIR OPERATED VALVE N21-F018 FAILS TO REMAIN OPEN
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
96	1.37E-11	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE
		6.00E-04	C74-DTM-FC-DIV4	DTM OF SSLC DIV. 4 FAILS TO TRIP
		1.31E-03	N21-ACV-OC-F018	AIR OPERATED VALVE N21-F018 FAILS TO REMAIN OPEN
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
97	1.37E-11	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE
		6.00E-04	H23-EMS-FC-DIV3	ESSENTIAL MULTIPLEXING SYSTEM DIV 3 FAILS TO FUNCTION
		1.31E-03	N21-ACV-OC-F018	AIR OPERATED VALVE N21-F018 FAILS TO REMAIN OPEN
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
98	1.37E-11	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE
		6.00E-04	H23-EMS-FC-DIV4	ESSENTIAL MULTIPLEXING SYSTEM DIV 4 FAILS TO FUNCTION
		1.31E-03	N21-ACV-OC-F018	AIR OPERATED VALVE N21-F018 FAILS TO REMAIN OPEN
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
99	1.37E-11	1.45E-02	FIRE-REACT-BUIL-DIVII	FIRE IN REACTOR BUILDING DIVISION II ZONE
		6.00E-04	C74-DTM-FC-DIV3	DTM OF SSLC DIV. 3 FAILS TO TRIP
		1.31E-03	N21-ACV-OC-F018	AIR OPERATED VALVE N21-F018 FAILS TO REMAIN OPEN
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
100	1.37E-11	1.45E-02	FIRE-REACT-BUIL-DIVII	FIRE IN REACTOR BUILDING DIVISION II ZONE

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report
Fire Full Power
Core Damage Frequency = 1.21E-08/year
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
		6.00E-04	C74-DTM-FC-DIV4	DTM OF SSLC DIV. 4 FAILS TO TRIP
		1.31E-03	N21-ACV-OC-F018	AIR OPERATED VALVE N21-F018 FAILS TO REMAIN OPEN
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
101	1.37E-11	1.45E-02	FIRE-REACT-BUIL-DIVII	FIRE IN REACTOR BUILDING DIVISION II ZONE
		6.00E-04	H23-EMS-FC-DIV3	ESSENTIAL MULTIPLEXING SYSTEM DIV 3 FAILS TO FUNCTION
		1.31E-03	N21-ACV-OC-F018	AIR OPERATED VALVE N21-F018 FAILS TO REMAIN OPEN
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
102	1.37E-11	1.45E-02	FIRE-REACT-BUIL-DIVII	FIRE IN REACTOR BUILDING DIVISION II ZONE
		6.00E-04	H23-EMS-FC-DIV4	ESSENTIAL MULTIPLEXING SYSTEM DIV 4 FAILS TO FUNCTION
		1.31E-03	N21-ACV-OC-F018	AIR OPERATED VALVE N21-F018 FAILS TO REMAIN OPEN
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
103	1.04E-11	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE
		3.00E-04	H23-RMU-FC-DIV3	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
104	1.04E-11	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE
		3.00E-04	H23-RMU-FC-DIV4	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
105	1.04E-11	1.45E-02	FIRE-REACT-BUIL-DIVII	FIRE IN REACTOR BUILDING DIVISION II ZONE
		3.00E-04	H23-RMU-FC-DIV3	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report
Fire Full Power
Core Damage Frequency = 1.21E-08/year
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
106	1.04E-11	1.45E-02	FIRE-REACT-BUIL-DIVII	FIRE IN REACTOR BUILDING DIVISION II ZONE
		3.00E-04	H23-RMU-FC-DIV4	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
107	9.39E-12	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE
		7.20E-05	R10-CBU-FC-PRE500KV	500KV TRANSMISSION LINE FAILS
		9.00E-06	R16-BT_-CF-ALLBATT	BATTERY CCF #2
108	9.39E-12	1.45E-02	FIRE-REACT-BUIL-DIVII	FIRE IN REACTOR BUILDING DIVISION II ZONE
		7.20E-05	R10-CBU-FC-PRE500KV	500KV TRANSMISSION LINE FAILS
		9.00E-06	R16-BT_-CF-ALLBATT	BATTERY CCF #2
109	9.39E-12	1.45E-02	FIRE-REACT-BUIL-DIVIII	FIRE IN REACTOR BUILDING DIVISION III ZONE
		7.20E-05	R10-CBU-FC-PRE500KV	500KV TRANSMISSION LINE FAILS
		9.00E-06	R16-BT_-CF-ALLBATT	BATTERY CCF #2
110	9.39E-12	1.45E-02	FIRE-REACT-BUIL-DIVIV	FIRE IN REACTOR BUILDING DIVISION IV ZONE
		7.20E-05	R10-CBU-FC-PRE500KV	500KV TRANSMISSION LINE FAILS
		9.00E-06	R16-BT_-CF-ALLBATT	BATTERY CCF #2
111	8.49E-12	4.00E-03	C12-MOV-CC-F014A	MOTOR OPER. VALVE F014A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
112	8.49E-12	4.00E-03	C12-MOV-CC-F014A	MOTOR OPER. VALVE F014A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report Fire Full Power Core Damage Frequency = 1.21E-08/year Top 200 Cutsets				
No	Cutset Prob	Event Prob	Event	Description
113	8.49E-12	4.00E-03	C12-MOV-CC-F014A	MOTOR OPER. VALVE F014A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
114	8.49E-12	4.00E-03	C12-MOV-CC-F014A	MOTOR OPER. VALVE F014A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
115	8.49E-12	4.00E-03	C12-MOV-CC-F014B	MOTOR OPER. VALVE F014B FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
116	8.49E-12	4.00E-03	C12-MOV-CC-F014B	MOTOR OPER. VALVE F014B FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
117	8.49E-12	4.00E-03	C12-MOV-CC-F014B	MOTOR OPER. VALVE F014B FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
118	8.49E-12	4.00E-03	C12-MOV-CC-F014B	MOTOR OPER. VALVE F014B FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report
Fire Full Power
Core Damage Frequency = 1.21E-08/year
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
119	8.49E-12	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
120	8.49E-12	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
121	8.49E-12	4.00E-03	C12-MOV-CC-F020B	MOTOR OPER. VALVE F020B FAILS TO OPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
122	8.49E-12	4.00E-03	C12-MOV-CC-F020B	MOTOR OPER. VALVE F020B FAILS TO OPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
123	7.42E-12	5.57E-02	FIRE-NON-DIVISIONAL-REDA	FIRE IN ELECTRICAL BUILDING ZONE A
		7.40E-03	EB-DAMPER	FIRE BARRIER IN ELECTRICAL BUILDING FAILS
		9.00E-06	R16-BT -CF-ALLBATT	BATTERY CCF #2
		2.00E-03	U43-SYS-FF-YARD	HARDWARE FAILURES IN YARD AREA
124	7.42E-12	5.57E-02	FIRE-NON-DIVISIONAL-REDB	FIRE IN ELECTRICAL BUILDING ZONE B
		7.40E-03	EB-DAMPER	FIRE BARRIER IN ELECTRICAL BUILDING FAILS

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report
Fire Full Power
Core Damage Frequency = 1.21E-08/year
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
		9.00E-06	R16-BT_-CF-ALLBATT	BATTERY CCF #2
		2.00E-03	U43-SYS-FF-YARD	HARDWARE FAILURES IN YARD AREA
125	7.12E-12	1.00E-03	C12-MCB-OO-C001B	CIRCUIT BREAKER FOR C001B & AUX OIL PMP B FAILS TO CLOSE
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
126	7.12E-12	1.00E-03	C12-MCB-OO-C001B	CIRCUIT BREAKER FOR C001B & AUX OIL PMP B FAILS TO CLOSE
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
127	7.12E-12	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
128	7.12E-12	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
129	7.12E-12	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
130	7.12E-12	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report
Fire Full Power
Core Damage Frequency = 1.21E-08/year
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
		1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
131	7.12E-12	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
132	7.12E-12	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
133	7.12E-12	4.00E-03	C12-MOV-CC-F020B	MOTOR OPER. VALVE F020B FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
134	7.12E-12	4.00E-03	C12-MOV-CC-F020B	MOTOR OPER. VALVE F020B FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
135	7.12E-12	4.00E-03	C12-MOV-CC-F020B	MOTOR OPER. VALVE F020B FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report
Fire Full Power
Core Damage Frequency = 1.21E-08/year
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
136	7.12E-12	4.00E-03	C12-MOV-CC-F020B	MOTOR OPER. VALVE F020B FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
137	6.83E-12	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE
		3.00E-04	H23-RMU-FC-DIV3	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		1.31E-03	N21-ACV-OC-F018	AIR OPERATED VALVE N21-F018 FAILS TO REMAIN OPEN
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
138	6.83E-12	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE
		3.00E-04	H23-RMU-FC-DIV4	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		1.31E-03	N21-ACV-OC-F018	AIR OPERATED VALVE N21-F018 FAILS TO REMAIN OPEN
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
139	6.83E-12	1.45E-02	FIRE-REACT-BUIL-DIVII	FIRE IN REACTOR BUILDING DIVISION II ZONE
		3.00E-04	H23-RMU-FC-DIV3	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		1.31E-03	N21-ACV-OC-F018	AIR OPERATED VALVE N21-F018 FAILS TO REMAIN OPEN
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
140	6.83E-12	1.45E-02	FIRE-REACT-BUIL-DIVII	FIRE IN REACTOR BUILDING DIVISION II ZONE
		3.00E-04	H23-RMU-FC-DIV4	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		1.31E-03	N21-ACV-OC-F018	AIR OPERATED VALVE N21-F018 FAILS TO REMAIN OPEN
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
141	6.63E-12	3.13E-03	C12-MOV-FC-F020A	FLOW CONTROL A FAILS WIDE OPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report Fire Full Power Core Damage Frequency = 1.21E-08/year Top 200 Cutsets				
No	Cutset Prob	Event Prob	Event	Description
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
142	6.63E-12	3.13E-03	C12-MOV-FC-F020A	FLOW CONTROL A FAILS WIDE OPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
143	6.63E-12	3.13E-03	C12-MOV-FC-F020B	FLOW CONTROL B FAILS WIDE OPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
144	6.63E-12	3.13E-03	C12-MOV-FC-F020B	FLOW CONTROL B FAILS WIDE OPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
145	6.57E-12	5.57E-02	FIRE-NON-DIVISIONAL-REDA	FIRE IN ELECTRICAL BUILDING ZONE A
		7.40E-03	EB-DAMPER	FIRE BARRIER IN ELECTRICAL BUILDING FAILS
		9.00E-06	R16-BT -CF-ALLBATT	BATTERY CCF #2
		1.77E-03	U43-XHE-FO-YARD	OPERATOR FAILS TO MAKE UP FROM YARD AREA
146	6.57E-12	5.57E-02	FIRE-NON-DIVISIONAL-REDB	FIRE IN ELECTRICAL BUILDING ZONE B
		7.40E-03	EB-DAMPER	FIRE BARRIER IN ELECTRICAL BUILDING FAILS
		9.00E-06	R16-BT -CF-ALLBATT	BATTERY CCF #2
		1.77E-03	U43-XHE-FO-YARD	OPERATOR FAILS TO MAKE UP FROM YARD AREA
147	6.37E-12	3.00E-03	C12-SYS-TM-TRAINB	TRAIN B IN MAINTENANCE
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report
Fire Full Power
Core Damage Frequency = 1.21E-08/year
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
148	6.37E-12	3.00E-03	C12-SYS-TM-TRAINB	TRAIN B IN MAINTENANCE
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
149	6.37E-12	1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
150	6.37E-12	1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
151	6.37E-12	1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
152	6.37E-12	1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report
Fire Full Power
Core Damage Frequency = 1.21E-08/year
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
153	6.37E-12	1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
154	6.37E-12	1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
155	6.37E-12	1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
156	6.37E-12	1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
157	6.37E-12	1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
158	6.37E-12	1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report
Fire Full Power
Core Damage Frequency = 1.21E-08/year
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
159	6.37E-12	1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
160	6.37E-12	1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
161	6.21E-12	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE
		6.00E-04	C74-DTM-FC-DIV3	DTM OF SSLC DIV. 3 FAILS TO TRIP
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
162	6.21E-12	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE
		6.00E-04	C74-DTM-FC-DIV4	DTM OF SSLC DIV. 4 FAILS TO TRIP
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
163	6.21E-12	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.00E-04	H23-EMS-FC-DIV3	ESSENTIAL MULTIPLEXING SYSTEM DIV 3 FAILS TO FUNCTION
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
164	6.21E-12	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report
Fire Full Power
Core Damage Frequency = 1.21E-08/year
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.00E-04	H23-EMS-FC-DIV4	ESSENTIAL MULTIPLEXING SYSTEM DIV 4 FAILS TO FUNCTION
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
165	6.21E-12	1.45E-02	FIRE-REACT-BUIL-DIVII	FIRE IN REACTOR BUILDING DIVISION II ZONE
		6.00E-04	C74-DTM-FC-DIV3	DTM OF SSLC DIV. 3 FAILS TO TRIP
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
166	6.21E-12	1.45E-02	FIRE-REACT-BUIL-DIVII	FIRE IN REACTOR BUILDING DIVISION II ZONE
		6.00E-04	C74-DTM-FC-DIV4	DTM OF SSLC DIV. 4 FAILS TO TRIP
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
167	6.21E-12	1.45E-02	FIRE-REACT-BUIL-DIVII	FIRE IN REACTOR BUILDING DIVISION II ZONE
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.00E-04	H23-EMS-FC-DIV3	ESSENTIAL MULTIPLEXING SYSTEM DIV 3 FAILS TO FUNCTION
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
168	6.21E-12	1.45E-02	FIRE-REACT-BUIL-DIVII	FIRE IN REACTOR BUILDING DIVISION II ZONE
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.00E-04	H23-EMS-FC-DIV4	ESSENTIAL MULTIPLEXING SYSTEM DIV 4 FAILS TO FUNCTION
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
169	6.10E-12	9.42E-03	FIRE-CONTROL-ROOM-TGEN	FIRE IN CONTROL ROOM
		7.20E-05	R10-CBU-FC-PRE500KV	500KV TRANSMISSION LINE FAILS
		9.00E-06	R16-BT_-CF-ALLBATT	BATTERY CCF #2
170	5.97E-12	5.57E-02	FIRE-NON-DIVISIONAL-REDA	FIRE IN ELECTRICAL BUILDING ZONE A

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report Fire Full Power Core Damage Frequency = 1.21E-08/year Top 200 Cutsets				
No	Cutset Prob	Event Prob	Event	Description
		7.40E-03	EB-DAMPER	FIRE BARRIER IN ELECTRICAL BUILDING FAILS
		9.00E-06	R16-BT_-CF-ALLBATT	BATTERY CCF #2
		1.61E-03	XXX-XHE-FO-ICPCCS	OPERATOR FAILS TO RECOGNIZE NEED OF MAKE UP TO IC/PCCS POOLS
171	5.97E-12	5.57E-02	FIRE-NON-DIVISIONAL-REDB	FIRE IN ELECTRICAL BUILDING ZONE B
		7.40E-03	EB-DAMPER	FIRE BARRIER IN ELECTRICAL BUILDING FAILS
		9.00E-06	R16-BT_-CF-ALLBATT	BATTERY CCF #2
		1.61E-03	XXX-XHE-FO-ICPCCS	OPERATOR FAILS TO RECOGNIZE NEED OF MAKE UP TO IC/PCCS POOLS
172	5.56E-12	3.13E-03	C12-MOV-FC-F020A	FLOW CONTROL A FAILS WIDE OPEN
		1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
173	5.56E-12	3.13E-03	C12-MOV-FC-F020A	FLOW CONTROL A FAILS WIDE OPEN
		1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
174	5.56E-12	3.13E-03	C12-MOV-FC-F020A	FLOW CONTROL A FAILS WIDE OPEN
		1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
175	5.56E-12	3.13E-03	C12-MOV-FC-F020A	FLOW CONTROL A FAILS WIDE OPEN
		1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
176	5.56E-12	3.13E-03	C12-MOV-FC-F020A	FLOW CONTROL A FAILS WIDE OPEN

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report
Fire Full Power
Core Damage Frequency = 1.21E-08/year
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
		1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
177	5.56E-12	3.13E-03	C12-MOV-FC-F020A	FLOW CONTROL A FAILS WIDE OPEN
		1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
178	5.56E-12	3.13E-03	C12-MOV-FC-F020B	FLOW CONTROL B FAILS WIDE OPEN
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
179	5.56E-12	3.13E-03	C12-MOV-FC-F020B	FLOW CONTROL B FAILS WIDE OPEN
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
180	5.56E-12	3.13E-03	C12-MOV-FC-F020B	FLOW CONTROL B FAILS WIDE OPEN
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
181	5.56E-12	3.13E-03	C12-MOV-FC-F020B	FLOW CONTROL B FAILS WIDE OPEN
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report Fire Full Power Core Damage Frequency = 1.21E-08/year Top 200 Cutsets				
No	Cutset Prob	Event Prob	Event	Description
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
182	5.34E-12	3.00E-03	C12-SYS-TM-TRAINB	TRAIN B IN MAINTENANCE
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
183	5.34E-12	3.00E-03	C12-SYS-TM-TRAINB	TRAIN B IN MAINTENANCE
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
184	5.34E-12	3.00E-03	C12-SYS-TM-TRAINB	TRAIN B IN MAINTENANCE
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
185	5.34E-12	3.00E-03	C12-SYS-TM-TRAINB	TRAIN B IN MAINTENANCE
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
186	5.09E-12	2.40E-03	C12-MP_-FS-C001BOIL	MOTOR-DRIVEN AUX. OIL PUMP FOR C001B FAILS TO START
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
187	5.09E-12	2.40E-03	C12-MP_-FS-C001BOIL	MOTOR-DRIVEN AUX. OIL PUMP FOR C001B FAILS TO START
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report Fire Full Power Core Damage Frequency = 1.21E-08/year Top 200 Cutsets				
No	Cutset Prob	Event Prob	Event	Description
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
188	5.09E-12	2.40E-03	C12-MPC-FS-C001B	MOTOR-DRIVEN PUMP C001B FAILS TO START
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
189	5.09E-12	2.40E-03	C12-MPC-FS-C001B	MOTOR-DRIVEN PUMP C001B FAILS TO START
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		6.14E-02	FIRE-TURBINE-BUILD	FIRE IN TURBINE BUILDING
190	5.00E-12	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE
		3.00E-03	B21-SQV-CC-F004B	EXPLOSIVE VALVE DPV B FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
191	5.00E-12	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE
		3.00E-03	B21-SQV-CC-F004B	EXPLOSIVE VALVE DPV B FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
192	5.00E-12	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE
		3.00E-03	B21-SQV-CC-F004B	EXPLOSIVE VALVE DPV B FAILS TO OPERATE
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report
Fire Full Power
Core Damage Frequency = 1.21E-08/year
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
193	5.00E-12	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE
		3.00E-03	B21-SQV-CC-F004D	EXPLOSIVE VALVE DPV D FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
194	5.00E-12	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE
		3.00E-03	B21-SQV-CC-F004D	EXPLOSIVE VALVE DPV D FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
195	5.00E-12	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE
		3.00E-03	B21-SQV-CC-F004D	EXPLOSIVE VALVE DPV D FAILS TO OPERATE
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
196	5.00E-12	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE
		3.00E-03	B21-SQV-CC-F004F	EXPLOSIVE VALVE DPV F FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
197	5.00E-12	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE

Table 12-17

Internal Fire Full-Power Cutset Report

Cutsets with Descriptions Report Fire Full Power Core Damage Frequency = 1.21E-08/year Top 200 Cutsets				
No	Cutset Prob	Event Prob	Event	Description
		3.00E-03	B21-SQV-CC-F004F	EXPLOSIVE VALVE DPV F FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
198	5.00E-12	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE
		3.00E-03	B21-SQV-CC-F004F	EXPLOSIVE VALVE DPV F FAILS TO OPERATE
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
199	5.00E-12	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE
		3.00E-03	B21-SQV-CC-F004H	EXPLOSIVE VALVE DPV H FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
200	5.00E-12	1.45E-02	FIRE-REACT-BUIL-DIVI	FIRE IN REACTOR BUILDING DIV I ZONE
		3.00E-03	B21-SQV-CC-F004H	EXPLOSIVE VALVE DPV H FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		2.00E-03	P22-ACV-FT-BYPASS	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
		7.43E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
1	2.16E-10	6.00E-04	C74-DTM-FC-DIV3	DTM OF SSLC DIV. 3 FAILS TO TRIP
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
2	2.16E-10	6.00E-04	C74-DTM-FC-DIV3	DTM OF SSLC DIV. 3 FAILS TO TRIP
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
3	2.16E-10	6.00E-04	C74-DTM-FC-DIV3	DTM OF SSLC DIV. 3 FAILS TO TRIP
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
4	2.16E-10	6.00E-04	C74-DTM-FC-DIV3	DTM OF SSLC DIV. 3 FAILS TO TRIP
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
5	2.16E-10	6.00E-04	C74-DTM-FC-DIV4	DTM OF SSLC DIV. 4 FAILS TO TRIP
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
6	2.16E-10	6.00E-04	C74-DTM-FC-DIV4	DTM OF SSLC DIV. 4 FAILS TO TRIP
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
7	2.16E-10	6.00E-04	C74-DTM-FC-DIV4	DTM OF SSLC DIV. 4 FAILS TO TRIP
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
8	2.16E-10	6.00E-04	C74-DTM-FC-DIV4	DTM OF SSLC DIV. 4 FAILS TO TRIP
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
9	2.16E-10	6.00E-04	H23-EMS-FC-DIV3	ESSENTIAL MULTIPLEXING SYSTEM DIV 3 FAILS TO FUNCTION

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
10	2.16E-10	6.00E-04	H23-EMS-FC-DIV3	ESSENTIAL MULTIPLEXING SYSTEM DIV 3 FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
11	2.16E-10	6.00E-04	H23-EMS-FC-DIV3	ESSENTIAL MULTIPLEXING SYSTEM DIV 3 FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
12	2.16E-10	6.00E-04	H23-EMS-FC-DIV3	ESSENTIAL MULTIPLEXING SYSTEM DIV 3 FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
13	2.16E-10	6.00E-04	H23-EMS-FC-DIV4	ESSENTIAL MULTIPLEXING SYSTEM DIV 4 FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report
Fire Shutdown
Core Damage Frequency = 2.32E-08/year
Top 200 Cutsets

No.	Cutset Prob	Event Prob	Event	Description
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
14	2.16E-10	6.00E-04	H23-EMS-FC-DIV4	ESSENTIAL MULTIPLEXING SYSTEM DIV 4 FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
15	2.16E-10	6.00E-04	H23-EMS-FC-DIV4	ESSENTIAL MULTIPLEXING SYSTEM DIV 4 FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
16	2.16E-10	6.00E-04	H23-EMS-FC-DIV4	ESSENTIAL MULTIPLEXING SYSTEM DIV 4 FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
17	1.08E-10	3.00E-04	H23-RMU-FC-DIV3	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
18	1.08E-10	3.00E-04	H23-RMU-FC-DIV3	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
19	1.08E-10	3.00E-04	H23-RMU-FC-DIV3	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
20	1.08E-10	3.00E-04	H23-RMU-FC-DIV3	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
21	1.08E-10	3.00E-04	H23-RMU-FC-DIV4	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
22	1.08E-10	3.00E-04	H23-RMU-FC-DIV4	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
23	1.08E-10	3.00E-04	H23-RMU-FC-DIV4	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
24	1.08E-10	3.00E-04	H23-RMU-FC-DIV4	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
25	6.44E-11	6.00E-04	C74-DTM-FC-DIV3	DTM OF SSLC DIV. 3 FAILS TO TRIP
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
26	6.44E-11	6.00E-04	C74-DTM-FC-DIV3	DTM OF SSLC DIV. 3 FAILS TO TRIP
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
27	6.44E-11	6.00E-04	C74-DTM-FC-DIV3	DTM OF SSLC DIV. 3 FAILS TO TRIP
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
28	6.44E-11	6.00E-04	C74-DTM-FC-DIV3	DTM OF SSLC DIV. 3 FAILS TO TRIP
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
29	6.44E-11	6.00E-04	C74-DTM-FC-DIV4	DTM OF SSLC DIV. 4 FAILS TO TRIP
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
30	6.44E-11	6.00E-04	C74-DTM-FC-DIV4	DTM OF SSLC DIV. 4 FAILS TO TRIP

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
31	6.44E-11	6.00E-04	C74-DTM-FC-DIV4	DTM OF SSLC DIV. 4 FAILS TO TRIP
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
32	6.44E-11	6.00E-04	C74-DTM-FC-DIV4	DTM OF SSLC DIV. 4 FAILS TO TRIP
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
33	6.44E-11	4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.00E-04	H23-EMS-FC-DIV3	ESSENTIAL MULTIPLEXING SYSTEM DIV 3 FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
34	6.44E-11	4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.00E-04	H23-EMS-FC-DIV3	ESSENTIAL MULTIPLEXING SYSTEM DIV 3 FAILS TO FUNCTION

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
35	6.44E-11	4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.00E-04	H23-EMS-FC-DIV3	ESSENTIAL MULTIPLEXING SYSTEM DIV 3 FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
36	6.44E-11	4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.00E-04	H23-EMS-FC-DIV3	ESSENTIAL MULTIPLEXING SYSTEM DIV 3 FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
37	6.44E-11	4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.00E-04	H23-EMS-FC-DIV4	ESSENTIAL MULTIPLEXING SYSTEM DIV 4 FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
38	6.44E-11	4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.00E-04	H23-EMS-FC-DIV4	ESSENTIAL MULTIPLEXING SYSTEM DIV 4 FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
39	6.44E-11	4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.00E-04	H23-EMS-FC-DIV4	ESSENTIAL MULTIPLEXING SYSTEM DIV 4 FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
40	6.44E-11	4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		6.00E-04	H23-EMS-FC-DIV4	ESSENTIAL MULTIPLEXING SYSTEM DIV 4 FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
41	6.15E-11	1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		7.40E-03	EB-DAMPER	FIRE BARRIER IN ELECTRICAL BUILDING FAILS
		5.54E-04	FIRE-NON-DIVISIONAL-REDB-M6	
42	6.15E-11	1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		7.40E-03	EB-DAMPER	FIRE BARRIER IN ELECTRICAL BUILDING FAILS
		5.54E-04	FIRE-NON-DIVISIONAL-REDB-M6	
43	6.05E-11	1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		7.40E-03	EB-DAMPER	FIRE BARRIER IN ELECTRICAL BUILDING FAILS

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		5.45E-04	FIRE-NON-DIVISIONAL-REDA-M6	
44	6.05E-11	1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		7.40E-03	EB-DAMPER	FIRE BARRIER IN ELECTRICAL BUILDING FAILS
		5.45E-04	FIRE-NON-DIVISIONAL-REDA-M6	
45	5.19E-11	3.00E-03	B21-SQV-CC-F004A	EXPLOSIVE VALVE DPV A FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
46	5.19E-11	3.00E-03	B21-SQV-CC-F004A	EXPLOSIVE VALVE DPV A FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
47	5.19E-11	3.00E-03	B21-SQV-CC-F004A	EXPLOSIVE VALVE DPV A FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
48	5.19E-11	3.00E-03	B21-SQV-CC-F004A	EXPLOSIVE VALVE DPV A FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
49	5.19E-11	3.00E-03	B21-SQV-CC-F004A	EXPLOSIVE VALVE DPV A FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
50	5.19E-11	3.00E-03	B21-SQV-CC-F004A	EXPLOSIVE VALVE DPV A FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
51	5.19E-11	3.00E-03	B21-SQV-CC-F004A	EXPLOSIVE VALVE DPV A FAILS TO OPERATE

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
52	5.19E-11	3.00E-03	B21-SQV-CC-F004A	EXPLOSIVE VALVE DPV A FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
53	5.19E-11	3.00E-03	B21-SQV-CC-F004A	EXPLOSIVE VALVE DPV A FAILS TO OPERATE
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
54	5.19E-11	3.00E-03	B21-SQV-CC-F004A	EXPLOSIVE VALVE DPV A FAILS TO OPERATE
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
55	5.19E-11	3.00E-03	B21-SQV-CC-F004B	EXPLOSIVE VALVE DPV B FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
56	5.19E-11	3.00E-03	B21-SQV-CC-F004B	EXPLOSIVE VALVE DPV B FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	
57	5.19E-11	3.00E-03	B21-SQV-CC-F004B	EXPLOSIVE VALVE DPV B FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
58	5.19E-11	3.00E-03	B21-SQV-CC-F004B	EXPLOSIVE VALVE DPV B FAILS TO OPERATE

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	
59	5.19E-11	3.00E-03	B21-SQV-CC-F004B	EXPLOSIVE VALVE DPV B FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
60	5.19E-11	3.00E-03	B21-SQV-CC-F004B	EXPLOSIVE VALVE DPV B FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	
61	5.19E-11	3.00E-03	B21-SQV-CC-F004B	EXPLOSIVE VALVE DPV B FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
62	5.19E-11	3.00E-03	B21-SQV-CC-F004B	EXPLOSIVE VALVE DPV B FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	
63	5.19E-11	3.00E-03	B21-SQV-CC-F004B	EXPLOSIVE VALVE DPV B FAILS TO OPERATE
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
64	5.19E-11	3.00E-03	B21-SQV-CC-F004B	EXPLOSIVE VALVE DPV B FAILS TO OPERATE
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	
65	5.19E-11	3.00E-03	B21-SQV-CC-F004C	EXPLOSIVE VALVE DPV C FAILS TO OPERATE

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
66	5.19E-11	3.00E-03	B21-SQV-CC-F004C	EXPLOSIVE VALVE DPV C FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
67	5.19E-11	3.00E-03	B21-SQV-CC-F004C	EXPLOSIVE VALVE DPV C FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
68	5.19E-11	3.00E-03	B21-SQV-CC-F004C	EXPLOSIVE VALVE DPV C FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
69	5.19E-11	3.00E-03	B21-SQV-CC-F004C	EXPLOSIVE VALVE DPV C FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
70	5.19E-11	3.00E-03	B21-SQV-CC-F004C	EXPLOSIVE VALVE DPV C FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
71	5.19E-11	3.00E-03	B21-SQV-CC-F004C	EXPLOSIVE VALVE DPV C FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
72	5.19E-11	3.00E-03	B21-SQV-CC-F004C	EXPLOSIVE VALVE DPV C FAILS TO OPERATE

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
73	5.19E-11	3.00E-03	B21-SQV-CC-F004C	EXPLOSIVE VALVE DPV C FAILS TO OPERATE
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
74	5.19E-11	3.00E-03	B21-SQV-CC-F004C	EXPLOSIVE VALVE DPV C FAILS TO OPERATE
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
75	5.19E-11	3.00E-03	B21-SQV-CC-F004D	EXPLOSIVE VALVE DPV D FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
76	5.19E-11	3.00E-03	B21-SQV-CC-F004D	EXPLOSIVE VALVE DPV D FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	
77	5.19E-11	3.00E-03	B21-SQV-CC-F004D	EXPLOSIVE VALVE DPV D FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
78	5.19E-11	3.00E-03	B21-SQV-CC-F004D	EXPLOSIVE VALVE DPV D FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	
79	5.19E-11	3.00E-03	B21-SQV-CC-F004D	EXPLOSIVE VALVE DPV D FAILS TO OPERATE

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
80	5.19E-11	3.00E-03	B21-SQV-CC-F004D	EXPLOSIVE VALVE DPV D FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	
81	5.19E-11	3.00E-03	B21-SQV-CC-F004D	EXPLOSIVE VALVE DPV D FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
82	5.19E-11	3.00E-03	B21-SQV-CC-F004D	EXPLOSIVE VALVE DPV D FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	
83	5.19E-11	3.00E-03	B21-SQV-CC-F004D	EXPLOSIVE VALVE DPV D FAILS TO OPERATE
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
84	5.19E-11	3.00E-03	B21-SQV-CC-F004D	EXPLOSIVE VALVE DPV D FAILS TO OPERATE
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	
85	5.19E-11	3.00E-03	B21-SQV-CC-F004E	EXPLOSIVE VALVE DPV E FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
86	5.19E-11	3.00E-03	B21-SQV-CC-F004E	EXPLOSIVE VALVE DPV E FAILS TO OPERATE

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
87	5.19E-11	3.00E-03	B21-SQV-CC-F004E	EXPLOSIVE VALVE DPV E FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
88	5.19E-11	3.00E-03	B21-SQV-CC-F004E	EXPLOSIVE VALVE DPV E FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
89	5.19E-11	3.00E-03	B21-SQV-CC-F004E	EXPLOSIVE VALVE DPV E FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS

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Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
90	5.19E-11	3.00E-03	B21-SQV-CC-F004E	EXPLOSIVE VALVE DPV E FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
91	5.19E-11	3.00E-03	B21-SQV-CC-F004E	EXPLOSIVE VALVE DPV E FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
92	5.19E-11	3.00E-03	B21-SQV-CC-F004E	EXPLOSIVE VALVE DPV E FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
93	5.19E-11	3.00E-03	B21-SQV-CC-F004E	EXPLOSIVE VALVE DPV E FAILS TO OPERATE

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Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
94	5.19E-11	3.00E-03	B21-SQV-CC-F004E	EXPLOSIVE VALVE DPV E FAILS TO OPERATE
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
95	5.19E-11	3.00E-03	B21-SQV-CC-F004F	EXPLOSIVE VALVE DPV F FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
96	5.19E-11	3.00E-03	B21-SQV-CC-F004F	EXPLOSIVE VALVE DPV F FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS

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Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	
97	5.19E-11	3.00E-03	B21-SQV-CC-F004F	EXPLOSIVE VALVE DPV F FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
98	5.19E-11	3.00E-03	B21-SQV-CC-F004F	EXPLOSIVE VALVE DPV F FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	
99	5.19E-11	3.00E-03	B21-SQV-CC-F004F	EXPLOSIVE VALVE DPV F FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
100	5.19E-11	3.00E-03	B21-SQV-CC-F004F	EXPLOSIVE VALVE DPV F FAILS TO OPERATE

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Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	
101	5.19E-11	3.00E-03	B21-SQV-CC-F004F	EXPLOSIVE VALVE DPV F FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
102	5.19E-11	3.00E-03	B21-SQV-CC-F004F	EXPLOSIVE VALVE DPV F FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	
103	5.19E-11	3.00E-03	B21-SQV-CC-F004F	EXPLOSIVE VALVE DPV F FAILS TO OPERATE
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
104	5.19E-11	3.00E-03	B21-SQV-CC-F004F	EXPLOSIVE VALVE DPV F FAILS TO OPERATE
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	
105	5.19E-11	3.00E-03	B21-SQV-CC-F004G	EXPLOSIVE VALVE DPV G FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
106	5.19E-11	3.00E-03	B21-SQV-CC-F004G	EXPLOSIVE VALVE DPV G FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
107	5.19E-11	3.00E-03	B21-SQV-CC-F004G	EXPLOSIVE VALVE DPV G FAILS TO OPERATE

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
108	5.19E-11	3.00E-03	B21-SQV-CC-F004G	EXPLOSIVE VALVE DPV G FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
109	5.19E-11	3.00E-03	B21-SQV-CC-F004G	EXPLOSIVE VALVE DPV G FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
110	5.19E-11	3.00E-03	B21-SQV-CC-F004G	EXPLOSIVE VALVE DPV G FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS

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Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
111	5.19E-11	3.00E-03	B21-SQV-CC-F004G	EXPLOSIVE VALVE DPV G FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
112	5.19E-11	3.00E-03	B21-SQV-CC-F004G	EXPLOSIVE VALVE DPV G FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
113	5.19E-11	3.00E-03	B21-SQV-CC-F004G	EXPLOSIVE VALVE DPV G FAILS TO OPERATE
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
114	5.19E-11	3.00E-03	B21-SQV-CC-F004G	EXPLOSIVE VALVE DPV G FAILS TO OPERATE

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
115	5.19E-11	3.00E-03	B21-SQV-CC-F004H	EXPLOSIVE VALVE DPV H FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
116	5.19E-11	3.00E-03	B21-SQV-CC-F004H	EXPLOSIVE VALVE DPV H FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	
117	5.19E-11	3.00E-03	B21-SQV-CC-F004H	EXPLOSIVE VALVE DPV H FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
118	5.19E-11	3.00E-03	B21-SQV-CC-F004H	EXPLOSIVE VALVE DPV H FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	
119	5.19E-11	3.00E-03	B21-SQV-CC-F004H	EXPLOSIVE VALVE DPV H FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
120	5.19E-11	3.00E-03	B21-SQV-CC-F004H	EXPLOSIVE VALVE DPV H FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	
121	5.19E-11	3.00E-03	B21-SQV-CC-F004H	EXPLOSIVE VALVE DPV H FAILS TO OPERATE

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
122	5.19E-11	3.00E-03	B21-SQV-CC-F004H	EXPLOSIVE VALVE DPV H FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	
123	5.19E-11	3.00E-03	B21-SQV-CC-F004H	EXPLOSIVE VALVE DPV H FAILS TO OPERATE
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
124	5.19E-11	3.00E-03	B21-SQV-CC-F004H	EXPLOSIVE VALVE DPV H FAILS TO OPERATE
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	
125	3.69E-11	7.40E-03	EB-DAMPER	FIRE BARRIER IN ELECTRICAL BUILDING FAILS
		9.00E-06	R16-BT_-CF-ALLBATT	BATTERY CCF #2
		5.54E-04	FIRE-NON-DIVISIONAL-REDB-M6	
126	3.63E-11	7.40E-03	EB-DAMPER	FIRE BARRIER IN ELECTRICAL BUILDING FAILS
		9.00E-06	R16-BT_-CF-ALLBATT	BATTERY CCF #2
		5.45E-04	FIRE-NON-DIVISIONAL-REDA-M6	
127	3.50E-11	1.50E-05	B21-SQV-CF-DPVOPEN	CCF OF DPV'S TO OPEN
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
128	3.50E-11	1.50E-05	B21-SQV-CF-DPVOPEN	CCF OF DPV'S TO OPEN
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
129	3.50E-11	1.50E-05	B21-SQV-CF-DPVOPEN	CCF OF DPV'S TO OPEN
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
130	3.50E-11	1.50E-05	B21-SQV-CF-DPVOPEN	CCF OF DPV'S TO OPEN
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
131	3.50E-11	1.50E-05	B21-SQV-CF-DPVOPEN	CCF OF DPV'S TO OPEN
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
132	3.50E-11	1.50E-05	B21-SQV-CF-DPVOPEN	CCF OF DPV'S TO OPEN
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	
133	3.50E-11	1.50E-05	B21-SQV-CF-DPVOPEN	CCF OF DPV'S TO OPEN
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D

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No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
134	3.50E-11	1.50E-05	B21-SQV-CF-DPVOPEN	CCF OF DPV'S TO OPEN
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	
135	3.50E-11	1.50E-05	B21-SQV-CF-DPVOPEN	CCF OF DPV'S TO OPEN
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
136	3.50E-11	1.50E-05	B21-SQV-CF-DPVOPEN	CCF OF DPV'S TO OPEN
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
137	3.50E-11	1.50E-05	B21-SQV-CF-DPVOPEN	CCF OF DPV'S TO OPEN
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

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Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
138	3.50E-11	1.50E-05	B21-SQV-CF-DPVOPEN	CCF OF DPV'S TO OPEN
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
139	3.50E-11	1.50E-05	B21-SQV-CF-DPVOPEN	CCF OF DPV'S TO OPEN
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
140	3.50E-11	1.50E-05	B21-SQV-CF-DPVOPEN	CCF OF DPV'S TO OPEN
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	
141	3.50E-11	1.50E-05	B21-SQV-CF-DPVOPEN	CCF OF DPV'S TO OPEN
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
142	3.50E-11	1.50E-05	B21-SQV-CF-DPVOPEN	CCF OF DPV'S TO OPEN
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	
143	3.50E-11	1.50E-05	B21-SQV-CF-DPVOPEN	CCF OF DPV'S TO OPEN
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
144	3.50E-11	1.50E-05	B21-SQV-CF-DPVOPEN	CCF OF DPV'S TO OPEN
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
145	3.50E-11	1.50E-05	B21-SQV-CF-DPVOPEN	CCF OF DPV'S TO OPEN
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
146	3.50E-11	1.50E-05	B21-SQV-CF-DPVOPEN	CCF OF DPV'S TO OPEN

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report
Fire Shutdown
Core Damage Frequency = 2.32E-08/year
Top 200 Cutsets

No.	Cutset Prob	Event Prob	Event	Description
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	
147	3.22E-11	6.00E-04	C74-DTM-FC-DIV3	DTM OF SSLC DIV. 3 FAILS TO TRIP
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		2.40E-02	U43-SYS-FF-LPCI	U43 HARDWARE FAILURES
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
148	3.22E-11	6.00E-04	C74-DTM-FC-DIV3	DTM OF SSLC DIV. 3 FAILS TO TRIP
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		2.40E-02	U43-SYS-FF-LPCI	U43 HARDWARE FAILURES
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
149	3.22E-11	6.00E-04	C74-DTM-FC-DIV3	DTM OF SSLC DIV. 3 FAILS TO TRIP
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		2.40E-02	U43-SYS-FF-LPCI	U43 HARDWARE FAILURES
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
150	3.22E-11	6.00E-04	C74-DTM-FC-DIV3	DTM OF SSLC DIV. 3 FAILS TO TRIP
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		2.40E-02	U43-SYS-FF-LPCI	U43 HARDWARE FAILURES
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
151	3.22E-11	6.00E-04	C74-DTM-FC-DIV4	DTM OF SSLC DIV. 4 FAILS TO TRIP
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		2.40E-02	U43-SYS-FF-LPCI	U43 HARDWARE FAILURES
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
152	3.22E-11	6.00E-04	C74-DTM-FC-DIV4	DTM OF SSLC DIV. 4 FAILS TO TRIP
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		2.40E-02	U43-SYS-FF-LPCI	U43 HARDWARE FAILURES
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
153	3.22E-11	6.00E-04	C74-DTM-FC-DIV4	DTM OF SSLC DIV. 4 FAILS TO TRIP
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		2.40E-02	U43-SYS-FF-LPCI	U43 HARDWARE FAILURES
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
154	3.22E-11	6.00E-04	C74-DTM-FC-DIV4	DTM OF SSLC DIV. 4 FAILS TO TRIP
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report
Fire Shutdown
Core Damage Frequency = 2.32E-08/year
Top 200 Cutsets

No.	Cutset Prob	Event Prob	Event	Description
		2.40E-02	U43-SYS-FF-LPCI	U43 HARDWARE FAILURES
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
155	3.22E-11	4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		3.00E-04	H23-RMU-FC-DIV3	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
156	3.22E-11	4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		3.00E-04	H23-RMU-FC-DIV3	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
157	3.22E-11	4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		3.00E-04	H23-RMU-FC-DIV3	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
158	3.22E-11	4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		3.00E-04	H23-RMU-FC-DIV3	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report
Fire Shutdown
Core Damage Frequency = 2.32E-08/year
Top 200 Cutsets

No.	Cutset Prob	Event Prob	Event	Description
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
159	3.22E-11	4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		3.00E-04	H23-RMU-FC-DIV4	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
160	3.22E-11	4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		3.00E-04	H23-RMU-FC-DIV4	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
161	3.22E-11	4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		3.00E-04	H23-RMU-FC-DIV4	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
162	3.22E-11	4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		3.00E-04	H23-RMU-FC-DIV4	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
163	3.22E-11	6.00E-04	H23-EMS-FC-DIV3	ESSENTIAL MULTIPLEXING SYSTEM DIV 3 FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		2.40E-02	U43-SYS-FF-LPCI	U43 HARDWARE FAILURES
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
164	3.22E-11	6.00E-04	H23-EMS-FC-DIV3	ESSENTIAL MULTIPLEXING SYSTEM DIV 3 FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		2.40E-02	U43-SYS-FF-LPCI	U43 HARDWARE FAILURES
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
165	3.22E-11	6.00E-04	H23-EMS-FC-DIV3	ESSENTIAL MULTIPLEXING SYSTEM DIV 3 FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		2.40E-02	U43-SYS-FF-LPCI	U43 HARDWARE FAILURES
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
166	3.22E-11	6.00E-04	H23-EMS-FC-DIV3	ESSENTIAL MULTIPLEXING SYSTEM DIV 3 FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		2.40E-02	U43-SYS-FF-LPCI	U43 HARDWARE FAILURES
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
167	3.22E-11	6.00E-04	H23-EMS-FC-DIV4	ESSENTIAL MULTIPLEXING SYSTEM DIV 4 FAILS TO FUNCTION

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report
Fire Shutdown
Core Damage Frequency = 2.32E-08/year
Top 200 Cutsets

No.	Cutset Prob	Event Prob	Event	Description
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		2.40E-02	U43-SYS-FF-LPCI	U43 HARDWARE FAILURES
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
168	3.22E-11	6.00E-04	H23-EMS-FC-DIV4	ESSENTIAL MULTIPLEXING SYSTEM DIV 4 FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		2.40E-02	U43-SYS-FF-LPCI	U43 HARDWARE FAILURES
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
169	3.22E-11	6.00E-04	H23-EMS-FC-DIV4	ESSENTIAL MULTIPLEXING SYSTEM DIV 4 FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		2.40E-02	U43-SYS-FF-LPCI	U43 HARDWARE FAILURES
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
170	3.22E-11	6.00E-04	H23-EMS-FC-DIV4	ESSENTIAL MULTIPLEXING SYSTEM DIV 4 FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		2.40E-02	U43-SYS-FF-LPCI	U43 HARDWARE FAILURES
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
171	2.80E-11	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		1.20E-05	C74-DTM-CF-ALL	CCF 3/4 DTM OF SSLC DIV1/2/3/4

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
172	2.80E-11	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		1.20E-05	C74-DTM-CF-ALL	CCF 3/4 DTM OF SSLC DIV1/2/3/4
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
173	2.80E-11	4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.20E-05	C74-DTM-CF-ALL	CCF 3/4 DTM OF SSLC DIV1/2/3/4
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
174	2.80E-11	4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.20E-05	C74-DTM-CF-ALL	CCF 3/4 DTM OF SSLC DIV1/2/3/4
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
175	2.80E-11	1.20E-05	C74-DTM-CF-ALL	CCF 3/4 DTM OF SSLC DIV1/2/3/4
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		1.61E-01	XXX-XHE-FO-DEPRESS	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
176	1.61E-11	3.00E-04	H23-RMU-FC-DIV3	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		2.40E-02	U43-SYS-FF-LPCI	U43 HARDWARE FAILURES
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
177	1.61E-11	3.00E-04	H23-RMU-FC-DIV3	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		2.40E-02	U43-SYS-FF-LPCI	U43 HARDWARE FAILURES
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
178	1.61E-11	3.00E-04	H23-RMU-FC-DIV3	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		2.40E-02	U43-SYS-FF-LPCI	U43 HARDWARE FAILURES
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
179	1.61E-11	3.00E-04	H23-RMU-FC-DIV3	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		2.40E-02	U43-SYS-FF-LPCI	U43 HARDWARE FAILURES

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report
Fire Shutdown
Core Damage Frequency = 2.32E-08/year
Top 200 Cutsets

No.	Cutset Prob	Event Prob	Event	Description
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
180	1.61E-11	3.00E-04	H23-RMU-FC-DIV4	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		2.40E-02	U43-SYS-FF-LPCI	U43 HARDWARE FAILURES
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
181	1.61E-11	3.00E-04	H23-RMU-FC-DIV4	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		2.40E-02	U43-SYS-FF-LPCI	U43 HARDWARE FAILURES
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
182	1.61E-11	3.00E-04	H23-RMU-FC-DIV4	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		2.40E-02	U43-SYS-FF-LPCI	U43 HARDWARE FAILURES
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
183	1.61E-11	3.00E-04	H23-RMU-FC-DIV4	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		2.40E-02	U43-SYS-FF-LPCI	U43 HARDWARE FAILURES
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report
Fire Shutdown
Core Damage Frequency = 2.32E-08/year
Top 200 Cutsets

No.	Cutset Prob	Event Prob	Event	Description
184	1.55E-11	3.00E-03	B21-SQV-CC-F004A	EXPLOSIVE VALVE DPV A FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
185	1.55E-11	3.00E-03	B21-SQV-CC-F004A	EXPLOSIVE VALVE DPV A FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
186	1.55E-11	3.00E-03	B21-SQV-CC-F004A	EXPLOSIVE VALVE DPV A FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
187	1.55E-11	3.00E-03	B21-SQV-CC-F004A	EXPLOSIVE VALVE DPV A FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
188	1.55E-11	3.00E-03	B21-SQV-CC-F004A	EXPLOSIVE VALVE DPV A FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
189	1.55E-11	3.00E-03	B21-SQV-CC-F004A	EXPLOSIVE VALVE DPV A FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
190	1.55E-11	3.00E-03	B21-SQV-CC-F004A	EXPLOSIVE VALVE DPV A FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
191	1.55E-11	3.00E-03	B21-SQV-CC-F004A	EXPLOSIVE VALVE DPV A FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
192	1.55E-11	3.00E-03	B21-SQV-CC-F004A	EXPLOSIVE VALVE DPV A FAILS TO OPERATE
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVIII-M5	
193	1.55E-11	3.00E-03	B21-SQV-CC-F004A	EXPLOSIVE VALVE DPV A FAILS TO OPERATE
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		4.80E-02	P30-XHE-MH-F015	MISPOSITION OF VALVE F01T
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVII-M5	
194	1.55E-11	3.00E-03	B21-SQV-CC-F004B	EXPLOSIVE VALVE DPV B FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
195	1.55E-11	3.00E-03	B21-SQV-CC-F004B	EXPLOSIVE VALVE DPV B FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	
196	1.55E-11	3.00E-03	B21-SQV-CC-F004B	EXPLOSIVE VALVE DPV B FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
197	1.55E-11	3.00E-03	B21-SQV-CC-F004B	EXPLOSIVE VALVE DPV B FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	

Table 12-18

Internal Fire Shutdown Cutset Report

Cutsets with Descriptions Report Fire Shutdown Core Damage Frequency = 2.32E-08/year Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
198	1.55E-11	3.00E-03	B21-SQV-CC-F004B	EXPLOSIVE VALVE DPV B FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	
199	1.55E-11	3.00E-03	B21-SQV-CC-F004B	EXPLOSIVE VALVE DPV B FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.69E-01	N21-XHE-FO-CONDPUMPD	OPERATOR FAILS TO START CONDENSATE PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVIV-M5	
200	1.55E-11	3.00E-03	B21-SQV-CC-F004B	EXPLOSIVE VALVE DPV B FAILS TO OPERATE
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.69E-01	N21-XHE-FO-FWPUMPD	OPERATOR FAILS TO START FEEDWATER PUMP D
		7.40E-03	RB-DAMPER	FIRE BARRIER IN REACTOR BUILDING FAILS
		1.12E-03	FIRE-REACT-BUILD-DIVI-M5	

Table 12-19

Internal Fire Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Fire Full Power
Core Damage Frequency = 1.21E-08/year

Event Name	Probability	F-V	RAW	Description
B21-LT_-CF-N001ABCD	1.20E-07	2.44E-03	2.03E+04	CCF OF DIVERSIFIED LEVEL 1& 2 TRANSM. 1A/B/C/D
B21-LT_-NO-N001C	2.40E-05	3.34E-04	14.93	WIDE RANGE LEVEL TRANSMITTER 1C (LEVEL 1&2) FAILS
B21-LT_-NO-N001D	2.40E-05	3.34E-04	14.93	WIDE RANGE LEVEL TRANSMITTER 1D (LEVEL 1&2) FAILS
B21-OR_-PG-01A	1.44E-05	1.62E-04	12.23	ORIFICE INSTR. LINE 1A FAILS TO REMAIN OPEN (PLUG)
B21-OR_-PG-01B	1.44E-05	1.62E-04	12.23	ORIFICE INSTR. LINE 1B FAILS TO REMAIN OPEN (PLUG)
B21-OR_-PG-01C	1.44E-05	1.62E-04	12.23	ORIFICE INSTR. LINE 1C FAILS TO REMAIN OPEN (PLUG)
B21-OR_-PG-01D	1.44E-05	1.62E-04	12.23	ORIFICE INSTR. LINE 1D FAILS TO REMAIN OPEN (PLUG)
B21-SQV-CC-F004A	3.00E-03	1.02E-02	4.4	EXPLOSIVE VALVE DPV A FAILS TO OPERATE
B21-SQV-CC-F004B	3.00E-03	1.07E-02	4.55	EXPLOSIVE VALVE DPV B FAILS TO OPERATE
B21-SQV-CC-F004C	3.00E-03	1.02E-02	4.4	EXPLOSIVE VALVE DPV C FAILS TO OPERATE
B21-SQV-CC-F004D	3.00E-03	1.07E-02	4.55	EXPLOSIVE VALVE DPV D FAILS TO OPERATE
B21-SQV-CC-F004E	3.00E-03	1.02E-02	4.4	EXPLOSIVE VALVE DPV E FAILS TO OPERATE
B21-SQV-CC-F004F	3.00E-03	1.07E-02	4.55	EXPLOSIVE VALVE DPV F FAILS TO OPERATE
B21-SQV-CC-F004G	3.00E-03	1.02E-02	4.4	EXPLOSIVE VALVE DPV G FAILS TO OPERATE
B21-SQV-CC-F004H	3.00E-03	1.07E-02	4.55	EXPLOSIVE VALVE DPV H FAILS TO OPERATE
B21-SQV-CF-DPVOPEN	1.50E-05	1.31E-02	873.91	CCF OF DPV'S TO OPEN
B21-SYS-FF-1/9OPEN	5.85E-02	5.77E-03	1.09	1 OUT OF 9 SRV FAIL TO CLOSE AFTER OPENING
B21-UV_-CC-F102A	1.60E-03	5.03E-03	4.14	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
B21-UV_-CC-F102B	1.60E-03	6.48E-02	41.48	CHECK VALVE #1 IN FEEDWATER LINE B FAILS TO REOPEN
B21-UV_-CC-F103A	1.60E-03	5.03E-03	4.14	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN
B21-UV_-CC-F103B	1.60E-03	6.48E-02	41.48	CHECK VALVE #2 IN FEEDWATER LINE B FAILS TO REOPEN

Table 12-19

Internal Fire Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Fire Full Power
Core Damage Frequency = 1.21E-08/year

Event Name	Probability	F-V	RAW	Description
B21-XHE-FO-6OPEN	1.61E-03	2.63E-04	1.16	OPERATOR FAILS TO OPEN 6/10 SRVS
B32-ACV-CC-F006B	2.00E-03	5.11E-05	1.03	AIR OPERATED VALVE F006B FAILS TO OP. TO DEENERG. POSIT.
B32-ACV-CC-F006C	2.00E-03	5.11E-05	1.03	AIR OPERATED VALVE F006A FAILS TO OP. TO DEENERG. POSIT.
B32-ACV-CC-F006D	2.00E-03	5.11E-05	1.03	AIR OPERATED VALVE F006D FAILS TO OP. TO DEENERG. POSIT.
B32-ACV-CF-2ICABCD	1.55E-05	3.65E-05	3.36	CCF TO OPEN 2/4 ACV VALVES TRAINS A,B,C,D
B32-SYS-TM-ICA	4.16E-02	1.53E-04	1	IC "A" UNAVAILABLE [# 7]
C12-MCB-OO-C001B	1.00E-03	2.59E-03	3.59	CIRCUIT BREAKER FOR C001B & AUX OIL PMP B FAILS TO CLOSE
C12-MOV-CC-F014A	4.00E-03	1.39E-02	4.47	MOTOR OPER. VALVE F014A FAILS TO OPEN
C12-MOV-CC-F014B	4.00E-03	1.39E-02	4.46	MOTOR OPER. VALVE F014B FAILS TO OPEN
C12-MOV-CC-F020A	4.00E-03	1.38E-02	4.43	MOTOR OPER. VALVE F020A FAILS TO OPEN
C12-MOV-CC-F020B	4.00E-03	1.11E-02	3.76	MOTOR OPER. VALVE F020B FAILS TO OPEN
C12-MOV-CF-OPEN	1.78E-04	2.97E-04	2.67	CCF MOV TO OPEN
C12-MOV-FC-F020A	3.13E-03	1.07E-02	4.4	FLOW CONTROL A FAILS WIDE OPEN
C12-MOV-FC-F020B	3.13E-03	8.56E-03	3.73	FLOW CONTROL B FAILS WIDE OPEN
C12-MP_-FS-C001BOIL	2.40E-03	6.54E-03	3.72	MOTOR-DRIVEN AUX. OIL PUMP FOR C001B FAILS TO START
C12-MPC-FR-C001A	5.76E-05	5.10E-05	1.88	MOTOR-DRIVEN PUMP C001A FAILS TO RUN, GIVEN START
C12-MPC-FR-C001B	5.76E-05	3.40E-05	1.59	MOTOR-DRIVEN PUMP C001B FAILS TO RUN, GIVEN START
C12-MPC-FS-C001B	2.40E-03	6.54E-03	3.72	MOTOR-DRIVEN PUMP C001B FAILS TO START
C12-OR_-PG-D007A	6.48E-04	1.00E-03	2.54	ORIFICE D007A FAILS TO REMAIN OPEN (PLUG)
C12-OR_-PG-D007B	6.48E-04	6.28E-04	1.97	ORIFICE D007B FAILS TO REMAIN OPEN (PLUG)
C12-SYS-TM-TRAINB	3.00E-03	8.21E-03	3.73	TRAIN B IN MAINTENANCE
C12-UV_-CC-F022	1.60E-03	6.48E-02	41.48	CHECK VALVE F022 FAILS TO OPEN

Table 12-19

Internal Fire Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Fire Full Power
Core Damage Frequency = 1.21E-08/year

Event Name	Probability	F-V	RAW	Description
C12-XHE-FO-LEVEL2	3.22E-02	4.35E-05	1	MANUAL ACTUATION FAILURE
C12-XHE-MH-F003B	1.20E-02	3.79E-02	4.12	MISPOSITION OF VALVE F003B
C12-XHE-MH-F013A	4.80E-02	2.08E-01	5.13	MISPOSITION OF VALVE F013A
C12-XHE-MH-F013B	4.80E-02	2.07E-01	5.11	MISPOSITION OF VALVE F013B
C12-XHE-MH-F015A	4.80E-02	2.08E-01	5.13	MISPOSITION OF VALVE F015A
C12-XHE-MH-F015B	4.80E-02	2.07E-01	5.11	MISPOSITION OF VALVE F015B
C12-XHE-MH-F018A	1.20E-02	4.62E-02	4.8	MISPOSITION OF VALVE F018A
C12-XHE-MH-F018B	1.20E-02	3.79E-02	4.12	MISPOSITION OF VALVE F018B
C12-XHE-MH-F021A	1.20E-02	4.62E-02	4.8	MISPOSITION OF VALVE F021A
C12-XHE-MH-F021B	1.20E-02	3.79E-02	4.12	MISPOSITION OF VALVE F021B
C41-SYS-FF-MAKEUP	1.00E-01	1.78E-05	1	INVENTORY MAKE-UP BORATION FAILURE
C41-UV_-CC-F004A	1.60E-03	5.30E-05	1.03	CHECK VALVE F004A FAILS TO OPEN
C41-UV_-CC-F004B	1.60E-03	5.30E-05	1.03	CHECK VALVE F004B FAILS TO OPEN
C41-UV_-CC-F005A	1.60E-03	5.30E-05	1.03	CHECK VALVE F005A FAILS TO OPEN
C41-UV_-CC-F005B	1.60E-03	5.30E-05	1.03	CHECK VALVE F005B FAILS TO OPEN
C41-XHE-FO-INISLCS	1.77E-01	2.48E-04	1	OPERATOR FAILS TO MANUALLY INITIATE SLCS (SHORT TIME)
C41-XHE-FO-OPENF002A	2.69E-01	2.74E-05	1	OPERATOR FAILS TO OPEN VALVE F002A (AFTER INADV.CLOS.)
C41-XHE-FO-OPENF002B	2.69E-01	2.74E-05	1	OPERATOR FAILS TO OPEN VALVE F002B (AFTER INADV.CLOS.)
C41-XHE-MH-F002A	4.03E-03	5.89E-05	1.01	MISPOSITION OF VALVE F002A
C41-XHE-MH-F002B	4.03E-03	5.89E-05	1.01	MISPOSITION OF VALVE F002B
C51-ACT-CF-1PRM	2.98E-04	4.26E-05	1.14	CCF APRM NEUTRON CHANNELS
C51-ACT-CF-APRMSTUCK	2.10E-07	5.37E-04	2.56E+03	CCF APRM DETECTORS STUCK AT POWER LEVEL

Table 12-19

Internal Fire Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Fire Full Power
Core Damage Frequency = 1.21E-08/year

Event Name	Probability	F-V	RAW	Description
C62-DTM-CF-DIDALL	5.50E-05	1.28E-04	3.32	COMMON CAUSE FAILURE 3/4 DTM DID LOGIC
C62-DTM-CF-N1EALL	5.50E-05	9.06E-03	165.69	CCF OF DIGITAL TRIP MODULES NO 1E
C62-VLU-CF-DIDALL	3.12E-05	4.80E-03	154.82	CCF OF VOTER LOGIC UNITS
C62-VLU-CF-N1EALL	3.12E-05	3.06E-04	10.79	CCF OF VOTER LOGIC UNITS
C71-SYS-FF-SCRAM	1.00E-08	6.35E-03	6.33E+05	SCRAM FAILURE
C72-VLU-CF-DPSALL	3.12E-06	1.79E-05	6.74	CCF OF VOTER LOGIC UNITS
C74-DTM-CF-ALL	1.20E-05	2.62E-03	219.16	CCF 3/4 DTM OF SSLC DIV1/2/3/4
C74-DTM-FC-DIV1	6.00E-04	1.48E-03	3.47	DTM OF SSLC DIV. 1 FAILS TO TRIP
C74-DTM-FC-DIV2	6.00E-04	1.55E-03	3.58	DTM OF SSLC DIV. 2 FAILS TO TRIP
C74-DTM-FC-DIV3	6.00E-04	1.29E-02	22.46	DTM OF SSLC DIV. 3 FAILS TO TRIP
C74-DTM-FC-DIV4	6.00E-04	1.29E-02	22.41	DTM OF SSLC DIV. 4 FAILS TO TRIP
C74-VLU-CF-ALL	3.12E-06	8.39E-04	269.79	CCF OF VOTER LOGIC UNITS
E50-OR -CF-7PLUG	7.00E-08	1.35E-03	1.93E+04	CCF OF 7 ORIFICES TO PLUG
E50-OR -CF-PLUGALL	7.20E-08	1.45E-03	2.01E+04	CCF OF ALL ORIFICES TO PLUG
E50-SQV-CC-F002A	3.00E-03	1.14E-02	4.78	SQUIB VALVE F002A FAILS TO OPERATE
E50-SQV-CC-F002D	3.00E-03	1.14E-02	4.78	SQUIB VALVE F002D FAILS TO OPERATE
E50-SQV-CC-F002E	3.00E-03	1.14E-02	4.78	SQUIB VALVE F002E FAILS TO OPERATE
E50-SQV-CC-F002H	3.00E-03	1.14E-02	4.78	SQUIB VALVE F002H FAILS TO OPERATE
E50-SQV-CF-4OPEN	1.50E-05	4.24E-05	3.83	CCF OF 4 OR MORE SQUIB VALVES TO OPEN
E50-SQV-CF-GDCS7OPEN	1.50E-05	3.45E-01	2.30E+04	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
E50-SQV-CF-OPENALL	1.50E-05	3.45E-01	2.30E+04	CCF OF ALL SQUIB VALVES TO OPEN
E50-SQV-CO-F009A	3.50E-03	2.56E-02	8.29	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]

Table 12-19

Internal Fire Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Fire Full Power
Core Damage Frequency = 1.21E-08/year

Event Name	Probability	F-V	RAW	Description
E50-SQV-CO-F009B	3.50E-03	1.88E-02	6.37	SQUIB DELUGE VALVE F009B SPUR. OPENING [#7]
E50-SQV-CO-F009C	3.50E-03	1.88E-02	6.37	SQUIB DELUGE VALVE F009C SPUR. OPENING [#7]
E50-SQV-CO-F009D	3.50E-03	2.56E-02	8.29	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
E50-SQV-CO-F009E	3.50E-03	2.56E-02	8.29	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
E50-SQV-CO-F009F	3.50E-03	1.88E-02	6.37	SQUIB DELUGE VALVE F009F SPUR. OPENING [#7]
E50-SQV-CO-F009G	3.50E-03	1.88E-02	6.37	SQUIB DELUGE VALVE F009G SPUR. OPENING [#7]
E50-SQV-CO-F009H	3.50E-03	2.56E-02	8.29	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
E50-SQV-CO-F009I	3.50E-03	2.56E-02	8.29	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
E50-SQV-CO-F009J	3.50E-03	1.88E-02	6.37	SQUIB DELUGE VALVE F009J SPUR. OPENING [#7]
E50-SQV-CO-F009K	3.50E-03	1.88E-02	6.37	SQUIB DELUGE VALVE F009K SPUR. OPENING [#7]
E50-SQV-CO-F009L	3.50E-03	2.56E-02	8.29	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
E50-STR-CF-SPPLUG	3.75E-04	1.60E-03	5.26	CCF FILTER/STRAINER IN PSP TO PLUG
E50-UV_-OC-F003A	1.75E-03	6.64E-03	4.79	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
E50-UV_-OC-F003D	1.75E-03	6.64E-03	4.79	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
E50-UV_-OC-F003E	1.75E-03	6.64E-03	4.79	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
E50-UV_-OC-F003H	1.75E-03	6.64E-03	4.79	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
EB-DAMPER	7.40E-03	4.08E-03	1.55	FIRE BARRIER IN ELECTRICAL BUILDING FAILS
FIRE-CONTROL-BUILD-TGEN-DIVII	2.76E-03	1.10E-05	1	FIRE IN CONTROL BUILDING DIV I ZONE
FIRE-CONTROL-ROOM-TGEN	9.42E-03	6.60E-04	1.07	FIRE IN CONTROL ROOM
FIRE-NON-DIVISIONAL-REDA	5.57E-02	4.83E-03	1.08	FIRE IN ELECTRICAL BUILDING ZONE A
FIRE-NON-DIVISIONAL-REDB	5.57E-02	4.83E-03	1.08	FIRE IN ELECTRICAL BUILDING ZONE B
FIRE-REACT-BUIL-DIVI	1.45E-02	6.14E-02	5.17	FIRE IN REACTOR BUILDING DIV I ZONE

Table 12-19

Internal Fire Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Fire Full Power
Core Damage Frequency = 1.21E-08/year

Event Name	Probability	F-V	RAW	Description
FIRE-REACT-BUIL-DIVII	1.45E-02	6.42E-02	5.37	FIRE IN REACTOR BUILDING DIVISION II ZONE
FIRE-REACT-BUIL-DIVIII	1.45E-02	2.99E-02	3.03	FIRE IN REACTOR BUILDING DIVISION III ZONE
FIRE-REACT-BUIL-DIVIV	1.45E-02	3.21E-02	3.18	FIRE IN REACTOR BUILDING DIVISION IV ZONE
FIRE-TURBINE-BUILD	6.14E-02	8.02E-01	13.26	FIRE IN TURBINE BUILDING
G21-ACV-CC-F321	2.00E-03	6.75E-05	1.03	AOV F321 FAILS TO OPERATE TO NOT DEENERG.POS.
G21-ACV-CC-F322	2.00E-03	6.75E-05	1.03	AOV F322 FAILS TO OPERATE TO NOT DEENERG.POS.
G21-ACV-CC-F332	2.00E-03	6.30E-03	4.14	AOV F332 FAILS TO OPERATE TO NOT DEENERG.POS.
G21-UV_-CC-F333	1.60E-03	5.03E-03	4.14	CHECK VALVE F333 FAILS TO OPEN
G21-UV_-TM-F332/333	8.00E-04	2.43E-03	4.03	MAINTENANCE FOR CV F332 OR CV F333
G21-XHE-FO-LPCIADS	1.61E-02	1.66E-03	1.1	OPERATOR FAILS TO ALIGN AND ACTUATE FAPCS IN LPCI MODE
G21-XHE-MH-F334	4.80E-02	2.10E-01	5.17	MISPOSITION OF VALVE F334
H23-EMS-CF-ALL	1.80E-06	4.16E-04	232.06	CCF OF ESSENTIAL MULTIPLEXING SYSTEM DIV 1/2/3/4
H23-EMS-CF-DIDALL	1.80E-06	2.74E-04	153.49	CCF OF ALL DIVISION OF THE EMS
H23-EMS-FC-DIV1	6.00E-04	1.48E-03	3.47	ESSENTIAL MULTIPLEXING SYSTEM DIV 1 FAILS TO FUNCTION
H23-EMS-FC-DIV2	6.00E-04	1.55E-03	3.58	ESSENTIAL MULTIPLEXING SYSTEM DIV 2 FAILS TO FUNCTION
H23-EMS-FC-DIV3	6.00E-04	1.38E-02	24.05	ESSENTIAL MULTIPLEXING SYSTEM DIV 3 FAILS TO FUNCTION
H23-EMS-FC-DIV4	6.00E-04	1.29E-02	22.45	ESSENTIAL MULTIPLEXING SYSTEM DIV 4 FAILS TO FUNCTION
H23-RMU-CF-ALL	9.00E-07	1.85E-04	206.21	CCF OF REMOTE MULTIPLEXING UNITS TO OPERATE
H23-RMU-CF-DIDALL	9.00E-07	1.37E-04	153.49	CCF OF REMOTE MULTIPLEXING UNITS (DID)
H23-RMU-FC-DIV1	3.00E-04	5.74E-04	2.91	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
H23-RMU-FC-DIV2	3.00E-04	5.95E-04	2.98	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
H23-RMU-FC-DIV3	3.00E-04	6.01E-03	21.01	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION

Table 12-19

Internal Fire Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Fire Full Power
Core Damage Frequency = 1.21E-08/year

Event Name	Probability	F-V	RAW	Description
H23-RMU-FC-DIV4	3.00E-04	6.00E-03	20.98	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
H23-RMU-FC-ESF13	3.00E-04	3.71E-04	2.23	1ST DIV III ESF REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
H23-RMU-FC-ESF23	3.00E-04	3.71E-04	2.23	2ND DIVIII ESF REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
N21-ACV-CC-F023	1.58E-02	6.86E-03	1.43	AIR OPERATED VALVE N21-F023 FAILS TO OPEN
N21-ACV-CC-F026	1.58E-02	6.77E-03	1.42	AIR OPERATED VALVE N21-F026 FAILS TO OPEN
N21-ACV-CF-MKUPA/B	1.08E-04	2.18E-03	21.16	CCF TO OPERATE AOVS TRAINS A & B
N21-ACV-OC-F016	1.31E-03	8.96E-04	1.68	AIR OPERATED VALVE N21-F016 FAILS TO REMAIN OPEN
N21-ACV-OC-F018	1.31E-03	5.51E-02	42.9	AIR OPERATED VALVE N21-F018 FAILS TO REMAIN OPEN
N21-ACV-TM-F026	8.00E-04	8.74E-05	1.11	VALVE N21-F026 UNAVAILABLE DUE TO TEST OR MAINTENANCE
N21-LT_-CF-FWTKNO	4.38E-05	9.54E-04	22.77	CCF FEEDWATER STORAGE TANK LEVEL TRANSMITTERS
N21-LT_-CF-HWNO	4.38E-05	7.57E-04	18.29	CCF HOTWELL LEVEL TRANSMITTERS
N21-LT_-NO-FWTKA	8.71E-03	3.89E-03	1.44	LEVEL TRANSMITTER TRAIN A FAILS
N21-LT_-NO-FWTKB	8.71E-03	3.89E-03	1.44	LEVEL TRANSMITTER TRAIN B FAILS
N21-LT_-NO-FWTKC	8.71E-03	3.89E-03	1.44	LEVEL TRANSMITTER TRAIN C FAILS
N21-LT_-NO-HWA	8.71E-03	3.06E-03	1.35	LEVEL TRANSMITTER TRAIN A FAILS
N21-LT_-NO-HWB	8.71E-03	3.06E-03	1.35	LEVEL TRANSMITTER TRAIN B FAILS
N21-LT_-NO-HWC	8.71E-03	3.06E-03	1.35	LEVEL TRANSMITTER TRAIN C FAILS
N21-MOV-CC-F061	3.13E-02	8.96E-04	1.03	MOTOR OPERATED VALVE N21-F061 FAILS TO OPEN
P22-ACV-FT-BYPASS	2.00E-03	8.67E-02	44.25	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
P22-HX_-PG-B001A	5.28E-05	9.78E-05	2.85	HEAT EXCHANGER A FAILS
P22-XHE-FO-HXB	2.69E-01	9.78E-05	1	OPERATOR FAILS TO ALIGN HX B
P30-UV_-CC-CV01T	2.00E-04	4.22E-04	3.11	CHECK VALVE CV01T FAILS TO OPEN

Table 12-19

Internal Fire Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Fire Full Power
Core Damage Frequency = 1.21E-08/year

Event Name	Probability	F-V	RAW	Description
P30-XHE-MH-F015	4.80E-02	1.76E-01	4.48	MISPOSITION OF VALVE F01T
P41-FAN-CS-2ALL	7.20E-06	7.45E-04	104.39	CCF TO START 2 FAN UNITS
P41-MP_-CR-3ALL	1.17E-05	1.53E-03	131.98	CCF TO RUN 3 PUMPS TRAINS A AND B
P41-MP_-CS-3ALL	6.26E-06	5.19E-04	83.83	CCF TO START PUMPS TRAINS A AND B
P41-STR-CF-3ALL	1.07E-05	1.40E-03	131.98	CCF 3 STRAINERS PLUGGED
P51-ACV-CC-F008A	2.00E-03	6.55E-04	1.33	AIR OPERATED VALVE F008A FAILS TO OP. TO DEENERG. POSIT.
P51-ACV-CC-F010C	2.00E-03	6.55E-04	1.33	AOV F010C FAILS TO OPERATE TO NOT DEENERG. POSITION
P51-ACV-CF-OPEN	1.35E-05	9.31E-05	7.89	CCF OF AOV TO OPEN
P51-CMP-CR-RUN	1.49E-04	4.08E-03	28.35	CCF OF P51 COMPRESSORS TO RUN
P51-CMP-FR-C001A	2.40E-03	9.88E-04	1.41	MOTOR-DRIVEN AIR COMPRESS. C001A FAILS TO CONT.OPER.
P51-CMP-FS-C001B	2.00E-02	9.88E-04	1.05	MOTOR-DRIVEN AIR COMPRESS. C001B FAILS TO START
P51-XHE-FO-STDBYCOMP	1.77E-02	7.56E-04	1.04	OPERATOR FAILS TO ACTUATE STAND-BY COMPRESSOR
P52-XHE-FO-IAS/SAS	1.61E-02	5.55E-04	1.03	OPER. FAILS TO REC. NEED FOR MANUAL INTERV. ON IAS/SAS
R10-BAC-LP-500KVMAIN	4.80E-06	2.41E-04	51.23	500 KV MAIN DISTRIBUTION BUS FAILS DURING OPERATION
R10-CBU-FC-PRE500KV	7.20E-05	3.62E-03	51.23	500KV TRANSMISSION LINE FAILS
R10-SYS-FF-500KV	1.20E-06	6.03E-05	51.24	500KV SWITCHYARD FAILS DURING OPERATION
R10-XFH-TM-XFRMA	1.00E-04	8.31E-06	1.08	TRANSFORMER XFRM-A IN MAINTENANCE
R10-XFH-TM-XFRMB	1.00E-04	8.31E-06	1.08	TRANSFORMER XFRM-B IN MAINTENANCE
R11-BAC-LP-R11B2	4.80E-06	1.93E-04	41.26	BUS R11-B2 FAILS DURING OPERATION
R11-BAC-TM-R11B2	4.80E-06	1.93E-04	41.26	6.9 KV AC BUS R11-B2 IN MANTENANCE
R11-MCB-CO-B2B3	1.20E-05	8.28E-05	7.89	CIRCUIT BREAKER FROM R11-B2 OPENS SPURIOUSLY
R13-BAC-LP-R1311	4.80E-06	4.57E-05	10.51	BUS R13-31 FAILS DURING OPERATION

Table 12-19

Internal Fire Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Fire Full Power
Core Damage Frequency = 1.21E-08/year

Event Name	Probability	F-V	RAW	Description
R13-BAC-LP-R13111	4.80E-06	4.57E-05	10.51	BUS R13-11-1 FAILS DURING OPERATION
R13-BAC-LP-R1321	4.80E-06	4.57E-05	10.51	BUS R13-21 FAILS DURING OPERATION
R13-BAC-LP-R13211	4.80E-06	4.57E-05	10.51	BUS R13-21-1 FAILS DURING OPERATION
R13-BAC-LP-R1331	4.80E-06	4.57E-05	10.51	BUS R13-31 FAILS DURING OPERATION
R13-BAC-LP-R13311	4.80E-06	4.57E-05	10.51	BUS R13-31-1 FAILS DURING OPERATION
R13-BAC-LP-R1341	4.80E-06	4.57E-05	10.51	BUS R13-41 FAILS DURING OPERATION
R13-BAC-LP-R13411	4.80E-06	4.57E-05	10.51	BUS R13-41-1 FAILS DURING OPERATION
R13-LCB-CO-FR13111	1.44E-05	1.62E-04	12.23	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-FR13211	1.44E-05	1.62E-04	12.23	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-FR13311	1.44E-05	1.62E-04	12.23	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-FR13411	1.44E-05	1.62E-04	12.23	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-FR13C13	1.44E-05	9.93E-05	7.89	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-R13111	1.44E-05	1.62E-04	12.23	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-R13211	1.44E-05	1.62E-04	12.23	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-R13311	1.44E-05	1.62E-04	12.23	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-R13411	1.44E-05	1.62E-04	12.23	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-R13C13	1.44E-05	9.93E-05	7.89	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-TOR1311	1.44E-05	1.62E-04	12.23	CIRCUIT BREAKER TO R13-11 OPENS SPURIOUSLY
R13-LCB-CO-TOR1321	1.44E-05	1.62E-04	12.23	CIRCUIT BREAKER TO R13-21 OPENS SPURIOUSLY
R13-LCB-CO-TOR1331	1.44E-05	1.62E-04	12.23	CIRCUIT BREAKER TO R13-31 OPENS SPURIOUSLY
R13-LCB-CO-TOR1341	1.44E-05	1.62E-04	12.23	CIRCUIT BREAKER TO R13-41 OPENS SPURIOUSLY
R13-LCB-CO-TOR13C	1.44E-05	9.93E-05	7.89	CIRCUIT BREAKER TO R13-C OPENS SPURIOUSLY

Table 12-19

Internal Fire Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Fire Full Power
Core Damage Frequency = 1.21E-08/year

Event Name	Probability	F-V	RAW	Description
R13-XFL-LP-R13111	1.92E-05	2.37E-04	13.35	TRANSFORMER FAILS DURING OPERATION
R13-XFL-LP-R13211	1.92E-05	2.37E-04	13.35	TRANSFORMER FAILS DURING OPERATION
R13-XFL-LP-R13311	1.92E-05	2.37E-04	13.35	TRANSFORMER FAILS DURING OPERATION
R13-XFL-LP-R13411	1.92E-05	2.37E-04	13.35	TRANSFORMER FAILS DURING OPERATION
R13-XFL-LP-R13C13	1.92E-05	1.32E-04	7.89	TRANSFORMER FAILS DURING OPERATION
R16-BT_-CF-ALLBATT	9.00E-06	7.39E-03	822.31	BATTERY CCF #2
R16-BT_-LP-R16BT21	5.00E-04	1.99E-04	1.4	BATTERY DE3BY001 FAILS TO PROVIDE OUTPUT
R16-BT_-TM-R16BT21	1.00E-03	4.22E-04	1.42	BATTERY R16-BT21 IN TEST
RB-DAMPER	7.43E-03	1.58E-01	22.11	FIRE BARRIER IN REACTOR BUILDING FAILS
U43-SYS-FF-LPCI	2.40E-02	1.52E-02	1.62	U43 HARDWARE FAILURES
U43-SYS-FF-YARD	2.00E-03	1.25E-03	1.62	HARDWARE FAILURES IN YARD AREA
U43-XHE-FO-LPCI	1.61E-03	2.63E-04	1.16	OPERATOR FAILS TO ACTUATE U43 IN LPCI MODE
U43-XHE-FO-LPCIADS	1.61E-02	6.68E-04	1.04	OPERATOR FAILS TO ACTUATE U43 IN LPCI MODE AFTER ADS
U43-XHE-FO-YARD	1.77E-03	1.09E-03	1.61	OPERATOR FAILS TO MAKE UP FROM YARD AREA
XXX-XHE-FO-DEPRESS	1.61E-01	1.31E-01	1.68	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
XXX-XHE-FO-ICPCCS	1.61E-03	9.89E-04	1.61	OPERATOR FAILS TO RECOGNIZE NEED OF MAKE UP TO IC/PCCS POOLS
XXX-XHE-FO-LPMAKEUP	1.61E-01	6.01E-01	4.13	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)

Table 12-20

Internal Fire Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Fire Shutdown
Core Damage Frequency = 2.32E-08/year

Event Name	Probability	F-V	RAW	Description
B21-LT_-CF-N001A/B/C/D	1.20E-07	6.03E-05	503.69	CCF OF DIVERSIFIED LEVEL 1 & 2 TRANSM. 10A/B/C/D
B21-LT_-CF-N001ABCD	1.20E-07	4.20E-05	350.99	CCF OF DIVERSIFIED LEVEL 1& 2 TRANSM. 1A/B/C/D
B21-LT_-NO-DPSWRC	2.40E-05	1.11E-05	1.46	DPS WIDE RANGE LEVEL TRANSMITTER C (LEVEL 1&2) FAILS
B21-LT_-NO-DPSWRD	2.40E-05	1.11E-05	1.46	DPS WIDE RANGE LEVEL TRANSMITTER D (LEVEL 1&2) FAILS
B21-LT_-NO-N001A	2.40E-05	2.79E-04	12.61	WIDE RANGE LEVEL TRANSMITTER 1A (LEVEL 1&2) FAILS
B21-LT_-NO-N001B	2.40E-05	2.96E-04	13.35	WIDE RANGE LEVEL TRANSMITTER 1B (LEVEL 1&2) FAILS
B21-LT_-NO-N001C	2.40E-05	2.31E-03	97.42	WIDE RANGE LEVEL TRANSMITTER 1C (LEVEL 1&2) FAILS
B21-LT_-NO-N001D	2.40E-05	2.31E-03	97.05	WIDE RANGE LEVEL TRANSMITTER 1D (LEVEL 1&2) FAILS
B21-OR_-PG-01A	1.44E-05	1.23E-03	86.19	ORIFICE INSTR. LINE 1A FAILS TO REMAIN OPEN (PLUG)
B21-OR_-PG-01B	1.44E-05	1.23E-03	86.19	ORIFICE INSTR. LINE 1B FAILS TO REMAIN OPEN (PLUG)
B21-OR_-PG-01C	1.44E-05	1.36E-03	95.43	ORIFICE INSTR. LINE 1C FAILS TO REMAIN OPEN (PLUG)
B21-OR_-PG-01D	1.44E-05	1.36E-03	95.43	ORIFICE INSTR. LINE 1D FAILS TO REMAIN OPEN (PLUG)
B21-SQV-CC-F004A	3.00E-03	4.89E-02	17.26	EXPLOSIVE VALVE DPV A FAILS TO OPERATE
B21-SQV-CC-F004B	3.00E-03	5.20E-02	18.29	EXPLOSIVE VALVE DPV B FAILS TO OPERATE
B21-SQV-CC-F004C	3.00E-03	4.96E-02	17.49	EXPLOSIVE VALVE DPV C FAILS TO OPERATE
B21-SQV-CC-F004D	3.00E-03	5.13E-02	18.06	EXPLOSIVE VALVE DPV D FAILS TO OPERATE
B21-SQV-CC-F004E	3.00E-03	4.89E-02	17.26	EXPLOSIVE VALVE DPV E FAILS TO OPERATE
B21-SQV-CC-F004F	3.00E-03	5.20E-02	18.29	EXPLOSIVE VALVE DPV F FAILS TO OPERATE
B21-SQV-CC-F004G	3.00E-03	4.96E-02	17.49	EXPLOSIVE VALVE DPV G FAILS TO OPERATE
B21-SQV-CC-F004H	3.00E-03	5.13E-02	18.06	EXPLOSIVE VALVE DPV H FAILS TO OPERATE
B21-SQV-CF-DPVOPEN	1.50E-05	6.39E-02	4.26E+03	CCF OF DPV'S TO OPEN
B21-SQV-CF-F004AB	3.60E-05	8.29E-04	24.03	CCF OF DPV A AND B TO OPEN

Table 12-20

Internal Fire Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Fire Shutdown
Core Damage Frequency = 2.32E-08/year

Event Name	Probability	F-V	RAW	Description
B21-SQV-CF-F004ABC	9.00E-06	1.34E-04	15.88	CCF OF DPV A,B & C TO OPEN
B21-SQV-CF-F004ABD	9.00E-06	1.34E-04	15.88	CCF OF DPV A,B & D TO OPEN
B21-SQV-CF-F004ABE	9.00E-06	1.34E-04	15.88	CCF OF DPV A,B & E TO OPEN
B21-SQV-CF-F004ABF	9.00E-06	1.34E-04	15.88	CCF OF DPV A,B & F TO OPEN
B21-SQV-CF-F004ABG	9.00E-06	1.34E-04	15.88	CCF OF DPV A,B & G TO OPEN
B21-SQV-CF-F004ABH	9.00E-06	1.34E-04	15.88	CCF OF DPV A,B & H TO OPEN
B21-SQV-CF-F004AC	3.60E-05	4.01E-04	12.14	CCF OF DPV A AND C TO OPEN
B21-SQV-CF-F004ACD	9.00E-06	1.34E-04	15.88	CCF OF DPV A,C & D TO OPEN
B21-SQV-CF-F004ACE	9.00E-06	6.70E-05	8.44	CCF OF DPV A,C & E TO OPEN
B21-SQV-CF-F004ACF	9.00E-06	1.34E-04	15.88	CCF OF DPV A,C & F TO OPEN
B21-SQV-CF-F004ACG	9.00E-06	6.70E-05	8.44	CCF OF DPV A,C & G TO OPEN
B21-SQV-CF-F004ACH	9.00E-06	1.34E-04	15.88	CCF OF DPV A,C & H TO OPEN
B21-SQV-CF-F004AD	3.60E-05	8.29E-04	24.03	CCF OF DPV A AND D TO OPEN
B21-SQV-CF-F004ADE	9.00E-06	1.34E-04	15.88	CCF OF DPV A,D & E TO OPEN
B21-SQV-CF-F004ADF	9.00E-06	1.34E-04	15.88	CCF OF DPV A,D & F TO OPEN
B21-SQV-CF-F004ADG	9.00E-06	1.34E-04	15.88	CCF OF DPV A,D & G TO OPEN
B21-SQV-CF-F004ADH	9.00E-06	1.34E-04	15.88	CCF OF DPV A,D & H TO OPEN
B21-SQV-CF-F004AE	3.60E-05	4.01E-04	12.14	CCF OF DPV A AND E TO OPEN
B21-SQV-CF-F004AEF	9.00E-06	1.34E-04	15.88	CCF OF DPV A,E & F TO OPEN
B21-SQV-CF-F004AEG	9.00E-06	6.70E-05	8.44	CCF OF DPV A,E & G TO OPEN
B21-SQV-CF-F004AEH	9.00E-06	1.34E-04	15.88	CCF OF DPV A,E & H TO OPEN
B21-SQV-CF-F004AF	3.60E-05	8.29E-04	24.03	CCF OF DPV A AND F TO OPEN
B21-SQV-CF-F004AFG	9.00E-06	1.34E-04	15.88	CCF OF DPV A,F & G TO OPEN

Table 12-20

Internal Fire Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Fire Shutdown
Core Damage Frequency = 2.32E-08/year

Event Name	Probability	F-V	RAW	Description
B21-SQV-CF-F004AFH	9.00E-06	1.34E-04	15.88	CCF OF DPV A,F & H TO OPEN
B21-SQV-CF-F004AG	3.60E-05	4.01E-04	12.14	CCF OF DPV A AND G TO OPEN
B21-SQV-CF-F004AGH	9.00E-06	1.34E-04	15.88	CCF OF DPV A,G & H TO OPEN
B21-SQV-CF-F004AH	3.60E-05	8.29E-04	24.03	CCF OF DPV A AND H TO OPEN
B21-SQV-CF-F004BC	3.60E-05	8.29E-04	24.03	CCF OF DPV B AND C TO OPEN
B21-SQV-CF-F004BCD	9.00E-06	1.34E-04	15.88	CCF OF DPV B,C & D TO OPEN
B21-SQV-CF-F004BCE	9.00E-06	1.34E-04	15.88	CCF OF DPV B,C & E TO OPEN
B21-SQV-CF-F004BCF	9.00E-06	1.34E-04	15.88	CCF OF DPV B,C & F TO OPEN
B21-SQV-CF-F004BCG	9.00E-06	1.34E-04	15.88	CCF OF DPV B,C & G TO OPEN
B21-SQV-CF-F004BCH	9.00E-06	1.34E-04	15.88	CCF OF DPV B,C & H TO OPEN
B21-SQV-CF-F004BD	3.60E-05	4.28E-04	12.89	CCF OF DPV B AND D TO OPEN
B21-SQV-CF-F004BDE	9.00E-06	1.34E-04	15.88	CCF OF DPV B,D & E TO OPEN
B21-SQV-CF-F004BDF	9.00E-06	6.70E-05	8.44	CCF OF DPV B,D & F TO OPEN
B21-SQV-CF-F004BDG	9.00E-06	1.34E-04	15.88	CCF OF DPV B,D & G TO OPEN
B21-SQV-CF-F004BDH	9.00E-06	6.70E-05	8.44	CCF OF DPV B,D & H TO OPEN
B21-SQV-CF-F004BE	3.60E-05	8.29E-04	24.03	CCF OF DPV B AND E TO OPEN
B21-SQV-CF-F004BEF	9.00E-06	1.34E-04	15.88	CCF OF DPV B,E & F TO OPEN
B21-SQV-CF-F004BEG	9.00E-06	1.34E-04	15.88	CCF OF DPV B,E & G TO OPEN
B21-SQV-CF-F004BEH	9.00E-06	1.34E-04	15.88	CCF OF DPV B,E & H TO OPEN
B21-SQV-CF-F004BF	3.60E-05	4.28E-04	12.89	CCF OF DPV B AND F TO OPEN
B21-SQV-CF-F004BFG	9.00E-06	1.34E-04	15.88	CCF OF DPV B,F & G TO OPEN
B21-SQV-CF-F004BFH	9.00E-06	6.70E-05	8.44	CCF OF DPV B,F & H TO OPEN
B21-SQV-CF-F004BG	3.60E-05	8.29E-04	24.03	CCF OF DPV B AND G TO OPEN

Table 12-20

Internal Fire Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Fire Shutdown
Core Damage Frequency = 2.32E-08/year

Event Name	Probability	F-V	RAW	Description
B21-SQV-CF-F004BGH	9.00E-06	1.34E-04	15.88	CCF OF DPV B,G & H TO OPEN
B21-SQV-CF-F004BH	3.60E-05	4.28E-04	12.89	CCF OF DPV B AND H TO OPEN
B21-SQV-CF-F004CD	3.60E-05	8.29E-04	24.03	CCF OF DPV C AND D TO OPEN
B21-SQV-CF-F004CDE	9.00E-06	1.34E-04	15.88	CCF OF DPV C,D & E TO OPEN
B21-SQV-CF-F004CDF	9.00E-06	1.34E-04	15.88	CCF OF DPV C,D & F TO OPEN
B21-SQV-CF-F004CDG	9.00E-06	1.34E-04	15.88	CCF OF DPV C,D & G TO OPEN
B21-SQV-CF-F004CDH	9.00E-06	1.34E-04	15.88	CCF OF DPV C,D & H TO OPEN
B21-SQV-CF-F004CE	3.60E-05	4.01E-04	12.14	CCF OF DPV C AND E TO OPEN
B21-SQV-CF-F004CEF	9.00E-06	1.34E-04	15.88	CCF OF DPV C,E & F TO OPEN
B21-SQV-CF-F004CEG	9.00E-06	6.70E-05	8.44	CCF OF DPV C,E & G TO OPEN
B21-SQV-CF-F004CEH	9.00E-06	1.34E-04	15.88	CCF OF DPV C,E & H TO OPEN
B21-SQV-CF-F004CF	3.60E-05	8.29E-04	24.03	CCF OF DPV C AND F TO OPEN
B21-SQV-CF-F004CFG	9.00E-06	1.34E-04	15.88	CCF OF DPV C,F & G TO OPEN
B21-SQV-CF-F004CFH	9.00E-06	1.34E-04	15.88	CCF OF DPV C,F & H TO OPEN
B21-SQV-CF-F004CG	3.60E-05	4.01E-04	12.14	CCF OF DPV C AND G TO OPEN
B21-SQV-CF-F004CGH	9.00E-06	1.34E-04	15.88	CCF OF DPV C,G & H TO OPEN
B21-SQV-CF-F004CH	3.60E-05	8.29E-04	24.03	CCF OF DPV C AND H TO OPEN
B21-SQV-CF-F004DE	3.60E-05	8.29E-04	24.03	CCF OF DPV D AND E TO OPEN
B21-SQV-CF-F004DEF	9.00E-06	1.34E-04	15.88	CCF OF DPV D,E & F TO OPEN
B21-SQV-CF-F004DEG	9.00E-06	1.34E-04	15.88	CCF OF DPV D,E & G TO OPEN
B21-SQV-CF-F004DEH	9.00E-06	1.34E-04	15.88	CCF OF DPV D,E & H TO OPEN
B21-SQV-CF-F004DF	3.60E-05	4.28E-04	12.89	CCF OF DPV D AND F TO OPEN
B21-SQV-CF-F004DFG	9.00E-06	1.34E-04	15.88	CCF OF DPV D,F & G TO OPEN

Table 12-20

Internal Fire Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Fire Shutdown
Core Damage Frequency = 2.32E-08/year

Event Name	Probability	F-V	RAW	Description
B21-SQV-CF-F004DFH	9.00E-06	6.70E-05	8.44	CCF OF DPV D,F & H TO OPEN
B21-SQV-CF-F004DG	3.60E-05	8.29E-04	24.03	CCF OF DPV D AND G TO OPEN
B21-SQV-CF-F004DGH	9.00E-06	1.34E-04	15.88	CCF OF DPV D,G & H TO OPEN
B21-SQV-CF-F004DH	3.60E-05	4.28E-04	12.89	CCF OF DPV D AND H TO OPEN
B21-SQV-CF-F004EF	3.60E-05	8.29E-04	24.03	CCF OF DPV E AND F TO OPEN
B21-SQV-CF-F004EFG	9.00E-06	1.34E-04	15.88	CCF OF DPV E,F & G TO OPEN
B21-SQV-CF-F004EFH	9.00E-06	1.34E-04	15.88	CCF OF DPV E,F & H TO OPEN
B21-SQV-CF-F004EG	3.60E-05	4.01E-04	12.14	CCF OF DPV E AND G TO OPEN
B21-SQV-CF-F004EGH	9.00E-06	1.34E-04	15.88	CCF OF DPV E,G & H TO OPEN
B21-SQV-CF-F004EH	3.60E-05	8.29E-04	24.03	CCF OF DPV E AND H TO OPEN
B21-SQV-CF-F004FG	3.60E-05	8.29E-04	24.03	CCF OF DPV F AND G TO OPEN
B21-SQV-CF-F004FGH	9.00E-06	1.34E-04	15.88	CCF OF DPV F,G & H TO OPEN
B21-SQV-CF-F004FH	3.60E-05	4.28E-04	12.89	CCF OF DPV F AND H TO OPEN
B21-SQV-CF-F004GH	3.60E-05	8.29E-04	24.03	CCF OF DPV G AND H TO OPEN
B21-SRV-CF-6OPEN	1.90E-04	2.20E-04	2.15	CCF TO OPEN 6 SRVS
B21-UV_-CC-F102A	1.60E-03	5.29E-03	4.3	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
B21-UV_-CC-F102B	1.60E-03	5.40E-03	4.37	CHECK VALVE #1 IN FEEDWATER LINE B FAILS TO REOPEN
B21-UV_-CC-F103A	1.60E-03	5.29E-03	4.3	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN
B21-UV_-CC-F103B	1.60E-03	5.40E-03	4.37	CHECK VALVE #2 IN FEEDWATER LINE B FAILS TO REOPEN
B21-XHE-FO-6OPEN	1.61E-03	4.72E-03	3.93	OPERATOR FAILS TO OPEN 6/10 SRVS
C12-MCB-OO-C001B	1.00E-03	1.52E-03	2.52	CIRCUIT BREAKER FOR C001B & AUX OIL PMP B FAILS TO CLOSE
C12-MOV-CC-F014A	4.00E-03	7.10E-03	2.77	MOTOR OPER. VALVE F014A FAILS TO OPEN
C12-MOV-CC-F014B	4.00E-03	6.41E-03	2.6	MOTOR OPER. VALVE F014B FAILS TO OPEN

Table 12-20

Internal Fire Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Fire Shutdown
Core Damage Frequency = 2.32E-08/year

Event Name	Probability	F-V	RAW	Description
C12-MOV-CC-F020A	4.00E-03	7.06E-03	2.76	MOTOR OPER. VALVE F020A FAILS TO OPEN
C12-MOV-CC-F020B	4.00E-03	6.37E-03	2.59	MOTOR OPER. VALVE F020B FAILS TO OPEN
C12-MOV-CF-OPEN	1.78E-04	3.40E-04	2.91	CCF MOV TO OPEN
C12-MOV-FC-F020A	3.13E-03	5.48E-03	2.75	FLOW CONTROL A FAILS WIDE OPEN
C12-MOV-FC-F020B	3.13E-03	4.98E-03	2.59	FLOW CONTROL B FAILS WIDE OPEN
C12-MP_-FS-C001BOIL	2.40E-03	3.76E-03	2.56	MOTOR-DRIVEN AUX. OIL PUMP FOR C001B FAILS TO START
C12-MPC-FS-C001B	2.40E-03	3.76E-03	2.56	MOTOR-DRIVEN PUMP C001B FAILS TO START
C12-OR_-PG-D007A	6.48E-04	9.66E-04	2.49	ORIFICE D007A FAILS TO REMAIN OPEN (PLUG)
C12-OR_-PG-D007B	6.48E-04	9.24E-04	2.43	ORIFICE D007B FAILS TO REMAIN OPEN (PLUG)
C12-SYS-TM-TRAINB	3.00E-03	4.70E-03	2.56	TRAIN B IN MAINTENANCE
C12-UV_-CC-F022	1.60E-03	5.40E-03	4.37	CHECK VALVE F022 FAILS TO OPEN
C12-XHE-FO-LEVEL2	3.22E-02	3.07E-04	1.01	MANUAL ACTUATION FAILURE
C12-XHE-MH-F003B	1.20E-02	2.04E-02	2.68	MISPOSITION OF VALVE F003B
C12-XHE-MH-F013A	4.80E-02	9.88E-02	2.96	MISPOSITION OF VALVE F013A
C12-XHE-MH-F013B	4.80E-02	8.65E-02	2.71	MISPOSITION OF VALVE F013B
C12-XHE-MH-F015A	4.80E-02	9.88E-02	2.96	MISPOSITION OF VALVE F015A
C12-XHE-MH-F015B	4.80E-02	8.65E-02	2.71	MISPOSITION OF VALVE F015B
C12-XHE-MH-F018A	1.20E-02	2.31E-02	2.9	MISPOSITION OF VALVE F018A
C12-XHE-MH-F018B	1.20E-02	2.04E-02	2.68	MISPOSITION OF VALVE F018B
C12-XHE-MH-F021A	1.20E-02	2.31E-02	2.9	MISPOSITION OF VALVE F021A
C12-XHE-MH-F021B	1.20E-02	2.04E-02	2.68	MISPOSITION OF VALVE F021B
C51-ACT-CF-APRMSTUCK	2.10E-07	3.95E-03	1.88E+04	CCF APRM DETECTORS STUCK AT POWER LEVEL

Table 12-20

Internal Fire Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Fire Shutdown
Core Damage Frequency = 2.32E-08/year

Event Name	Probability	F-V	RAW	Description
C62-DTM-CF-N1EALL	5.50E-05	1.83E-04	4.33	CCF OF DIGITAL TRIP MODULES NO 1E
C62-VLU-CF-DIDALL	3.12E-05	4.44E-04	15.24	CCF OF VOTER LOGIC UNITS
C72-DTM-FC-DPSDIV1	6.00E-04	8.93E-05	1.15	DTM OF DPS DIV. 1 FAILS TO TRIP
C72-DTM-FC-DPSDIV2	6.00E-04	8.93E-05	1.15	DTM OF DPV DIV. 2 FAILS TO TRIP
C72-DTM-FC-DPSDIV3	6.00E-04	8.39E-04	2.4	DTM OF DPS DIV. 3 FAILS TO TRIP
C72-DTM-FC-DPSDIV4	6.00E-04	8.39E-04	2.4	DTM OF DPS DIV. 4 FAILS TO TRIP
C72-VLU-CF-DPSALL	3.12E-06	4.38E-04	141.33	CCF OF VOTER LOGIC UNITS
C74-DTM-CF-ALL	1.20E-05	1.33E-02	1.11E+03	CCF 3/4 DTM OF SSLC DIV1/2/3/4
C74-DTM-FC-DIV1	6.00E-04	1.17E-02	20.48	DTM OF SSLC DIV. 1 FAILS TO TRIP
C74-DTM-FC-DIV2	6.00E-04	1.13E-02	19.81	DTM OF SSLC DIV. 2 FAILS TO TRIP
C74-DTM-FC-DIV3	6.00E-04	6.34E-02	106.6	DTM OF SSLC DIV. 3 FAILS TO TRIP
C74-DTM-FC-DIV4	6.00E-04	6.29E-02	105.72	DTM OF SSLC DIV. 4 FAILS TO TRIP
C74-VLU-CF-ALL	3.12E-06	3.46E-03	1.11E+03	CCF OF VOTER LOGIC UNITS
E50-MP_-TM-POOLB	1.00E-02	1.53E-03	1.15	
E50-OR_-CF-7PLUG	7.00E-08	2.45E-05	351.02	CCF OF 7 ORIFICES TO PLUG
E50-OR_-CF-PLUGALL	7.20E-08	2.52E-05	350.99	CCF OF ALL ORIFICES TO PLUG
E50-SQV-CC-F002A	3.00E-03	3.41E-04	1.11	SQUIB VALVE F002A FAILS TO OPERATE
E50-SQV-CC-F002D	3.00E-03	3.41E-04	1.11	SQUIB VALVE F002D FAILS TO OPERATE
E50-SQV-CC-F002E	3.00E-03	3.41E-04	1.11	SQUIB VALVE F002E FAILS TO OPERATE
E50-SQV-CC-F002H	3.00E-03	3.41E-04	1.11	SQUIB VALVE F002H FAILS TO OPERATE
E50-SQV-CF-GDCS7OPEN	1.50E-05	3.34E-02	2.22E+03	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
E50-SQV-CF-OPENALL	1.50E-05	3.34E-02	2.22E+03	CCF OF ALL SQUIB VALVES TO OPEN
E50-SQV-CO-F009A	3.50E-03	1.06E-03	1.3	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]

Table 12-20

Internal Fire Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Fire Shutdown
Core Damage Frequency = 2.32E-08/year

Event Name	Probability	F-V	RAW	Description
E50-SQV-CO-F009B	3.50E-03	8.19E-04	1.23	SQUIB DELUGE VALVE F009B SPUR. OPENING [#7]
E50-SQV-CO-F009C	3.50E-03	8.19E-04	1.23	SQUIB DELUGE VALVE F009C SPUR. OPENING [#7]
E50-SQV-CO-F009D	3.50E-03	8.06E-04	1.23	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
E50-SQV-CO-F009E	3.50E-03	1.06E-03	1.3	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
E50-SQV-CO-F009F	3.50E-03	8.19E-04	1.23	SQUIB DELUGE VALVE F009F SPUR. OPENING [#7]
E50-SQV-CO-F009G	3.50E-03	8.19E-04	1.23	SQUIB DELUGE VALVE F009G SPUR. OPENING [#7]
E50-SQV-CO-F009H	3.50E-03	8.06E-04	1.23	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
E50-SQV-CO-F009I	3.50E-03	1.06E-03	1.3	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
E50-SQV-CO-F009J	3.50E-03	8.19E-04	1.23	SQUIB DELUGE VALVE F009J SPUR. OPENING [#7]
E50-SQV-CO-F009K	3.50E-03	8.19E-04	1.23	SQUIB DELUGE VALVE F009K SPUR. OPENING [#7]
E50-SQV-CO-F009L	3.50E-03	8.06E-04	1.23	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
E50-UV_-OC-F003A	1.75E-03	6.42E-05	1.04	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
E50-UV_-OC-F003D	1.75E-03	6.42E-05	1.04	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
E50-UV_-OC-F003E	1.75E-03	6.42E-05	1.04	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
E50-UV_-OC-F003H	1.75E-03	6.42E-05	1.04	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
E50-XHE-FO-GDCS	1.61E-03	4.20E-04	1.26	OPERATOR FAILS TO ACTUATE GDCS
EB-DAMPER	7.40E-03	1.67E-02	3.24	FIRE BARRIER IN ELECTRICAL BUILDING FAILS
FIRE-CONTROL-ROOM-M5	3.80E-04	1.06E-05	1.03	
FIRE-CONTROL-ROOM-M6	9.43E-05	1.96E-03	21.8	
FIRE-NON-DIVISIONAL-REDA-M5	2.20E-03	3.39E-05	1.02	
FIRE-NON-DIVISIONAL-REDA-M6	5.45E-04	8.25E-03	16.12	
FIRE-NON-DIVISIONAL-REDB-M5	2.20E-03	3.39E-05	1.02	
FIRE-NON-DIVISIONAL-REDB-M6	5.54E-04	8.38E-03	16.12	

Table 12-20

Internal Fire Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Fire Shutdown
Core Damage Frequency = 2.32E-08/year

Event Name	Probability	F-V	RAW	Description
FIRE-REACT-BUILD-DIVIII-M5	1.12E-03	1.56E-01	139.77	
FIRE-REACT-BUILD-DIVIII-M6	2.80E-04	2.59E-03	10.23	
FIRE-REACT-BUILD-DIVII-M5	1.12E-03	3.32E-01	295.87	
FIRE-REACT-BUILD-DIVII-M6	2.80E-04	1.95E-03	7.96	
FIRE-REACT-BUILD-DIVI-M5	1.12E-03	3.11E-01	276.79	
FIRE-REACT-BUILD-DIVI-M6	2.80E-04	1.95E-03	7.96	
FIRE-REACT-BUILD-DIVIV-M5	1.12E-03	1.73E-01	154.82	
FIRE-REACT-BUILD-DIVIV-M6	2.80E-04	2.59E-03	10.23	
G21-ACV-CC-F332	2.00E-03	6.93E-03	4.46	AOV F332 FAILS TO OPERATE TO NOT DEENERG.POS.
G21-UV_-CC-F333	1.60E-03	5.29E-03	4.3	CHECK VALVE F333 FAILS TO OPEN
G21-UV_-OC-F331	2.16E-04	2.49E-04	2.15	CHECK VALVE F331 FAILS TO CLOSE
G21-UV_-TM-F332/333	8.00E-04	2.29E-03	3.86	MAINTENANCE FOR CV F332 OR CV F333
G21-XHE-MH-F334	4.80E-02	2.11E-01	5.18	MISPOSITION OF VALVE F334
H23-EMS-CF-ALL	1.80E-06	1.97E-03	1.10E+03	CCF OF ESSENTIAL MULTIPLEXING SYSTEM DIV 1/2/3/4
H23-EMS-CF-DPSALL	1.80E-06	2.12E-04	118.75	CCF OF ESSENTIAL MULTIPLEXING SYSTEM DIV 1/2/3/4
H23-EMS-FC-DIV1	6.00E-04	1.32E-02	22.94	ESSENTIAL MULTIPLEXING SYSTEM DIV 1 FAILS TO FUNCTION
H23-EMS-FC-DIV2	6.00E-04	1.28E-02	22.26	ESSENTIAL MULTIPLEXING SYSTEM DIV 2 FAILS TO FUNCTION
H23-EMS-FC-DIV3	6.00E-04	7.02E-02	117.99	ESSENTIAL MULTIPLEXING SYSTEM DIV 3 FAILS TO FUNCTION
H23-EMS-FC-DIV4	6.00E-04	6.29E-02	105.72	ESSENTIAL MULTIPLEXING SYSTEM DIV 4 FAILS TO FUNCTION
H23-EMS-FC-DIVCN1E	6.00E-04	4.97E-04	1.83	ESSENTIAL MULTIPLEXING SYSTEM DIV C (N1E) FAILS TO FUNCTION
H23-EMS-FC-DPSDIV1	6.00E-04	8.93E-05	1.15	ESSENTIAL MULTIPLEXING SYSTEM DPS DIV 1 FAILS TO FUNCTION
H23-EMS-FC-DPSDIV2	6.00E-04	8.93E-05	1.15	ESSENTIAL MULTIPLEXING SYSTEM DPS DIV 2 FAILS TO FUNCTION
H23-EMS-FC-DPSDIV3	6.00E-04	8.72E-04	2.45	ESSENTIAL MULTIPLEXING SYSTEM DPS DIV 3 FAILS TO FUNCTION

Table 12-20

Internal Fire Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Fire Shutdown
Core Damage Frequency = 2.32E-08/year

Event Name	Probability	F-V	RAW	Description
H23-EMS-FC-DPSDIV4	6.00E-04	8.72E-04	2.45	ESSENTIAL MULTIPLEXING SYSTEM DPS DIV 4 FAILS TO FUNCTION
H23-RMU-CF-ALL	9.00E-07	8.96E-04	996.18	CCF OF REMOTE MULTIPLEXING UNITS TO OPERATE
H23-RMU-CF-DPSALL	9.00E-07	8.16E-05	91.7	CCF OF REMOTE MULTIPLEXING UNITS TO OPERATE
H23-RMU-FC-DIV1	3.00E-04	5.42E-03	19.06	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
H23-RMU-FC-DIV2	3.00E-04	5.27E-03	18.58	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
H23-RMU-FC-DIV3	3.00E-04	3.14E-02	105.73	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
H23-RMU-FC-DIV4	3.00E-04	3.12E-02	104.92	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
H23-RMU-FC-DPSDIV3	3.00E-04	4.11E-04	2.37	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
H23-RMU-FC-DPSDIV4	3.00E-04	4.11E-04	2.37	REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
H23-RMU-FC-ESF13	3.00E-04	3.48E-03	12.59	1ST DIV III ESF REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
H23-RMU-FC-ESF14	3.00E-04	2.23E-04	1.74	1ST DIV IV ESF REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
H23-RMU-FC-ESF1CN1E	3.00E-04	1.04E-04	1.35	1ST DIV C (N1E) ESF REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
H23-RMU-FC-ESF23	3.00E-04	3.48E-03	12.59	2ND DIVIII ESF REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
H23-RMU-FC-ESF24	3.00E-04	2.23E-04	1.74	2ND DIVIII ESF REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
H23-RMU-FC-ESF2CN1E	3.00E-04	1.04E-04	1.35	2ND DIV C (N1E) ESF REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
N21-ACV-CC-F023	1.58E-02	8.68E-05	1.01	AIR OPERATED VALVE N21-F023 FAILS TO OPEN
N21-ACV-CC-F026	1.58E-02	8.68E-05	1.01	AIR OPERATED VALVE N21-F026 FAILS TO OPEN
N21-ACV-OC-F018	1.31E-03	1.27E-03	1.97	AIR OPERATED VALVE N21-F018 FAILS TO REMAIN OPEN
N21-MPF-FS-C001A	4.70E-01	1.15E-04	1	
N21-MPF-FS-C001B	4.70E-01	1.15E-04	1	
N21-MPF-FS-C001C	4.70E-01	1.15E-04	1	
N21-MPF-FS-C001D	2.00E-03	5.76E-05	1.03	MOTOR-DRIVEN FEEDWATER PUMP D FAILS TO RESTART
N21-MPF-TM-C001D	2.00E-03	5.76E-05	1.03	FEEDWATER PUMP BRANCH D IN MAINTENANCE

Table 12-20

Internal Fire Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Fire Shutdown
Core Damage Frequency = 2.32E-08/year

Event Name	Probability	F-V	RAW	Description
N21-XHE-FO-CONDPUMPD	2.69E-01	5.30E-01	2.44	OPERATOR FAILS TO START CONDENSATE PUMP D
N21-XHE-FO-FWPUMPD	2.69E-01	4.38E-01	2.19	OPERATOR FAILS TO START FEEDWATER PUMP D
P22-ACV-FT-BYPASS	2.00E-03	2.21E-03	2.1	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
P30-UV_-CC-CV01T	2.00E-04	1.79E-04	1.89	CHECK VALVE CV01T FAILS TO OPEN
P30-XHE-MH-F015	4.80E-02	9.24E-02	2.83	MISPOSITION OF VALVE F01T
P51-ACV-CC-F008A	2.00E-03	1.17E-05	1.01	AIR OPERATED VALVE F008A FAILS TO OP. TO DEENERG. POSIT.
P51-ACV-CC-F010C	2.00E-03	1.17E-05	1.01	AOV F010C FAILS TO OPERATE TO NOT DEENERG. POSITION
P51-CMP-CR-RUN	1.49E-04	4.13E-05	1.28	CCF OF P51 COMPRESSORS TO RUN
P54-CPV-CF-CONTROL	1.57E-04	1.81E-04	2.15	CCF OF PRESSURE CONTROL VALVES FAILURES
P54-PS_-CO-PS001	1.19E-04	1.10E-04	1.92	PRESSURE SWITCH PS001 (PT001) OPERATES SPURIOUSLY
R10-CBU-FC-PRE500KV	7.20E-05	1.36E-04	2.89	500KV TRANSMISSION LINE FAILS
R13-BAC-LP-R1311	4.80E-06	4.31E-04	90.71	BUS R13-31 FAILS DURING OPERATION
R13-BAC-LP-R13111	4.80E-06	3.86E-04	81.47	BUS R13-11-1 FAILS DURING OPERATION
R13-BAC-LP-R1321	4.80E-06	4.31E-04	90.71	BUS R13-21 FAILS DURING OPERATION
R13-BAC-LP-R13211	4.80E-06	3.86E-04	81.47	BUS R13-21-1 FAILS DURING OPERATION
R13-BAC-LP-R1331	4.80E-06	4.31E-04	90.71	BUS R13-31 FAILS DURING OPERATION
R13-BAC-LP-R13311	4.80E-06	4.31E-04	90.71	BUS R13-31-1 FAILS DURING OPERATION
R13-BAC-LP-R1341	4.80E-06	4.31E-04	90.71	BUS R13-41 FAILS DURING OPERATION
R13-BAC-LP-R13411	4.80E-06	4.31E-04	90.71	BUS R13-41-1 FAILS DURING OPERATION
R13-INV-FC-R1311	4.80E-04	2.34E-05	1.05	INVERTER TO R13-11 FAILS
R13-INV-FC-R1321	4.80E-04	2.34E-05	1.05	INVERTER TO R13-21 FAILS
R13-INV-FC-R1331	4.80E-04	2.34E-05	1.05	INVERTER TO R13-31 FAILS

Table 12-20

Internal Fire Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Fire Shutdown
Core Damage Frequency = 2.32E-08/year

Event Name	Probability	F-V	RAW	Description
R13-INV-FC-R1341	4.80E-04	2.34E-05	1.05	INVERTER TO R13-41 FAILS
R13-LCB-CO-FR13111	1.44E-05	1.31E-03	92.22	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-FR13112	1.44E-05	8.70E-05	7.03	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-FR13211	1.44E-05	1.23E-03	86.19	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-FR13311	1.44E-05	1.45E-03	101.46	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-FR13312	1.44E-05	8.70E-05	7.03	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-FR13411	1.44E-05	1.36E-03	95.43	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-R13111	1.44E-05	1.31E-03	92.22	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-R13112	1.44E-05	8.70E-05	7.03	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-R13211	1.44E-05	1.23E-03	86.19	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-R13311	1.44E-05	1.45E-03	101.46	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-R13312	1.44E-05	8.70E-05	7.03	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-R13411	1.44E-05	1.36E-03	95.43	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-TOR1311	1.44E-05	1.45E-03	101.46	CIRCUIT BREAKER TO R13-11 OPENS SPURIOUSLY
R13-LCB-CO-TOR1321	1.44E-05	1.36E-03	95.43	CIRCUIT BREAKER TO R13-21 OPENS SPURIOUSLY
R13-LCB-CO-TOR1331	1.44E-05	1.45E-03	101.46	CIRCUIT BREAKER TO R13-31 OPENS SPURIOUSLY
R13-LCB-CO-TOR1341	1.44E-05	1.36E-03	95.43	CIRCUIT BREAKER TO R13-41 OPENS SPURIOUSLY
R13-SEL-FT-A31R1311	7.88E-04	2.34E-05	1.03	AUTOMATIC SELECTOR FAILS TO TRANSFER
R13-SEL-FT-B31R1321	7.88E-04	2.34E-05	1.03	AUTOMATIC SELECTOR FAILS TO TRANSFER
R13-SEL-FT-C31R1331	7.88E-04	2.34E-05	1.03	AUTOMATIC SELECTOR FAILS TO TRANSFER
R13-SEL-FT-D31R1341	7.88E-04	2.34E-05	1.03	AUTOMATIC SELECTOR FAILS TO TRANSFER
R13-XFL-LP-R13111	1.92E-05	1.76E-03	92.68	TRANSFORMER FAILS DURING OPERATION
R13-XFL-LP-R13112	1.92E-05	1.16E-04	7.03	TRANSFORMER FAILS DURING OPERATION

Table 12-20

Internal Fire Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Fire Shutdown
Core Damage Frequency = 2.32E-08/year

Event Name	Probability	F-V	RAW	Description
R13-XFL-LP-R13211	1.92E-05	1.64E-03	86.65	TRANSFORMER FAILS DURING OPERATION
R13-XFL-LP-R13311	1.92E-05	1.94E-03	101.92	TRANSFORMER FAILS DURING OPERATION
R13-XFL-LP-R13312	1.92E-05	1.16E-04	7.03	TRANSFORMER FAILS DURING OPERATION
R13-XFL-LP-R13411	1.92E-05	1.82E-03	95.89	TRANSFORMER FAILS DURING OPERATION
R16-BT_-CF-ALLBATT	9.00E-06	3.35E-03	373.65	BATTERY CCF #2
RB-DAMPER	7.40E-03	8.29E-01	112.15	FIRE BARRIER IN REACTOR BUILDING FAILS
U43-SYS-FF-LPCI	2.40E-02	8.95E-02	4.64	U43 HARDWARE FAILURES
U43-SYS-FF-YARD	2.00E-03	2.52E-05	1.01	HARDWARE FAILURES IN YARD AREA
U43-XHE-FO-LPCI	1.61E-03	4.87E-03	4.02	OPERATOR FAILS TO ACTUATE U43 IN LPCI MODE
U43-XHE-FO-LPCIADS	1.61E-02	8.60E-04	1.05	OPERATOR FAILS TO ACTUATE U43 IN LPCI MODE AFTER ADS
U43-XHE-FO-YARD	1.77E-03	2.23E-05	1.01	OPERATOR FAILS TO MAKE UP FROM YARD AREA
XXX-XHE-FO-DEPRESS	1.61E-01	6.34E-01	4.3	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
XXX-XHE-FO-ICPCCS	1.61E-03	2.03E-05	1.01	OPERATOR FAILS TO RECOGNIZE NEED OF MAKE UP TO IC/PCCS POOLS
XXX-XHE-FO-LPMAKEUP	1.61E-01	2.34E-02	1.12	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
XXX-XHE-FO-RPVLDE	1.61E-02	9.51E-03	1.58	OP. FAILS TO RECOG. OR CHECK THE RPV DECREASING LEVEL

13 PROBABILISTIC FLOOD ANALYSIS

Contents

13.1 INTRODUCTION 13.1-1
13.2 METHODOLOGY 13.2-1
13.3 FLOOD SOURCES 13.3-1
13.4 FLOODING FREQUENCIES 13.4-1
13.4.1 At-Power Flooding Frequencies 13.4-1
13.4.2 Shutdown Flooding Frequencies 13.4-1
13.5 ANALYSIS OF FLOODING SCENARIOS 13.5-1
13.5.1 Reactor Building Flooding Scenarios 13.5-1
13.5.1.1 Reactor Building At-Power Flooding Scenarios 13.5-2
13.5.2 Control Building Flooding Scenarios 13.5-5
13.5.3 Fuel Building Flooding Scenarios 13.5-5
13.5.3.1 Fuel Building At-Power Flooding Scenarios 13.5-6
13.5.4 Turbine Building Flooding Scenarios 13.5-6
13.5.4.1 Turbine Building At-Power Flooding Scenarios 13.5-8
13.5.4.2 Turbine Building Shutdown Flooding Scenarios 13.5-9
13.5.5 Electrical Building Flooding Scenarios 13.5-9
13.5.5.1 Electrical Building At-Power Flooding Scenarios 13.5-10
13.5.5.2 Electrical Building Shutdown Flooding Scenarios 13.5-10
13.5.6 Service Water Building Flooding Scenarios 13.5-10
13.5.7 Tunnels and Galleries Flooding Scenarios 13.5-11
13.6 RESULTS 13.6-1
13.7 INSIGHTS GAINED FROM THE ANALYSIS 13.7-1
13.8 CONCLUSIONS 13.8-1
13.9 REFERENCES 13.9-1

List of Tables

Table 13-1 At-Power Flooding Frequencies 13.9-2
Table 13-2 Flooding Events during Shutdown in BWR Plants 13.9-3
Table 13-3 Shutdown Flooding Frequencies 13.9-6
Table 13-4 Failure Data for ESBWR Probabilistic Flood Analysis[1] 13.9-7
Table 13-5 CDF Contribution of At-Power Flooding Scenarios 13.9-8
Table 13-6 CDF Contribution of Shutdown Flooding Scenarios 13.9-10
Table 13-7 Internal Flooding Full-Power Cutset Report 13.9-12
Table 13-8 Internal Flooding Shutdown Cutset Report 13.9-42
Table 13-9 Internal Flooding Full-Power Importance Measure Report 13.9-79
Table 13-10 Internal Flooding Shutdown Importance Measure Report 13.9-85

List of Figures

Figure 13-1. RWCU/SDC Pipe Break Outside Containment Event Tree 13.9-90
Figure 13-2. Turbine Building Flood Progression Event Tree 13.9-91

13 PROBABILISTIC FLOOD ANALYSIS

This section documents the internal flooding analysis of the ESBWR PRA.

13.1 INTRODUCTION

The objective of the ESBWR internal probabilistic flood analysis is to identify and provide a quantitative assessment of the core damage frequency due to internal flood events. It models potential flood vulnerabilities, in conjunction with random failures modeled as part of the internal events PRA. Through this process, flood vulnerabilities that could jeopardize core integrity are identified.

The floods may be caused by large leaks due to rupture or cracking of pipes, piping components, or water containers such as storage tanks. Other possible flooding causes are the operation of fire protection equipment and human errors during maintenance. The spraying or dripping of water from pipe breaks or fire protection equipment onto equipment is also considered in the analysis assuming the loss of all the components that can be affected by the water and are located in the sprayed zone.

The scope of the analysis includes both at-power and shutdown flood-induced accident scenarios.

13.2 METHODOLOGY

The internal probabilistic flood analysis is performed taking into account that piping layout specifics are not known. Therefore, a simplified probabilistic flooding approach is employed using general design assumptions to identify potential flooding vulnerabilities.

A flooding event may result in an initiating event and may also disable mitigating systems. As such, buildings containing mitigating equipment credited in the PRA accident sequence analysis, or equipment whose loss could cause an initiating event, are of interest to the flooding analysis. Therefore, this analysis considers flood scenarios in the following buildings:

- Reactor Building
- Control Building
- Fuel Building
- Turbine Building
- Electrical Building
- Service Water Building
- Tunnels and Galleries connected with the buildings indicated above.

Floods in the remaining ESBWR buildings are not considered in the study because the flood water cannot propagate to any of the above buildings.

The frequencies of flood scenarios in these buildings are based on generic information.

The analysis considers aspects that affect flood progression in each building. Depending on the building and the origin of the flood, the following aspects are considered:

- Automatic flood detection systems
- Automatic systems to terminate flooding
- Watertight doors to prevent the progression of flooding
- Other design or construction characteristics that contribute to minimize the consequences of flooding

The systems inside each building that could represent a flood source are considered. From these systems, the building flood source that presents the most critical characteristics for flood progression and which has the capacity to damage mitigation equipment is chosen.

The following general assumptions are used in the analysis:

(1) Flooding resulting from component ruptures, maintenance actions and spurious system actuations is considered in this analysis.

(2) For each storage tank rupture, it is assumed that the entire tank inventory is drained.

(3) For this analysis, non-qualified submerging equipment (motors or solenoids for valves, control cabinets and circuitry) is assumed to result in equipment failure. Also, water intrusion from non-qualified equipment being sprayed or splashed results in equipment failure unless it can be otherwise justified.

(4) The expected effect of spraying or flooding electrical equipment such as motor control centers, electrical cabinets, and terminal boxes, is a short to ground, removing power from the loads served by the component This analysis addresses all such failures of electrical equipment as ground shorts.

(5) Water-induced failure of air-operated valves (AOVs) causes the valve to move to the deenergized position.

(6) Motor-operated valves (MOVs) require the application of current to the motor to change the valve position. Without power, the valve will remain in its current position. Flooding and/or spraying of a motor-operated valve will therefore cause the valve to fail as is.

(7) Passive components, such as check valves, pipes, and tanks are not considered to be vulnerable to flooding effects.

(8) Flooding has no effect on test and maintenance unavailability. Additional testing and maintenance may be required after a flood. Prior to and during a flood, the unavailability of equipment from test and maintenance is unaffected by flooding.

(9) Flooding has no effect on common cause failures from a design point of view. The flooding itself may be considered a common cause failure in that it can result in the simultaneous failure of several components. In addition, flooding may have an effect on future common cause failures; however, all equipment affected by a flood is assumed tested, repaired and/or replaced as necessary. Therefore, the effects of flooding on future common cause failures are not evaluated.

(10) Water in a stairwell or propagating into a stairwell preferentially continues to travel down the stairwell as opposed to propagating under a door leading outside the stairwell.

(11) The mission time of the flooding risk analysis is 24 hours.

(12) Concurrent spray and flooding events from different sources are not considered in the flooding analysis.

(13) Components that are environmentally qualified are considered to be invulnerable to the effects of spraying. Some components are qualified for safe operation in submersion environments.

(14) Piping is assumed to develop a double-ended guillotine break. Expansion joints and flex connections are assumed to fail catastrophically.

(15) It is assumed that the interaction of cables with the water can only take place at their unconnected ends and, therefore, their insulation is not lost at any other point of their routing.

(16) Flooding effects on termination and junction boxes are considered; however, flooding effects are not considered to affect power or the instrument cables between terminations or junction boxes.

(17) The internal flooding analysis uses the same systemic success criteria as used in the internal events PRA.

(18) Electrical connections in the termination boxes on the containment wall are adequately protected to prevent water spray-induced failure.

(19) The solenoid valve associated with an air-operated valve is located in the vicinity of the air-operated valve.

(20) Fire doors are not watertight.

(21) No credit is taken for operation of sump pumps to mitigate the consequences of flooding.

(22) Walls are assumed to be capable of withstanding the expected maximum flood loading. Therefore, walls are assumed to remain intact throughout a flooding event.

(23) It is assumed that electrical circuit fault protection has been designed to provide protection for plant electric circuits via protective relaying, circuit breakers, and fuses. Therefore, loss of a component due to flooding will not result in the loss of the bus that supplies power to the affected component.

(24) Safety-related Class 1E electrical equipment will be qualified for environmental conditions in which they are required to function, including water spray. Containment isolation valves located inside containment are not evaluated for spray-induced failure with respect to containment isolation because they will be qualified for the environmental conditions in which they are required to function.

(25) For floor drains, appropriate precautions such as check valves, back flow preventers, and siphon breaks are assumed to prevent back flow and any potential flooding.

(26) In the Control Building it is assumed that the only wet pipe sections of the FPS are located in the stairwells. Said sections are those running between the building walls and the hose stations and their length never exceeds 2 feet for any hose station.

(27) It is assumed that the doors that connect the Control and Reactor Buildings with the Electrical Building galleries are watertight, for flooding of the galleries up to the ground level elevation. It is also assumed that the watertight doors are normally closed. Opening of the doors would generate an alarm in the Control Room, and procedures direct their immediate closure upon receipt of an alarm.

(28) It is assumed that the operation of the components located in Containment would not be affected in the event of a LOCA or if the Drywell was flooded to a level equivalent to the level of the suppression pool.

(29) It is assumed that the opening of the hatches, which communicate the Containment with others buildings, would be carried out in Mode 6-Flooded (Reactor Well flooded). The time interval during which the Drywell atmosphere and the atmosphere of other buildings are communicated through hatches is sufficiently short such that Containment flood scenarios involving an open Containment are non-significant.

(30) The feedwater and condensate systems are assumed unavailable in shutdown and during Modes 5 and 6.

(31) It is assumed that, during shutdown, manual and automatic depressurization (ADS) of the vessel are available while the vessel head is in place.

(32) It is assumed that none of the FPS pipes located in the Electrical or Turbine Buildings has the capacity to affect the operation of the RCCWS.

(33) It is assumed that the actuation of the GDCS due to an RPV Level 1 water level signal is available during the entire shutdown period.

(34) It is assumed that 480V AC power centers A1, A2, B1, B2 and C are located at El. 22000 of the Electrical Building.

(35) It is assumed that the FPS pipes routed inside the Electrical Building are designed such that the water released in the event of an FPS pipe break above elevation 13000 does not affect simultaneously the 13.8 kV buses A1, B1, C1 and D1.

(36) It is assumed that the volume of water available to the FPS from the primary source and the secondary supply is less than 5400 m3.

(37) It is assumed that the cable tunnels between the Reactor and Control Buildings are located at an elevation above -5000.

(38) Any flooding event in a given building is assumed to be the worst case flood possible (i.e., a double ended shear of the largest pipe). This is a conservative assumption because, in general, most floods result in leaks, not double ended breaks.

(39) In the Turbine building rooms located above elevation 4650 where components with the potential to result in complete loss of RCCWS and complete loss of Air systems are located, no pipes other than those related to the operation of these systems are routed.

(40) Dry pipe systems (such as a pre-action FPS system) are not modeled as flood sources due to the low frequency of a failure of the dry pipe coincident with spurious opening of the actuation valve.

The core damage frequency for each flood damage state is obtained via the quantification of the internal event PRA models. The internal event initiator and associated accident sequence structure that best represents the flood progression is used to model the flood. The damage caused by the flood is input into the accident sequence quantification by use of the selected initiator and/or with modifications to the accident sequence nodal fault trees, as appropriate.

This analysis is a bounding approach that begins by assigning a flood initiation frequency to every flood scenario in a building that is equal to the entire flood initiation frequency for that building. Following the accident sequence quantification, the flood scenario with the highest CDF in each building is used to represent the flood CDF for that building. The total flood risk is the sum of the CDFs of the bounding flood scenario for each building.

The flooding scenarios considered in each building are discussed in more detail in Section 13.5 below.

13.3 FLOOD SOURCES

The plant systems through which water flows and which have components located in the above-mentioned buildings (excluding Containment) are the following:

- Control Rod Drive System (CRDS)
- Standby Liquid Control System (SLCS)
- Fuel and Auxiliary Pools Cooling System (FAPCS)
- Reactor Water Cleanup and Shutdown Cooling System (RWCU/SDCS)
- Condensate and Feedwater System (C&FS)
- Make Up Water System (MWS)
- Reactor Component Cooling Water (RCCWS)
- Turbine Component Cooling Water (TCCWS)
- Chiller Water System (CWS)
- Process Sampling System (PSS)
- Condensate Storage and Transfer System (CS&TS)
- Plant Service Water System (PSWS)
- Hot Water System (HWS)
- Potable Water and Sanitary Waste System (PWSWS)
- Fire Protection System (FPS)
- Circulating Water System (CIRC)

Components inside Containment considered in the flooding analysis as potential flood sources are those in which a break would cause a LOCA. LOCA scenarios in Containment are already modeled in the internal events PRA analysis and as such are not analyzed in the internal flooding analysis. Therefore, there are no flood scenarios in Containment that are analyzed further in the internal flooding analysis.

13.4 FLOODING FREQUENCIES

Section 13.4.1 documents the flood initiating event frequency calculations for at-power operation.

Section 13.4.2 documents the flood initiating event frequency calculations for shutdown conditions.

13.4.1 At-Power Flooding Frequencies

The ESBWR PRA at power flooding initiating frequencies are based on generic information contained in NUREG/CR-5750 (Ref. 13-1) and NUREG/CR-2300 (Ref. 13-2). Refer to Table 13-1 for the at-power flooding frequencies used in this analysis.

In the Turbine building flood analysis, it is assumed that the worst flood results from a break in the circulating water system. The frequency of flooding due to circulating water system failures is obtained from "medium-large flood frequency derived in Section 11 of NUREG/CR-2300 (Reference 13-2). The NUREG/CR-2300 "medium-large" flood is defined as one resulting in the release of several thousands of gallons of water. Therefore, it is judged that the use of the NUREG/CR-2300 "medium-large" flood frequency to represent complete breakage of a CWS expansion joint or pipe is conservative.

13.4.2 Shutdown Flooding Frequencies

The flooding frequency per calendar year during shutdown in BWR plants is obtained by dividing the number of floods that have occurred during shutdown by the total number of years of US BWR industry commercial operation.

The number of floods that have occurred during shutdown in BWR plants is obtained from the information contained in the Nuclear Power Experience database (Ref.13-3). Based on this information, flooding events that have occurred during shutdown at US BWR plants up through August 1996 have been identified. These events are summarized in Table 13-2.

The flooding events to be used in the determination of the flooding frequency during shutdown only include those that occurred during commercial operation of the plant. Excluding initiating event experience data covering non-commercial operation phases of plant life is appropriate and a standard PRA practice. As such, some of the flood events summarized in Table 13-2 are excluded from the initiating event frequency analysis because they occurred outside the period of commercial operation of the plants (see Note 1 to Table 13-2).

Consequently, the floods considered for calculating the flooding frequencies during shutdown are the remaining 21.

As can be seen from Table 13-2, twenty-one (21) flood events are maintained for calculation of the shutdown flood initiating event frequencies. The distribution of these flood events, as a function of the building in which they started, is as follows:

- Reactor building 8
- Auxiliary building 6
- Turbine building 4

- Transformer area 1
- Other buildings 2

The number of operational years for US BWR plants up through August 1996 is 668.58 years (Ref.13-4).

According to Appendix C, page C-10; of NUREG/CR-5496 (Ref. 13-5), the calendar, critical and outage years for the 1980-1996 period (USA NPPs) are 1644.345 (calendar years), 1188.836 (critical years) and 455.509 (outage years). Therefore, the generic probability of being in outage in a calendar year is estimated here as:

$$\frac{455.509}{1644.345} = 0.28$$

Therefore, the number of US BWR shutdown years up through 1996 is estimated as:

668.58 years x 0.28 = 187.20 shutdown years

The flooding frequencies per shutdown year for the different buildings are:

Reactor building $\frac{8}{187.20}$ = 4.27E-02 per shutdown year

Auxiliary building $\frac{6}{187.20}$ = 3.21E-02 per shutdown year

Turbine building $\frac{4}{187.20}$ = 2.14E-02 per shutdown year

Transformer area $\frac{1}{187.20}$ = 5.34E-03 per shutdown year

Other buildings $\frac{2}{187.20}$ = 1.07E-02 per shutdown year

Only one refueling outage every two years is expected in the ESBW design and, according to Section 16.2-1, the expected refueling outage duration is 546 hours. Therefore, the portion of the calendar year in which the ESBWR power plant is in a refueling outage is calculated as:

$$\frac{546}{2 \times 8760} = 0.0312$$

The generic flooding frequencies per calendar year for the different buildings in the ESBWR are:

- Reactor building 4.27E-02 x 0.0312 = 1.33E-03 per calendar year
- Auxiliary building 3.21E-02 x 0.0312 = 1.00E-03 per calendar year

- Turbine building 2.14E-02 x 0.0312 = 6.68E-04 per calendar year
- Transformer area 5.34E-03 x 0.0312 = 1.67E-04 per calendar year
- Other buildings 1.07E-02 x 0.0312 = 3.34E-04 per calendar year

From Figure 16.2-1, the period of time for each operation mode during the outage can be obtained:

- MODE 5 238 hours
- MODE 6 (Unflooded) 59 hours
- MODE 6 (Flooded) 241 hours

The generic shutdown flooding frequencies per calendar year and per operational mode for the different buildings in the ESBWR are calculated as follows:

Reactor Building

MODE 5 $1.33E\text{-}03 \times \frac{238}{546} = 5.80E\text{-}04$ per calendar year

MODE 6 (Unflooded) $1.33E\text{-}03 \times \frac{59}{546} = 1.44E\text{-}04$ per calendar year

MODE 6 (Flooded) $1.33E\text{-}03 \times \frac{241}{546} = 5.87E\text{-}04$ per calendar year

Auxiliary Building

MODE 5 $1.00E\text{-}03 \times \frac{238}{546} = 4.36E\text{-}04$ per calendar year

MODE 6 (Unflooded) $1.00E\text{-}03 \times \frac{59}{546} = 1.08E\text{-}04$ per calendar year

MODE 6 (Flooded) $1.00E\text{-}03 \times \frac{241}{546} = 4.41E\text{-}04$ per calendar year

Turbine Building

MODE 5 $6.68E\text{-}04 \times \frac{238}{546} = 2.91E\text{-}04$ per calendar year

MODE 6 (Unflooded) $6.68E\text{-}04 \times \frac{59}{546} = 7.22E\text{-}05$ per calendar year

MODE 6 (Flooded) $6.68E\text{-}04 \times \frac{241}{546} = 2.95E\text{-}04$ per calendar year

Transformer Area

MODE 5 $1.67E\text{-}04 \times \frac{238}{546} = 7.28E\text{-}05$ per calendar year

MODE 6 (Unflooded) $1.67E\text{-}04 \times \frac{59}{546} = 1.80E\text{-}05$ per calendar year

MODE 6 (Flooded) $1.67E\text{-}04 \times \frac{241}{546} = 7.37E\text{-}05$ per calendar year

Other Buildings

MODE 5 $3.34E\text{-}04 \times \frac{238}{546} = 1.46E\text{-}04$ per calendar year

MODE 6 (Unflooded) $3.34E\text{-}04 \times \frac{59}{546} = 3.61E\text{-}05$ per calendar year

MODE 6 (Flooded) $3.34E\text{-}04 \times \frac{241}{546} = 1.47E\text{-}04$ per calendar year

Table 13-3 summarizes the shutdown flood initiating event frequencies used in this analysis.

13.5 ANALYSIS OF FLOODING SCENARIOS

Flooding initiating events are the starting point for flood-induced accident sequence analysis. The magnitude of the flood and the associated plant damage impact from the flood effects determine the appropriate accident sequence analysis. The accident sequence analysis is also determined by the whether the plant is at-power or in an outage.

For postulated flood events occurring at-power, the damage potential of the flood is assessed to determine the appropriate plant initiating event category and associated accident sequence logic to be used to model the accident progression. Refer to Section 2.0 for at-power initiating event categories. The calculated flood initiator frequency and associated equipment impacts are then propagated through the appropriate Level 1 internal events accident sequence logic determined to apply to the flood scenario.

In the case of postulated flood events that occur during shutdown, the accident sequence modeling for the flood considers the flood impacts on the following two critical safety functions during shutdown:

- Decay Heat Removal (DHR)
- Reactor Coolant System Inventory Control

The decay heat removal function during all shutdown modes of operation is provided by the Reactor Water Cleanup/Shutdown Cooling System (RWCU/SDCS) operating in shutdown cooling mode. If the reactor well is flooded (Mode 6-Flooded), the risk associated with loss of decay heat removal is not significant given the very long time it takes to reach coolant boiling. For the other shutdown modes (Modes 5 and 6-Unflooded), one RWCU/SDCS train is sufficient to remove decay heat. Both RWCU/SDCS trains are running during these conditions; as such, failure of one train of RWCU/SDCS does not cause a shutdown.

The reactor coolant system inventory control function is defined as maintenance of the RCS inventory at a level sufficient to sustain decay heat removal. LOCA and RPV draindown events can potentially challenge this critical safety function. They can occur as a result of any of the following:

- Random pipe breaks within the ROCS (including breaks related to maintenance or refueling operations).
- Misalignment of systems connected to the RPV.
- Leakage during FMCRD replacement.

The flooding scenarios analyzed for each building are discussed below.

13.5.1 Reactor Building Flooding Scenarios

All the ESBWR safety systems, the Isolation Condenser, Reactor Depressurization, Gravity Driven Cooling, and Passive Containment Cooling, as well as the DC and Uninterruptible AC distribution system, are contained in the Reactor Building.

The Reactor Building is divided into two major types of areas for this analysis:

- Containment

- Outside Containment

The Containment is isolated from the rest of the Reactor Building during power operation. The lower drywell hatches are only opened, allowing intercommunication between the two areas, during shutdown activities (see Section 16.3.4.4).

Reactor Building areas outside Containment are differentiated as follows for this analysis:

- Controlled access area
- Non-controlled access area

Potential flood sources in the Reactor Building areas outside Containment are due to component failures in the following systems:

- Control Rod Drive System (CRDS)
- Standby Liquid Control System (SLCS)
- Fuel and Auxiliary Pools Cooling System (FAPCS)
- Reactor Water Cleanup and Shutdown Cooling System (RWCU/SDCS)
- Condensate and Feedwater System (C&FS)
- Make Up Water System (MWS)
- Reactor Component Cooling Water (RCCWS)
- Chiller Water System (CWS)
- Condensate Storage and Transfer System (CS&TS)
- Process Sampling System (PSS)
- Fire Protection System (FPS)

The above sources are located in controlled areas on various elevations and in the pipe chases. FPS is also located in the stairwells.

The Reactor Building non-controlled access area is divided into four quadrants, each one containing a safety system division. This group of zones has cabinets and electrical equipment associated with each of the 1E safety divisions. This electrical equipment includes the safety batteries for the DC distribution panels for all the safety equipment. The electrical equipment is distributed in the reactor building on various elevations.

In the case of flooding of the lower floor of the Reactor Building, flood water does not propagate to the lower floor of the Control Building via the cable galleries due to the general arrangement and the design measures provided.

13.5.1.1 Reactor Building At-Power Flooding Scenarios

Containment At-Power Flooding Scenarios

During power operation, the only initiating events that can be produced inside Containment are those due to pipe breaks leading to a LOCA. The components located inside Containment are qualified to perform their functions under the environmental conditions produced by a LOCA

and, therefore, they are not affected by the water released inside Containment. At-power LOCA scenarios inside Containment are not considered further in the flooding analysis as they are already addressed in the internal events analysis.

Reactor Building Outside Containment At-Power Flooding Scenarios

Based on the flood sources and potential impacts, the following flood scenarios are identified for consideration (other flood sources are of limited capacity or impact):

- Loss of power conversion system due to main steam pipe breaks
- Complete loss of feedwater due to feedwater pipe breaks
- Complete Loss of RCCWS due to system pipe breaks
- CRDS system pipe break
- FPS system pipe breaks
- RWCU/SDC line break outside of containment

The main steam and feedwater pipes are located in the steam tunnel. The water released by these breaks propagates toward the Turbine Building without affecting components located inside the Reactor Building. Therefore, these flooding scenarios are addressed in the Turbine Building analysis (refer to Section 13.5.4).

The RCCWS system is a closed system. The volume of available water is relatively small and discharges in the lower floor of the building. RCCWS flood water will not affect equipment other than that affected as a consequence of a loss of the RCCWS system. As such, RCCWS flood scenarios are not considered further in the flooding analysis as they are already encompassed by the loss of RCCWS initiating event in the internal events analysis.

A CRDS pipe break has the potential flood volume of the water stored in the CST. Such a volume is sufficient to completely flood the ground floor of the Reactor and Fuel Buildings, causing a generic transient, loss of vessel water supply functions via CRDS and FAPCS, as well as failure of residual heat removal via the RWCU/SDC system. This flood is maintained in this analysis as Flooding Scenario AP-1. The analysis conservatively does not credit the potential manual isolation of the broken pipe.

Similarly, breaks in the FPS system have the potential for a large available water supply (i.e., the fire protection system water sources). Such a volume is sufficient to completely flood the lower floor of the Reactor and Fuel Buildings, causing a generic transient, loss of vessel water supply functions via FPS and FAPCS, as well as failure of residual heat removal via the RWCU/SDC system. This flood is maintained in this analysis as Flooding Scenario AP-2. The analysis conservatively does not credit the potential manual isolation of the broken pipe.

A line break in the RWCU/SDCS system outside Containment, combined with failure of automatic isolation of the break, will result in flooding the lower floor of the Reactor Building and into the lower floor of the Fuel Building via the door separating the two areas. The flood effects of this postulated flood are failure of the RWCU/SDC and FAPC systems. This flood scenario is maintained in this analysis as Flooding Scenario AP-3.13.5.1 2 Reactor Building Shutdown Flooding Scenarios

Containment Shutdown Flooding Scenarios

As discussed previously, LOCAs inside Containment are already addressed in the internal events analysis. During shutdown conditions, LOCA frequencies are much lower than at-power conditions and as such shutdown LOCAs are non-significant risk contributors and are not analyzed further in this analysis.

During Mode 6 (with the hatches open), water released from a LOCA inside Containment can propagate to the lower floor of the Reactor Building and impact the operation of the RWCU/SDC system. However, given the short time interval during which the hatches are open, and the low LOCA frequencies during shutdown conditions, such scenarios are non-significant risk contributors and not analyzed further in this analysis.

Reactor Building Outside Containment Shutdown Flooding Scenarios

As discussed previously, postulated flood events during shutdown are assessed with respect to their impact on decay heat removal and reactor coolant inventory control.

Loss of Decay Heat Removal

As discussed previously, flood scenarios resulting in failure of decay heat removal are only significant during Modes 5 and 6 (Reactor Well unflooded). Such flood scenarios could occur due to:

- CRDS pipe break
- FPS pipe break
- RCCWS pipe break

A CRDS pipe break has the potential flood volume of the water stored in the CST. Such a volume is sufficient to completely flood the ground floor of the Reactor and Fuel Buildings, causing loss of vessel water supply functions via CRDS and FAPCS, as well as failure of residual heat removal via the RWCU/SDC system. The analysis models two such flood scenarios, one during Mode 5 (Flooding Scenario SD-1) and one during Mode 6 (Flooding Scenario SD-3). The analysis conservatively does not credit the potential manual isolation of the broken pipe.

Similarly, breaks in the FPS system have the potential for a large available water supply (i.e., the fire protection system water sources). Such a volume is sufficient to completely flood the lower floor of the Reactor and Fuel Buildings, causing the loss of vessel water supply functions via FPS and FPACS, as well as failure of residual heat removal via the RWCU/SDC system. The analysis models two such flood scenarios, one during Mode 5 (Flooding Scenario SD-2) and one during Mode 6 (Flooding Scenario SD-4). The analysis conservatively does not credit the potential manual isolation of the broken pipe.

As discussed previously, a break in the RCCWS system has the only impact of failing RCCWS. Such scenarios are already addressed in the internal events shutdown analysis (refer to Section 16).

Reactor Coolant System Inventory Control

As discussed previously, LOCAs inside containment during shutdown are non-significant risk contributors and are not evaluated further. Those flood scenarios that can significantly impact

the coolant inventory function during shutdown are those involving RWCU/SDCS pipe breaks with automatic isolation failure. Such scenarios will result in flooding the lower floor or the Reactor Building and into the lower floor of the Fuel Building via the door separating the two areas. The flood effects of an unisolated RWCU/SDCS system break are failure of the RWCU/SDC and FAPC systems.

The flooding analysis models three RWCU/SDCS flood scenarios during shutdown in the Reactor Building, one during Mode 5 (Flooding Scenarios SD-5), a second during Mode 6-Unflooded (Flooding Scenario SD-6a) and a third during Mode 6-Flooded (Flooding Scenario SD-6b).

The accident progression of these three floods is modeled with the event tree shown in Figure 13-1.

13.5.2 Control Building Flooding Scenarios

The flood scenarios of interest in this building are any that can impact the cabinets or control panels located at elevations –6400, -1400 and 4650.

The flood sources in this building are:

- Chiller Water System (CWS)
- Potable Water and Sanitary Waste System (PWSWS)
- Fire Protection System (FPS)

The Chiller Water System (CWS) components are located at elevation 9060 and in the building pipe chases. A CWS system break would result in water reaching elevations 9060 and -6400 (via the drain system and stairwells). However, CWS is a closed system, and the volume of water available is not sufficient to cause an initiating event.

The Potable Water and Sanitary Waste System (PWSWS) components are located at elevation –1400 (servicing the restrooms) and in the building pipe chases. Even though these sources have a high volume of water at their disposal, the potential flow rate is small (small diameter pipes) and within the capacity of the building drain system. Additionally, the Control Room is located on this elevation. Given that the Control Room is continuously manned, isolation of a PWSWS flood will be rapid and the total volume of water released will be small.

The Fire Protection System (FPS) system pipes located inside the Control Building are in the stairwells and are very short (less than 16 inches), with diameters that do not exceed 2-1/2 inches. As such, the frequency of a Control Building FPS flood event is low and the plant impact would be minor.

Based on the above discussions, Control Building flood scenarios are non-significant risk contributors and are not analyzed further in this risk assessment.

13.5.3 Fuel Building Flooding Scenarios

The flood sources in this building are:

- Reactor Component Cooling Water (RCCWS)
- Fuel and Auxiliary Pools Cooling System (FAPCS)

- Make Up Water System (MWS)
- Chiller Water System (CWS)
- Process Sampling System (PSS)
- Potable Water and Sanitary Waste System (PWSWS)
- Fire Protection System (FPS)

As discussed previously, RCCWS is a closed system with a limited water volume. Floods due to RCCWS system breaks only impact RCCWS and are already addressed in the internal events at-power and shutdown analyses.

Similarly, as discussed previously, the CWS and PWSWS systems are low volume and low flow rate systems and are also not significant flood sources.

The fuel pool and suppression pool are protected against loss of coolant by check valves and vacuum breaker valves designed to eliminate the potential for a siphon effect. Flooding from FAPCS requires the failure of at least one vacuum breaker or check valve in addition to a system pipe break. As such, a FAPCS flood is a low frequency event and is not analyzed further in this analysis.

The MWS and PSS systems are non-significant flood sources and thus are not analyzed further.

The scenarios of interest are those involving large volume flood sources with a significant flow rate. The system with these characteristics in the Fuel Building is the FPS system. A break in the FPS system will propagate to the lower floor of the Fuel Building and propagate to the lower floor of the Reactor Building via the door separating the two areas. The effects of such a flood are loss of FPS, FAPCS and RWCU/SDCS. As such, a break in the FPS system is the modeled flood for the Fuel Building.

13.5.3.1 Fuel Building At-Power Flooding Scenarios

The at-power flooding scenario for the Fuel Building is Flooding Scenario AP-4. It is an FPS system break resulting in a general transient, loss of FPS, FAPCS, and RWCU/SDCS. The analysis conservatively does not credit the potential manual isolation of the broken pipe. 13.5.3.2 Fuel Building Shutdown Flooding Scenarios

The flooding analysis models two FPS flood scenarios during shutdown in the Fuel Building, one during Mode 5 (Flooding Scenario SD-7) and the second during Mode 6-Unflooded (Flooding Scenario SD-8). Each scenario is a FPS flood that fails RWCU/SDCS, FAPCS, and FPS. Each scenario is a scenario that fails decay heat removal, and thus a flood during Mode 6-Flooded is not quantified due to the very long time necessary to result in coolant boiling.

No shutdown flood scenarios involving coolant draindown events are applicable to the Fuel Building.

13.5.4 Turbine Building Flooding Scenarios

The flood sources in this building are:

- Condensate and Feedwater System (C&FS)

- Make Up Water System (MWS)
- Reactor Component Cooling Water (RCCWS)
- Turbine Component Cooling Water (TCCWS)
- Chiller Water System (CWS)
- Process Sampling System (PSS)
- Condensate Storage and Transfer System (CS&TS)
- Plant Service Water System (PSWS)
- Hot Water System (HWS)
- Potable Water and Sanitary Waste System (PWSWS)
- Fire Protection System (FPS).
- Circulating Water System (CIRC)

A flood in the Turbine Building caused by a PSWS break results in the same consequences as the Complete Loss of PSWS initiator already included in the internal events PRA. As such, PSWS floods in the Turbine Building are not analyzed further in the flooding analysis.

Similarly, a flood in the Turbine Building caused by a RCCWS break results in the same consequences as the Loss of RCCWS initiator already included in the internal events PRA. As such, RCCWS floods in the Turbine Building are not analyzed further in the flooding analysis.

A break of the C&FS systems is already addressed in the internal events analysis and is not analyzed further in the flooding analysis.

Of the remaining water sources in the Turbine Building, flooding from the circulating water system (CIRC) is the bounding scenario due to the following reasons:

- Circulating water flow is the highest of all water sources
- Circulating water can provide an unlimited amount of water if the flooding is not stopped
- Flooding propagation into the Reactor Building via the Turbine Building requires a large amount of water.

Each of the four circulating water system pumps is equipped with a motor-operated isolation (shutoff) valve. Additional isolation valves are located at the entrance to and exit from the main condenser. If a large pipe break develops in the CIRC system and initiates flooding in the Turbine Building, termination of the flood requires either tripping all the pumps or closing the shutoff valves. Four redundant safety grade water level sensors, operating in a two-out-of-four logic, located in the condenser pit of the Turbine Building initiate automatic tripping of the CIRC pumps and closure of the shutoff valves.

If one or more pumps fail to trip and the associated shutoff valves fail to close, the water level may rise up to the top of the condenser pit, flood the bottom floor, and reach grade level.

The water released inside the building floods the bottom floor and accumulates there until reaching the elevation where the water exits the building and flows towards the controlled access

tunnel. In no case, however, does the water reach the buildings that contain the equipment included in the mitigation system models drawn up in the internal event analysis. Consequently, the water only affects the components located in the Turbine Building.

13.5.4.1 Turbine Building At-Power Flooding Scenarios

The potential at-power Turbine Building flood-induced initiators of interest are:

- Loss of Power Conversion System (PCS)
- Complete loss of feedwater
- Complete loss of RCCWS
- Complete loss of TCCWS
- Complete loss of Air systems

The components with the potential to result in complete loss of RCCWS or complete loss of air are located above the elevation where flood water would exit the building (i.e., grade elevation). A large volume system would be required to result in flooding up to this initial elevation. The only system with this characteristic is the CIRC system.

The components with the potential to result in loss of the Power Conversion System (PCS), complete loss of feedwater (except feedwater suction and discharge pipes and the feedwater storage tank) or complete loss of TCCWS are located below grade elevation. Rupture of the feedwater storage tank or the feedwater pipes would not affect components related to the RCCWS or Air systems.

Based on the above, the flooding scenarios analyzed in the Turbine building at-power flooding analysis are those depicted in the flood progression event tree provided in Figure 13-2. These flooding scenarios are described below:

- Flooding of the bottom floor of the Turbine Building, but flood does not reach grade elevation (Flooding Scenario AP-5).

  The analysis conservatively assumes that this scenario can be caused by any flood source located inside the building.

  If all CIRC pumps trip, or one or more CIRC pumps fails to trip but the shutoff valves close, the level of flood water does not reach grade elevation.

  The resulting flood-induced initiating event type is a complete loss of feedwater and the equipment affected by the flood is that located below grade elevation. These components are all related to the power conversion system function.

- Flooding of the bottom floor of the Turbine Building and flood level reaches grade elevation (Flooding Scenario AP-6).

  This scenario results when automatic isolation of the CIRC break fails. Automatic break isolation occurs by either tripping all CIRC pumps or closure of the shutoff valves upon receipt of an isolation signal from the four redundant safety grade water level sensors, operating in a two-out-of-four logic, located in the condenser pit of the Turbine Building. Therefore, the isolation fails if one of the following situations occurs:

- Water level sensor signal fails
- One or more pumps fail to trip and shutoff valve closure fails

When automatic break isolation fails, flood water level reaches grade elevation, leading to complete loss of RWCCS and damaging all the components located on or below grade elevation.

Failure rates for the level detectors, shutoff valve closure, and pump trip are provided in Table 13-4. These failure rates are used to estimate the nodal probabilities used in the event tree in Figure 13-2.

13.5.4.2 Turbine Building Shutdown Flooding Scenarios

The only initiating event that can occur in the Turbine Building during shutdown is loss of decay heat removal caused by loss of RCCWS. However, such a flooding scenario is not possible in shutdown since the CIRC pumps are not in operation.

13.5.5 Electrical Building Flooding Scenarios

For the purpose of the flooding analysis, the Electrical Building is differentiated into two general areas:

- Diesel Generator rooms
- Remainder of the building

Flood sources outside the diesel generator rooms are due to component failures in the following systems:

- Make Up Water System (MWS)
- Chiller Water System (CWS)
- Potable Water and Sanitary Waste System (PWSWS)
- Fire Protection System (FPS).

These sources are located on various elevations, in the stairwells and in the pipe chases.

The flood sources belonging to the Chiller Water System (CWS) are located on an upper elevation and in the building pipe chases. As discussed previously, the CWS system is a closed system with limited water volume. CWS floods are not analyzed further in this analysis.

The flood sources belonging to the PWSWS and MWS systems are located on the ground floor of the building. Although these sources have a potentially large volume of water, the flow rates from a system break are small and within the capacity of drain systems. As such, PWSWS and MWS floods are not analyzed further in this analysis.

The flood sources belonging to the FPS system are located in the stairwells and various elevations. These sources include:

- Manual spray systems. These are dry pipe systems with the actuation valve located outside the rooms.
- Sprinkler systems located in the cable rooms. These are wet pipe systems.

- Piping located in the stairwells and in the pipe chases. Breaks in this piping will only affect components located on the ground floor of the building.

The flood sources in the diesel generator rooms are due to failure of components in the following systems:

- Reactor Component Cooling Water (RCCWS)
- Potable Water and Sanitary Waste System (PWSWS)
- Fire Protection System (FPS)

In each case, after reaching the ground floor of the building, the water released from a break in the above systems in the DG rooms exits through the drain system and doors, without affecting components located in other buildings.

13.5.5.1 Electrical Building At-Power Flooding Scenarios

The worst case flood in the Electrical Building outside the diesel generator rooms is an FPS pipe break on an upper elevation, since all the components located on lower elevations could be affected by flooding. The affected equipment would be the 13.8 kV buses and batteries A, A1, A2, B, B1, B2 and C. All these failures result in a damage state defined by the loss of PCS initiator. This scenario is identified as Flooding Scenario AP-7. The analysis conservatively does not credit the potential manual isolation of the broken pipe.

The flooding analysis models two at-power flood scenarios for the DG rooms, one for a flood in DG Room A (Flooding Scenario AP-8) and the other for a flood in DG Room B (Flooding Scenario AP-9). Each scenario is a manual scram with failure of the diesel generator located in the room.

13.5.5.2 Electrical Building Shutdown Flooding Scenarios

As discussed previously, the worst case flood in the Electrical Building outside the diesel generator rooms is an FPS pipe break on an upper elevation. However, the associated equipment damage does not cause an initiating event during shutdown.

The only possible initiating event, during shutdown, in the diesel generator rooms is loss of decay heat removal due to a RCCWS pipe break. The water released by these flood sources only affects the components located in the area where the source is located. The internal events shutdown analysis (refer to Section 16) already covers loss of RCCWS scenarios.

13.5.6 Service Water Building Flooding Scenarios

The primary flood source in the Service Water Building is the Plant Service Water System (PSWS).

Floods in the Service Water Building only result in failure of the PSWS system. The loss of service water scenario is already included in the internal events PRA with the Complete Loss of PSWS initiator. As such, Service Water Building flood scenarios are not analyzed further in the flooding analysis.

13.5.7 Tunnels and Galleries Flooding Scenarios

Flooding of tunnels and galleries up to ground level can only affect buildings with elevations below ground level.

However, given the general arrangement provisions and the flood protection measures of the design, the contribution of tunnel and gallery flooding to CDF is non-significant.

13.6 RESULTS

This analysis is a bounding approach that begins by assigning a flood initiation frequency to every flood scenario in a building that is equal to the entire flood initiation frequency for that building. Following the accident sequence quantification, the flood scenario with the highest CDF in each building is used to represent the flood CDF for that building. The total flood risk is the sum of the CDFs of the bounding flood scenario for each building.

The core damage frequency results of the ESBWR probabilistic flooding analysis are summarized in the following tables:

- CDF Contribution of At-Power Flooding Scenarios (Table 13-5)
- CDF Contribution of Shutdown Flooding Scenarios (Table 13-6)

Each table lists the scenario ID, scenario description, flood initiation frequency, initiating event type used in the accident sequence analysis, the flood-induced equipment damage, and the resulting core damage frequency. As can be seen from these tables, the at-power internal flooding CDF is estimated at 3.68E-09/yr, and the shutdown internal flooding CDF is estimated at 1.64E-09/yr.

The top 200 cutsets for the at-power internal flooding CDF are provided in Table 13-7, and those for shutdown internal flooding CDF are provided in Table 13-8.

The risk importance measures for the at-power internal flooding CDF are provided in Table 13-9, and those for shutdown internal flooding CDF are provided in Table 13-10.

13.7 INSIGHTS GAINED FROM THE ANALYSIS

The ESBWR probabilistic shutdown flooding analysis highlights the following key insights regarding the flooding mitigation capability of the ESBWR:

(1) The ESBWR, due to its basic layout and safety design features, is inherently capable of mitigating potential flooding. Safety system redundancy and physical separation providing protection from flooding by large water sources, along with alternate safe shutdown features in buildings separated from flooding of safety systems provide the ESBWR with significant flooding mitigation capability.

(2) Due to the inherent ESBWR flooding mitigation capability, only a small number of flooding specific design features are key in the mitigation of significant flood sources, for example:

- Using watertight doors in the accesses to tunnels and galleries from the Control and Reactor Buildings.
- Not locating flood sources with a significant volume of water in the Control Building.
- Locating flood sources in the Electrical Building in such a way that a flood does not affect key components.
- Limiting the volume of water that the FPS can distribute in the Reactor Building.
- Reducing as much as possible the time interval during which the Drywell atmosphere and the atmosphere of other buildings are communicated through the hatches.
- Locating an automatic CWS pump trip and valve closure on high water level in the condenser pit.

(3) While timely operator action can limit potential flood damage, all postulated floods can be mitigated (from a risk perspective) without operator action.

13.8 CONCLUSIONS

The main conclusion that can be drawn from the ESBWR probabilistic flooding analysis is that the risk from internal flooding is acceptably low. The estimated core damage frequency (both at-power and shutdown conditions) from all internal flood sources is 5.32E-09 per calendar year.

The ESBWR is inherently safe with respect to internal flood events and no operator actions are required to mitigate postulated floods (although timely operator action can reduce damage to equipment and flood severity). All potential floods have been analyzed and it has been shown that the plant can be safely shut down at low risk to plant personnel and the general public.

13.9 REFERENCES

13.1 NUREG/CR 5750. Rates of Initiating Events at US Nuclear Power Plants: 1987 – 1995. February 1999.

13.2 NUREG/CR-2300, PRA Procedures Guide, January 1983.

13.3 World Nuclear Industry Handbook. 1999.

13.4 NPE. Nuclear Power Experience. Issue 2. September 1999.

13.5 NUREG/CR-5496. Evaluation of Loss of Offsite Power Events at Nuclear Power Plants: 1980 – 1996. November 1998.

13.6 EPRI, ALWR Requirements Document

13.7 GE Reliability Data Manual Used for Probabilistic Risk Analysis

Table 13-1

At-Power Flooding Frequencies

Building	**Flood Initiator Frequency (per year)**	Comment
Reactor Building	3.40E-3	FPS break; NUREG/CR-5750 frequency estimate for major on-site pipe break (Flood-J1).
Control Building	3.40E-3	FPS break; NUREG/CR-5750 frequency estimate for major on-site pipe break (Flood-J1).
Fuel Building	3.40E-3	FPS break; NUREG/CR-5750 frequency estimate for major on-site pipe break (Flood-J1).
Turbine Building	2.80E-2	CWS break; NUREG/CR-2300 frequency estimate for circulating water system "medium-large" flood.
Electrical Building	3.40E-3	FPS break; NUREG/CR-5750 frequency estimate for major on-site pipe break (Flood-J1).

Table 13-2

Flooding Events during Shutdown in BWR Plants

UNIT	DATE	STATE	DESCRIPTION	BUILDING	VOLUME
Hatch 2	Dec-86	Refueling	Leak from Spent Fuel Pool.	Turbine, Reactor and Others	150000 gal
Vermont Yankee	Aug-87	Refueling	PVC pipe breaks in PCI system due to water-hammer / PCI diesel pump starts / Loss of off-site power.	Reactor	2000 gal
Quad-Cities 2	April-92	Cold shutdown	Deluge system actuation during deluge drain procedure.	Transformers	n/a
Browns Ferry 1	May-74	n/a	Valve left open when the flange was removed. (Note 1)	Pipe tunnel	85000 gal
Dresden 2	Nov-77	Refueling shutdown	Water spilled from disassembled LPCI Heat exchanger valve.	Auxiliary	n/a
LaSalle 1	Jan-82	Shutdown	Reactor vessel was overfilled and water spilled into the drywell. (Note 1)	Reactor (drywell)	n/a
Quad-Cities 2	Jun-74	Shutdown	Pipe break in the feedwater system due to vibrations.	Turbine	12500 gal
Pilgrim 1	Jan-76	20% power / shutdown	Pipe break in the feedwater system due to vibrations.	Turbine	5000 gal
Oyster Creek	April-81	Shutdown	Leak of condensate due to valve packing failure.	Turbine	10000 gal
Fermi 2	Dec-86	Cold shutdown	CST contents spilled due to return line expansion joint rupture. (Note 1)	Turbine, Radwaste	275000 gal
Peach Bottom 3	Feb-86	Cold shutdown	CST overflow.	Radwaste, Offsite	38000 gal

Table 13-2

Flooding Events during Shutdown in BWR Plants

UNIT	DATE	STATE	DESCRIPTION	BUILDING	VOLUME
Nine Mile Pt.2	Nov-87	Cold shutdown	CST rupture. (Note 1)	Reactor, Radwaste	200000 gal
Dresden 1	May-94	Defueled	CST contents pumped out through a broken pipe. (Note 1)	n/a	50000 gal
Quad Cities 1	Jun-72	n/a	Expansion joint rupture due to water hammer in the circulation water system. (Note 1)	Turbine	n/a
Monticello	May-76	Shutdown	Expansion joint rupture.	Cooling tower pumphouse	n/a
Hatch 1	Dec- 85	Refueling	Isolation valve open during RHR pump suction line maintenance.	Auxiliary	n/a
Millstone 1	Jan-94	Refueling	During LPCI test, water was sprayed into the drywell.	Reactor(drywell)	12000 gal
Millstone 1	April-94	Refueling	During LPCI test, water was sprayed into the drywell.	Reactor(drywell)	12000 gal
Oyster Creek	Jan-82	Shutdown	Fire protection deluge system actuated due to an overheated bearing in the Clean-up system auxiliary pump motor.	Reactor	n/a
Peach Bottom 3	Jun-84	Refueling	Fire header pipe broke in an elbow.	Turbine	n/a
River Bend 1	Jan-86	3% Startup	Fire protection water curtain was inadvertently actuated. (Note 1)	Auxiliary	n/a
Browns Ferry 1	April-86	Cold shutdown	Reactor cavity overfilled.	Reactor	33000 gal
Shoreham	Oct-89	Cold shutdown	Fire suppression deluge system manually actuated. (Note 1)	Reactor	n/a

Table 13-2

Flooding Events during Shutdown in BWR Plants

UNIT	DATE	STATE	DESCRIPTION	BUILDING	VOLUME
Quad-Cities 1	Nov-89	10% power	HPCI pump room fire suppression deluge system auto actuated during performance of HPCI system turbine overspeed test.	Auxiliary	n/a
Browns Ferry 2	Jun 90	Cold shutdown	During fire protection testing, water was expelled onto analog trip units.	Auxiliary	n/a
Millstone 1	May-71	Process of cooldown	MCC flooded due to a leak in the reactor building closed cooling water heat exchanger service water discharge. (Note 1)	Reactor	n/a
Oyster Creek	Sep-87	Cold shutdown	PCIV leakage during maintenance.	Reactor	n/a
Brunswick 1	Jul-77	Shutdown	Gasket rupture on the service water system.	Reactor	n/a
River Bend 1	April-89	Refueling	SW supply line freeze plug failed.	Auxiliary	15000 gal
Dresden 3	Nov-81	14% power	Fire protection deluge system actuates due to high humidity conditions.	Auxiliary	n/a

Note 1: This flood event is not included in the frequency calculation because it did not occur during commercial operation.

Table 13-3

Shutdown Flooding Frequencies

BWR BUILDING	FLOOD FREQUENCY (per shutdown year)	MODE	FLOOD FREQUENCY (per calendar year)	ESBWR BUILDING
REACTOR	1.33E-03	5	5.80E-04	REACTOR
		6-Unflooded	1.44E-04	
		6-Flooded	5.87E-04	
AUXILIARY	1.00E-03	5	4.36E-04	FUEL
		6-Unflooded	1.08E-04	
		6-Flooded	4.41E-04	
TURBINE	6.68E-04	5	2.91E-04	TURBINE
		6-Unflooded	7.22E-05	
		6-Flooded	2.95E-04	
TRANSFORMERS	1.67E-04	5	7.28E-05	ELECTRICAL
		6-Unflooded	1.80E-05	
		6-Flooded	7.37E-05	
OTHERS	3.34E-04	5	1.46E-04	OTHERS
		6-Unflooded	3.61E-05	
		6-Flooded	1.47E-04	

Table 13-4

Failure Data for ESBWR Probabilistic Flood Analysis[1]

Failure Rate		
Component, Element	**Failure Mode**	**Failure Rate (per demand except as noted)**
Level Sensors	Fail to operate	1.0E-03
	Fail to operate (standby)	3.3E-07/h
Isolation Valve	Fail to close	4.0E-03
Motor Driven Pump	Fail to trip pump (Breaker fails to open)	1.0E-03

Notes to Table 13-4:

[1]Data obtained from the following references:

- EPRI ALWR Utility Requirements Document (Reference 13-6)
- GE Reliability Data Manual (Reference 13-7)

Table 13-5

CDF Contribution of At-Power Flooding Scenarios

BUILDING	FLOOD SCENARIO	DESCRIPTION[1]	FREQUENCY (per year)	INITIATING EVENT TYPE[2]	DAMAGE	CDF (per year)[3]
Reactor	AP-1	CRDS Pipe Break Outside Containment (FLOOD-RB-CRD-POWER)	3.40E-03	T-GEN	CRDS, FAPCS and RWCU/SDCS	9.74E-14
	AP-2	FPS Pipe Break Outside Containment (FLOOD-RB-FP-POWER)	3.40E-03	T-GEN	FPS, FAPCS and RWCU/SDCS	Truncated[4]
	AP-3	RWCU/SDCS Pipe Break Outside Containment (FLOOD-RB-RWCU-POWER)	3.40E-03	BOC RWCU	FAPCS and RWCU/SDCS	1.19E-12
Fuel	AP-4	FPS Pipe Break in Fuel Building (FLOOD-FB-FP-POWER)	3.40E-03	T-GEN	FPS, FAPCS and RWCU/SDCS	Truncated[4]
Turbine	AP-5	CIRC Pipe Break, Flood below grade elevation (FLOOD-TB-ALL-POWER)	2.80E-02	T-FDW	PCS	3.68E-09
	AP-6	CIRC Pipe Break, Flood above grade elevation (FLOOD-TB-CIRC-POWER)	2.85E-06	T-PSW	PCS, RWCCS	Truncated[4]
Electrical	AP-7	FPS Pipe Break Outside DG Rooms (FLOOD-EB-FP-POWER)	3.40E-03	T-PCS	13.8 kV buses and Batteries A, A1, A2, B, B1, B2, C	Truncated[4]

Table 13-5

CDF Contribution of At-Power Flooding Scenarios

BUILDING	FLOOD SCENARIO	DESCRIPTION[1]	FREQUENCY (per year)	INITIATING EVENT TYPE[2]	DAMAGE	CDF (per year)[3]
	AP-8	Flood in DG Room A (FLOOD-EBGDA-FP-POWER)	3.40E-03	T-GEN	DG(A)	Truncated[4]
	AP-9	Flood in DG Room B (FLOOD-EBGDB-FP-POWER)	3.40E-03	T-GEN	DG(B)	Truncated[4]
TOTAL AT-POWER FLOODING CDF						3.68E-09

Notes:

(1) Parameters shown in parentheses are the at-power flood scenario initiator IDs used in the accident sequence analysis (refer to Tables 13-7 and 13-9).

(2) Identifies the accident sequence structure used in the CDF quantification. Refer to Section 3 for event tree figures.

(3) The quantification is performed at a truncation limit of 1E-14/yr.

(4) No accident sequence cutsets remained above the quantification truncation limit.

Table 13-6

CDF Contribution of Shutdown Flooding Scenarios

BUILDING	FLOOD SCENARIO	DESCRIPTION[1]	MODE	FREQUENCY (per year)	INITIATING EVENT TYPE[2]	DAMAGE	CDF (per year)[3]
Reactor (Outside Containment)	SD-1	CRD pipe break (FLOOD-RB-CRD-PB5)	5	5.80E-04	Loss of RWCU/SDCS	CRDS, FAPCS and RWCU/SDCS	1.32E-13
	SD-2	FPS pipe break (FLOOD-RB-U43-PB5)	5	5.80E-04	Loss of RWCU/SDCS	FPS, FAPCS and RWCU/SDCS	Truncated[4]
	SD-3	CRD pipe break (FLOOD-RB-CRD-PB6)	6-Unflooded	1.44E-04	Loss of RWCU/SDCS	CRDS, FAPCS and RWCU/SDCS	1.49E-09
	SD-4	FPS pipe break (FLOOD-RB-U43-PB6)	6-Unflooded	1.44E-04	Loss of RWCU/SDCS	FPS, FAPCS and RWCU/SDCS	8.69E-11
	SD-5	RWCU/SDC pipe break (%BOC-RWCUSD5)	5	5.80E-04	BOC RWCU	FAPCS and RWCU/SDCS	7.37E-14
	SD-6[5]	RWCU/SDC pipe break (%BOC-RWCUSD6)	6	5.87E-04	BOC RWCU	FAPCS and RWCU/SDCS	1.12E-13
Fuel	SD-7	FPS pipe break (FLOOD-FB-U43-PB5)	5	4.36E-04	Loss of RWCU/SDCS	FPS, FAPCS and RWCU/SDCS	Truncated[4]
	SD-8	FPS pipe break (FLOOD-FB-U43-PB6)	6-Unflooded	1.08E-04	Loss of RWCU/SDCS	FPS, FAPCS and RWCU/SDCS	6.26E-11
TOTAL SHUTDOWN FLOODING CDF							1.64E-09

Notes:

(1) Parameters shown in parentheses are the shutdown flood scenario initiator IDs used in the accident sequence analysis (refer to Tables 13-8 and 13-10).

(2) Identifies the accident sequence structure used in the CDF quantification. Refer to Section 16 for event tree figures.

(3) The quantification is performed at a truncation limit of 1E-14/yr.

(4) No accident sequence cutsets remained above the quantification truncation limit.

(5) Both Scenarios 6a (Mode 6-Unflooded) and 6b (Mode 6-Flooded) are included in this line item summary.

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 3.68E-09 Top 200 Cutsets				
No	**Cutset Prob**	**Event Prob**	**Event**	**Description**
1	1.56E-10	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
2	1.56E-10	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
3	1.56E-10	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
4	1.56E-10	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
5	1.56E-10	4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
6	1.56E-10	4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
7	1.56E-10	4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report
Flooding Full Power
Core Damage Frequency = 3.68E-09
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
8	1.56E-10	4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
9	1.08E-10	1.60E-03	B21-UV -CC-F102B	CHECK VALVE #1 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
10	1.08E-10	1.60E-03	B21-UV -CC-F102B	CHECK VALVE #1 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
11	1.08E-10	1.60E-03	B21-UV -CC-F103B	CHECK VALVE #2 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
12	1.08E-10	1.60E-03	B21-UV -CC-F103B	CHECK VALVE #2 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
13	1.08E-10	1.60E-03	C12-UV -CC-F022	CHECK VALVE F022 FAILS TO OPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
14	1.08E-10	1.60E-03	C12-UV -CC-F022	CHECK VALVE F022 FAILS TO OPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 3.68E-09 Top 200 Cutsets				
No	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
15	4.64E-11	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
16	4.64E-11	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
17	4.64E-11	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
18	4.64E-11	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
19	4.64E-11	4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
20	4.64E-11	4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
21	4.64E-11	4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 3.68E-09 Top 200 Cutsets				
No	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
22	4.64E-11	4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
23	3.22E-11	1.60E-03	B21-UV_-CC-F102B	CHECK VALVE #1 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
24	3.22E-11	1.60E-03	B21-UV_-CC-F102B	CHECK VALVE #1 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
25	3.22E-11	1.60E-03	B21-UV_-CC-F103B	CHECK VALVE #2 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
26	3.22E-11	1.60E-03	B21-UV_-CC-F103B	CHECK VALVE #2 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
27	3.22E-11	1.60E-03	C12-UV_-CC-F022	CHECK VALVE F022 FAILS TO OPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
28	3.22E-11	1.60E-03	C12-UV_-CC-F022	CHECK VALVE F022 FAILS TO OPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report
Flooding Full Power
Core Damage Frequency = 3.68E-09
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
29	1.31E-11	3.12E-05	C62-VLU-CF-DIDALL	CCF OF VOTER LOGIC UNITS
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
30	1.31E-11	3.12E-05	C62-VLU-CF-DIDALL	CCF OF VOTER LOGIC UNITS
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
31	1.30E-11	4.00E-03	C12-MOV-CC-F014A	MOTOR OPER. VALVE F014A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
32	1.30E-11	4.00E-03	C12-MOV-CC-F014A	MOTOR OPER. VALVE F014A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
33	1.30E-11	4.00E-03	C12-MOV-CC-F014A	MOTOR OPER. VALVE F014A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
34	1.30E-11	4.00E-03	C12-MOV-CC-F014A	MOTOR OPER. VALVE F014A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
35	1.30E-11	4.00E-03	C12-MOV-CC-F014B	MOTOR OPER. VALVE F014B FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report
Flooding Full Power
Core Damage Frequency = 3.68E-09
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
36	1.30E-11	4.00E-03	C12-MOV-CC-F014B	MOTOR OPER. VALVE F014B FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
37	1.30E-11	4.00E-03	C12-MOV-CC-F014B	MOTOR OPER. VALVE F014B FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
38	1.30E-11	4.00E-03	C12-MOV-CC-F014B	MOTOR OPER. VALVE F014B FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
39	9.74E-12	1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
40	9.74E-12	1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
41	9.74E-12	1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
42	9.74E-12	1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 3.68E-09 Top 200 Cutsets				
No	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
43	9.74E-12	1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
44	9.74E-12	1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
45	9.74E-12	1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
46	9.74E-12	1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
47	9.74E-12	1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
48	9.74E-12	1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 3.68E-09 Top 200 Cutsets				
No	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
49	9.74E-12	1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
50	9.74E-12	1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
51	3.87E-12	4.00E-03	C12-MOV-CC-F014A	MOTOR OPER. VALVE F014A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
52	3.87E-12	4.00E-03	C12-MOV-CC-F014A	MOTOR OPER. VALVE F014A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
53	3.87E-12	4.00E-03	C12-MOV-CC-F014A	MOTOR OPER. VALVE F014A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
54	3.87E-12	4.00E-03	C12-MOV-CC-F014A	MOTOR OPER. VALVE F014A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
55	3.87E-12	4.00E-03	C12-MOV-CC-F014B	MOTOR OPER. VALVE F014B FAILS TO OPEN

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 3.68E-09 Top 200 Cutsets				
No	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
56	3.87E-12	4.00E-03	C12-MOV-CC-F014B	MOTOR OPER. VALVE F014B FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
57	3.87E-12	4.00E-03	C12-MOV-CC-F014B	MOTOR OPER. VALVE F014B FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
58	3.87E-12	4.00E-03	C12-MOV-CC-F014B	MOTOR OPER. VALVE F014B FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
59	3.25E-12	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
60	3.25E-12	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
61	3.25E-12	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 3.68E-09 Top 200 Cutsets				
No	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
62	3.25E-12	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
63	3.25E-12	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
64	3.25E-12	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
65	3.25E-12	4.00E-03	C12-MOV-CC-F020B	MOTOR OPER. VALVE F020B FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
66	3.25E-12	4.00E-03	C12-MOV-CC-F020B	MOTOR OPER. VALVE F020B FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
67	3.25E-12	4.00E-03	C12-MOV-CC-F020B	MOTOR OPER. VALVE F020B FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 3.68E-09 Top 200 Cutsets				
No	**Cutset Prob**	**Event Prob**	**Event**	**Description**
68	3.25E-12	4.00E-03	C12-MOV-CC-F020B	MOTOR OPER. VALVE F020B FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
69	2.90E-12	1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
70	2.90E-12	1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
71	2.90E-12	1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
72	2.90E-12	1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
73	2.90E-12	1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
74	2.90E-12	1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 3.68E-09 Top 200 Cutsets				
No	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
75	2.90E-12	1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
76	2.90E-12	1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
77	2.90E-12	1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
78	2.90E-12	1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
79	2.90E-12	1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
80	2.90E-12	1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 3.68E-09 Top 200 Cutsets				
No	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
81	2.54E-12	3.13E-03	C12-MOV-FC-F020A	FLOW CONTROL A FAILS WIDE OPEN
		1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
82	2.54E-12	3.13E-03	C12-MOV-FC-F020A	FLOW CONTROL A FAILS WIDE OPEN
		1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
83	2.54E-12	3.13E-03	C12-MOV-FC-F020A	FLOW CONTROL A FAILS WIDE OPEN
		1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
84	2.54E-12	3.13E-03	C12-MOV-FC-F020A	FLOW CONTROL A FAILS WIDE OPEN
		1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
85	2.54E-12	3.13E-03	C12-MOV-FC-F020A	FLOW CONTROL A FAILS WIDE OPEN
		1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
86	2.54E-12	3.13E-03	C12-MOV-FC-F020A	FLOW CONTROL A FAILS WIDE OPEN
		1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
87	2.54E-12	3.13E-03	C12-MOV-FC-F020B	FLOW CONTROL B FAILS WIDE OPEN

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report
Flooding Full Power
Core Damage Frequency = 3.68E-09
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
88	2.54E-12	3.13E-03	C12-MOV-FC-F020B	FLOW CONTROL B FAILS WIDE OPEN
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
89	2.54E-12	3.13E-03	C12-MOV-FC-F020B	FLOW CONTROL B FAILS WIDE OPEN
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
90	2.54E-12	3.13E-03	C12-MOV-FC-F020B	FLOW CONTROL B FAILS WIDE OPEN
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
91	2.43E-12	3.00E-03	C12-SYS-TM-TRAINB	TRAIN B IN MAINTENANCE
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
92	2.43E-12	3.00E-03	C12-SYS-TM-TRAINB	TRAIN B IN MAINTENANCE
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
93	2.43E-12	3.00E-03	C12-SYS-TM-TRAINB	TRAIN B IN MAINTENANCE
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 3.68E-09 Top 200 Cutsets				
No	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
94	2.43E-12	3.00E-03	C12-SYS-TM-TRAINB	TRAIN B IN MAINTENANCE
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
95	1.95E-12	2.40E-03	C12-MP -FS-C001BOIL	MOTOR-DRIVEN AUX. OIL PUMP FOR C001B FAILS TO START
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
96	1.95E-12	2.40E-03	C12-MP -FS-C001BOIL	MOTOR-DRIVEN AUX. OIL PUMP FOR C001B FAILS TO START
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
97	1.95E-12	2.40E-03	C12-MP -FS-C001BOIL	MOTOR-DRIVEN AUX. OIL PUMP FOR C001B FAILS TO START
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
98	1.95E-12	2.40E-03	C12-MP -FS-C001BOIL	MOTOR-DRIVEN AUX. OIL PUMP FOR C001B FAILS TO START
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
99	1.95E-12	2.40E-03	C12-MPC-FS-C001B	MOTOR-DRIVEN PUMP C001B FAILS TO START
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 3.68E-09 Top 200 Cutsets				
No	**Cutset Prob**	**Event Prob**	**Event**	**Description**
100	1.95E-12	2.40E-03	C12-MPC-FS-C001B	MOTOR-DRIVEN PUMP C001B FAILS TO START
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
101	1.95E-12	2.40E-03	C12-MPC-FS-C001B	MOTOR-DRIVEN PUMP C001B FAILS TO START
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
102	1.95E-12	2.40E-03	C12-MPC-FS-C001B	MOTOR-DRIVEN PUMP C001B FAILS TO START
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
103	1.94E-12	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		2.00E-03	G21-ACV-CC-F332	AOV F332 FAILS TO OPERATE TO NOT DEENERG.POS.
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
104	1.94E-12	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		2.00E-03	G21-ACV-CC-F332	AOV F332 FAILS TO OPERATE TO NOT DEENERG.POS.
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
105	1.94E-12	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		2.00E-03	G21-ACV-CC-F332	AOV F332 FAILS TO OPERATE TO NOT DEENERG.POS.
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
106	1.94E-12	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report
Flooding Full Power
Core Damage Frequency = 3.68E-09
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		2.00E-03	G21-ACV-CC-F332	AOV F332 FAILS TO OPERATE TO NOT DEENERG.POS.
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
107	1.94E-12	4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		2.00E-03	G21-ACV-CC-F332	AOV F332 FAILS TO OPERATE TO NOT DEENERG.POS.
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
108	1.94E-12	4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		2.00E-03	G21-ACV-CC-F332	AOV F332 FAILS TO OPERATE TO NOT DEENERG.POS.
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
109	1.94E-12	4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		2.00E-03	G21-ACV-CC-F332	AOV F332 FAILS TO OPERATE TO NOT DEENERG.POS.
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
110	1.94E-12	4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		2.00E-03	G21-ACV-CC-F332	AOV F332 FAILS TO OPERATE TO NOT DEENERG.POS.
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
111	1.55E-12	1.60E-03	B21-UV_-CC-F102A	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
112	1.55E-12	1.60E-03	B21-UV_-CC-F102A	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 3.68E-09 Top 200 Cutsets				
No	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
113	1.55E-12	1.60E-03	B21-UV_-CC-F102A	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
114	1.55E-12	1.60E-03	B21-UV_-CC-F102A	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
115	1.55E-12	1.60E-03	B21-UV_-CC-F102A	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
116	1.55E-12	1.60E-03	B21-UV_-CC-F102A	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
117	1.55E-12	1.60E-03	B21-UV_-CC-F102A	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
118	1.55E-12	1.60E-03	B21-UV_-CC-F102A	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
119	1.55E-12	1.60E-03	B21-UV_-CC-F103A	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report
Flooding Full Power
Core Damage Frequency = 3.68E-09
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
120	1.55E-12	1.60E-03	B21-UV_-CC-F103A	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
121	1.55E-12	1.60E-03	B21-UV_-CC-F103A	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
122	1.55E-12	1.60E-03	B21-UV_-CC-F103A	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
123	1.55E-12	1.60E-03	B21-UV_-CC-F103A	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
124	1.55E-12	1.60E-03	B21-UV_-CC-F103A	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
125	1.55E-12	1.60E-03	B21-UV_-CC-F103A	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 3.68E-09 Top 200 Cutsets				
No	**Cutset Prob**	**Event Prob**	**Event**	**Description**
132	1.55E-12	4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.60E-03	G21-UV -CC-F333	CHECK VALVE F333 FAILS TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
133	1.55E-12	4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.60E-03	G21-UV -CC-F333	CHECK VALVE F333 FAILS TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
134	1.55E-12	4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.60E-03	G21-UV -CC-F333	CHECK VALVE F333 FAILS TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
135	1.34E-12	1.60E-03	B21-UV -CC-F102B	CHECK VALVE #1 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		2.00E-03	G21-ACV-CC-F332	AOV F332 FAILS TO OPERATE TO NOT DEENERG.POS.
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
136	1.34E-12	1.60E-03	B21-UV -CC-F102B	CHECK VALVE #1 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		2.00E-03	G21-ACV-CC-F332	AOV F332 FAILS TO OPERATE TO NOT DEENERG.POS.
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
137	1.34E-12	1.60E-03	B21-UV -CC-F103B	CHECK VALVE #2 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		2.00E-03	G21-ACV-CC-F332	AOV F332 FAILS TO OPERATE TO NOT DEENERG.POS.
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
138	1.34E-12	1.60E-03	B21-UV -CC-F103B	CHECK VALVE #2 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		2.00E-03	G21-ACV-CC-F332	AOV F332 FAILS TO OPERATE TO NOT DEENERG.POS.
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
139	1.34E-12	1.60E-03	C12-UV -CC-F022	CHECK VALVE F022 FAILS TO OPEN

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 3.68E-09 Top 200 Cutsets				
No	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
126	1.55E-12	1.60E-03	B21-UV_-CC-F103A	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
127	1.55E-12	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.60E-03	G21-UV_-CC-F333	CHECK VALVE F333 FAILS TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
128	1.55E-12	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.60E-03	G21-UV_-CC-F333	CHECK VALVE F333 FAILS TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
129	1.55E-12	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.60E-03	G21-UV_-CC-F333	CHECK VALVE F333 FAILS TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
130	1.55E-12	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.60E-03	G21-UV_-CC-F333	CHECK VALVE F333 FAILS TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
131	1.55E-12	4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.60E-03	G21-UV_-CC-F333	CHECK VALVE F333 FAILS TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 3.68E-09 Top 200 Cutsets				
No	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		2.00E-03	G21-ACV-CC-F332	AOV F332 FAILS TO OPERATE TO NOT DEENERG.POS.
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
140	1.34E-12	1.60E-03	C12-UV_-CC-F022	CHECK VALVE F022 FAILS TO OPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		2.00E-03	G21-ACV-CC-F332	AOV F332 FAILS TO OPERATE TO NOT DEENERG.POS.
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
141	1.25E-12	1.20E-07	B21-LT_-CF-N001ABCD	CCF OF DIVERSIFIED LEVEL 1& 2 TRANSM. 1A/B/C/D
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
142	1.25E-12	1.20E-07	B21-LT_-CF-N001ABCD	CCF OF DIVERSIFIED LEVEL 1& 2 TRANSM. 1A/B/C/D
		4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
143	1.25E-12	1.20E-07	B21-LT_-CF-N001ABCD	CCF OF DIVERSIFIED LEVEL 1& 2 TRANSM. 1A/B/C/D
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
144	1.25E-12	1.20E-07	B21-LT_-CF-N001ABCD	CCF OF DIVERSIFIED LEVEL 1& 2 TRANSM. 1A/B/C/D
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
145	1.11E-12	3.74E-01	%T-PCS	LOSS OF POWER CONVERSION SYSTEM
		2.98E-04	C51-ACT-CF-1PRM	CCF APRM NEUTRON CHANNELS
		1.00E-08	C71-SYS-FF-SCRAM	SCRAM FAILURE
146	1.08E-12	4.00E-03	C12-MOV-CC-F014A	MOTOR OPER. VALVE F014A FAILS TO OPEN
		4.00E-03	C12-MOV-CC-F014B	MOTOR OPER. VALVE F014B FAILS TO OPEN

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report
Flooding Full Power
Core Damage Frequency = 3.68E-09
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
147	1.08E-12	4.00E-03	C12-MOV-CC-F014A	MOTOR OPER. VALVE F014A FAILS TO OPEN
		4.00E-03	C12-MOV-CC-F014B	MOTOR OPER. VALVE F014B FAILS TO OPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
148	1.08E-12	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		4.00E-03	C12-MOV-CC-F020B	MOTOR OPER. VALVE F020B FAILS TO OPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
149	1.08E-12	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		4.00E-03	C12-MOV-CC-F020B	MOTOR OPER. VALVE F020B FAILS TO OPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
150	1.07E-12	1.60E-03	B21-UV_-CC-F102A	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
		1.60E-03	B21-UV_-CC-F102B	CHECK VALVE #1 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
151	1.07E-12	1.60E-03	B21-UV_-CC-F102A	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
		1.60E-03	B21-UV_-CC-F102B	CHECK VALVE #1 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
152	1.07E-12	1.60E-03	B21-UV_-CC-F102A	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
		1.60E-03	B21-UV_-CC-F103B	CHECK VALVE #2 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
153	1.07E-12	1.60E-03	B21-UV_-CC-F102A	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
		1.60E-03	B21-UV_-CC-F103B	CHECK VALVE #2 IN FEEDWATER LINE B FAILS TO REOPEN

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 3.68E-09 Top 200 Cutsets				
No	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
154	1.07E-12	1.60E-03	B21-UV_-CC-F102A	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
		1.60E-03	C12-UV_-CC-F022	CHECK VALVE F022 FAILS TO OPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
155	1.07E-12	1.60E-03	B21-UV_-CC-F102A	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
		1.60E-03	C12-UV_-CC-F022	CHECK VALVE F022 FAILS TO OPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
156	1.07E-12	1.60E-03	B21-UV_-CC-F102B	CHECK VALVE #1 IN FEEDWATER LINE B FAILS TO REOPEN
		1.60E-03	B21-UV_-CC-F103A	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
157	1.07E-12	1.60E-03	B21-UV_-CC-F102B	CHECK VALVE #1 IN FEEDWATER LINE B FAILS TO REOPEN
		1.60E-03	B21-UV_-CC-F103A	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
158	1.07E-12	1.60E-03	B21-UV_-CC-F102B	CHECK VALVE #1 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.60E-03	G21-UV_-CC-F333	CHECK VALVE F333 FAILS TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
159	1.07E-12	1.60E-03	B21-UV_-CC-F102B	CHECK VALVE #1 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.60E-03	G21-UV_-CC-F333	CHECK VALVE F333 FAILS TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
160	1.07E-12	1.60E-03	B21-UV_-CC-F103A	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN
		1.60E-03	B21-UV_-CC-F103B	CHECK VALVE #2 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
161	1.07E-12	1.60E-03	B21-UV_-CC-F103A	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN
		1.60E-03	B21-UV_-CC-F103B	CHECK VALVE #2 IN FEEDWATER LINE B FAILS TO REOPEN

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report
Flooding Full Power
Core Damage Frequency = 3.68E-09
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
162	1.07E-12	1.60E-03	B21-UV -CC-F103A	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN
		1.60E-03	C12-UV -CC-F022	CHECK VALVE F022 FAILS TO OPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
163	1.07E-12	1.60E-03	B21-UV -CC-F103A	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN
		1.60E-03	C12-UV -CC-F022	CHECK VALVE F022 FAILS TO OPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
164	1.07E-12	1.60E-03	B21-UV -CC-F103B	CHECK VALVE #2 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.60E-03	G21-UV -CC-F333	CHECK VALVE F333 FAILS TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
165	1.07E-12	1.60E-03	B21-UV -CC-F103B	CHECK VALVE #2 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.60E-03	G21-UV -CC-F333	CHECK VALVE F333 FAILS TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
166	1.07E-12	1.60E-03	C12-UV -CC-F022	CHECK VALVE F022 FAILS TO OPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.60E-03	G21-UV -CC-F333	CHECK VALVE F333 FAILS TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
167	1.07E-12	1.60E-03	C12-UV -CC-F022	CHECK VALVE F022 FAILS TO OPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.60E-03	G21-UV -CC-F333	CHECK VALVE F333 FAILS TO OPEN
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
168	1.06E-12	3.74E-01	%T-PCS	LOSS OF POWER CONVERSION SYSTEM
		1.60E-03	C41-UV -CC-F004A	CHECK VALVE F004A FAILS TO OPEN
		1.77E-01	C41-XHE-FO-INISLCS	OPERATOR FAILS TO MANUALLY INITIATE SLCS (SHORT TIME)
		1.00E-08	C71-SYS-FF-SCRAM	SCRAM FAILURE
169	1.06E-12	3.74E-01	%T-PCS	LOSS OF POWER CONVERSION SYSTEM
		1.60E-03	C41-UV -CC-F004B	CHECK VALVE F004B FAILS TO OPEN

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 3.68E-09 Top 200 Cutsets				
No	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		1.77E-01	C41-XHE-FO-INISLCS	OPERATOR FAILS TO MANUALLY INITIATE SLCS (SHORT TIME)
		1.00E-08	C71-SYS-FF-SCRAM	SCRAM FAILURE
170	9.68E-13	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
171	9.68E-13	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F003B	MISPOSITION OF VALVE F003B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
172	9.68E-13	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
173	9.68E-13	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F018B	MISPOSITION OF VALVE F018B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
174	9.68E-13	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
175	9.68E-13	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F021B	MISPOSITION OF VALVE F021B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 3.68E-09 Top 200 Cutsets				
No	**Cutset Prob**	**Event Prob**	**Event**	**Description**
176	9.68E-13	4.00E-03	C12-MOV-CC-F020B	MOTOR OPER. VALVE F020B FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
177	9.68E-13	4.00E-03	C12-MOV-CC-F020B	MOTOR OPER. VALVE F020B FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
178	9.68E-13	4.00E-03	C12-MOV-CC-F020B	MOTOR OPER. VALVE F020B FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
179	9.68E-13	4.00E-03	C12-MOV-CC-F020B	MOTOR OPER. VALVE F020B FAILS TO OPEN
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
180	8.65E-13	1.20E-07	B21-LT_-CF-N001ABCD	CCF OF DIVERSIFIED LEVEL 1& 2 TRANSM. 1A/B/C/D
		1.60E-03	B21-UV_-CC-F102B	CHECK VALVE #1 IN FEEDWATER LINE B FAILS TO REOPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
181	8.65E-13	1.20E-07	B21-LT_-CF-N001ABCD	CCF OF DIVERSIFIED LEVEL 1& 2 TRANSM. 1A/B/C/D
		1.60E-03	B21-UV_-CC-F103B	CHECK VALVE #2 IN FEEDWATER LINE B FAILS TO REOPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
182	8.65E-13	1.20E-07	B21-LT_-CF-N001ABCD	CCF OF DIVERSIFIED LEVEL 1& 2 TRANSM. 1A/B/C/D
		1.60E-03	C12-UV_-CC-F022	CHECK VALVE F022 FAILS TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 3.68E-09 Top 200 Cutsets				
No	**Cutset Prob**	**Event Prob**	**Event**	**Description**
183	8.45E-13	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		3.13E-03	C12-MOV-FC-F020B	FLOW CONTROL B FAILS WIDE OPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
184	8.45E-13	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		3.13E-03	C12-MOV-FC-F020B	FLOW CONTROL B FAILS WIDE OPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
185	8.45E-13	4.00E-03	C12-MOV-CC-F020B	MOTOR OPER. VALVE F020B FAILS TO OPEN
		3.13E-03	C12-MOV-FC-F020A	FLOW CONTROL A FAILS WIDE OPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
186	8.45E-13	4.00E-03	C12-MOV-CC-F020B	MOTOR OPER. VALVE F020B FAILS TO OPEN
		3.13E-03	C12-MOV-FC-F020A	FLOW CONTROL A FAILS WIDE OPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
187	8.11E-13	1.00E-03	C12-MCB-OO-C001B	CIRCUIT BREAKER FOR C001B & AUX OIL PMP B FAILS TO CLOSE
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
188	8.11E-13	1.00E-03	C12-MCB-OO-C001B	CIRCUIT BREAKER FOR C001B & AUX OIL PMP B FAILS TO CLOSE
		1.20E-02	C12-XHE-MH-F018A	MISPOSITION OF VALVE F018A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
189	8.11E-13	1.00E-03	C12-MCB-OO-C001B	CIRCUIT BREAKER FOR C001B & AUX OIL PMP B FAILS TO CLOSE
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report
Flooding Full Power
Core Damage Frequency = 3.68E-09
Top 200 Cutsets

No	Cutset Prob	Event Prob	Event	Description
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
190	8.11E-13	1.00E-03	C12-MCB-OO-C001B	CIRCUIT BREAKER FOR C001B & AUX OIL PMP B FAILS TO CLOSE
		1.20E-02	C12-XHE-MH-F021A	MISPOSITION OF VALVE F021A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
191	8.11E-13	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		3.00E-03	C12-SYS-TM-TRAINB	TRAIN B IN MAINTENANCE
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
192	8.11E-13	4.00E-03	C12-MOV-CC-F020A	MOTOR OPER. VALVE F020A FAILS TO OPEN
		3.00E-03	C12-SYS-TM-TRAINB	TRAIN B IN MAINTENANCE
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
193	7.74E-13	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		8.00E-04	G21-UV -TM-F332/333	MAINTENANCE FOR CV F332 OR CV F333
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
194	7.74E-13	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		8.00E-04	G21-UV -TM-F332/333	MAINTENANCE FOR CV F332 OR CV F333
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
195	7.74E-13	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		8.00E-04	G21-UV -TM-F332/333	MAINTENANCE FOR CV F332 OR CV F333

Table 13-7

Internal Flooding Full-Power Cutset Report

Cutsets with Descriptions Report Flooding Full Power Core Damage Frequency = 3.68E-09 Top 200 Cutsets				
No	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
196	7.74E-13	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		8.00E-04	G21-UV_-TM-F332/333	MAINTENANCE FOR CV F332 OR CV F333
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
197	7.74E-13	4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		8.00E-04	G21-UV_-TM-F332/333	MAINTENANCE FOR CV F332 OR CV F333
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
198	7.74E-13	4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		8.00E-04	G21-UV_-TM-F332/333	MAINTENANCE FOR CV F332 OR CV F333
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
199	7.74E-13	4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		8.00E-04	G21-UV_-TM-F332/333	MAINTENANCE FOR CV F332 OR CV F333
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
200	7.74E-13	4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		8.00E-04	G21-UV_-TM-F332/333	MAINTENANCE FOR CV F332 OR CV F333
		2.80E-02	FLOOD-TB-ALL-POWER	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report
Flooding Shutdown
Core Damage Frequency = 1.64E-09
Top 200 Cutsets

No.	Cutset Prob	Event Prob	Event	Description
1	3.48E-10	1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
2	3.48E-10	1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
3	1.04E-10	1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
4	1.04E-10	1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
5	5.18E-11	1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		2.40E-02	U43-SYS-FF-LPCI	U43 HARDWARE FAILURES
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
6	5.18E-11	1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		2.40E-02	U43-SYS-FF-LPCI	U43 HARDWARE FAILURES
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
7	3.48E-11	1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.61E-02	U43-XHE-FO-LPCIADS	OPERATOR FAILS TO ACTUATE U43 IN LPCI MODE AFTER ADS
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
8	3.48E-11	1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.61E-02	U43-XHE-FO-LPCIADS	OPERATOR FAILS TO ACTUATE U43 IN LPCI MODE AFTER ADS
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
9	4.98E-12	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.44E-04	FLOOD-RB-U43-PB5	FLOOD DURING SHUTDOWN IN REACTOR BUILDING DUE TO BREAK IN FPS
10	4.98E-12	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.44E-04	FLOOD-RB-U43-PB5	FLOOD DURING SHUTDOWN IN REACTOR BUILDING DUE TO BREAK IN FPS
11	4.98E-12	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.44E-04	FLOOD-RB-U43-PB5	FLOOD DURING SHUTDOWN IN REACTOR BUILDING DUE TO BREAK IN FPS
12	4.98E-12	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.44E-04	FLOOD-RB-U43-PB5	FLOOD DURING SHUTDOWN IN REACTOR BUILDING DUE TO BREAK IN FPS
13	4.98E-12	4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.44E-04	FLOOD-RB-U43-PB5	FLOOD DURING SHUTDOWN IN REACTOR BUILDING DUE TO BREAK IN FPS
14	4.98E-12	4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.44E-04	FLOOD-RB-U43-PB5	FLOOD DURING SHUTDOWN IN REACTOR BUILDING DUE TO BREAK IN FPS
15	4.98E-12	4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.44E-04	FLOOD-RB-U43-PB5	FLOOD DURING SHUTDOWN IN REACTOR BUILDING DUE TO BREAK IN FPS
16	4.98E-12	4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.44E-04	FLOOD-RB-U43-PB5	FLOOD DURING SHUTDOWN IN REACTOR BUILDING DUE TO BREAK IN FPS
17	4.87E-12	2.10E-07	C51-ACT-CF-APRMSTUCK	CCF APRM DETECTORS STUCK AT POWER LEVEL
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN REACTOR BUILDING DUE TO BREAK IN CRD
18	4.32E-12	1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		2.00E-03	G21-ACV-CC-F332	AOV F332 FAILS TO OPERATE TO NOT DEENERG.POS.
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
19	4.32E-12	1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		2.00E-03	G21-ACV-CC-F332	AOV F332 FAILS TO OPERATE TO NOT DEENERG.POS.
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
20	3.73E-12	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.08E-04	FLOOD-FB-U43-PB5	FLOOD DURING SHUTDOWN IN FUEL BUILDING DUE TO BREAK IN FPS
21	3.73E-12	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.08E-04	FLOOD-FB-U43-PB5	FLOOD DURING SHUTDOWN IN FUEL BUILDING DUE TO BREAK IN FPS
22	3.73E-12	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.08E-04	FLOOD-FB-U43-PB5	FLOOD DURING SHUTDOWN IN FUEL BUILDING DUE TO BREAK IN FPS
23	3.73E-12	4.80E-02	C12-XHE-MH-F013A	MISPOSITION OF VALVE F013A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.08E-04	FLOOD-FB-U43-PB5	FLOOD DURING SHUTDOWN IN FUEL BUILDING DUE TO BREAK IN FPS
24	3.73E-12	4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.08E-04	FLOOD-FB-U43-PB5	FLOOD DURING SHUTDOWN IN FUEL BUILDING DUE TO BREAK IN FPS
25	3.73E-12	4.80E-02	C12-XHE-MH-F013B	MISPOSITION OF VALVE F013B
		4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.08E-04	FLOOD-FB-U43-PB5	FLOOD DURING SHUTDOWN IN FUEL BUILDING DUE TO BREAK IN FPS
26	3.73E-12	4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.08E-04	FLOOD-FB-U43-PB5	FLOOD DURING SHUTDOWN IN FUEL BUILDING DUE TO BREAK IN FPS
27	3.73E-12	4.80E-02	C12-XHE-MH-F015A	MISPOSITION OF VALVE F015A
		4.80E-02	C12-XHE-MH-F015B	MISPOSITION OF VALVE F015B
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.08E-04	FLOOD-FB-U43-PB5	FLOOD DURING SHUTDOWN IN FUEL BUILDING DUE TO BREAK IN FPS
28	3.45E-12	1.60E-03	B21-UV_-CC-F102A	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
29	3.45E-12	1.60E-03	B21-UV_-CC-F102A	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
30	3.45E-12	1.60E-03	B21-UV_-CC-F102B	CHECK VALVE #1 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.44E-04	FLOOD-RB-U43-PB5	FLOOD DURING SHUTDOWN IN REACTOR BUILDING DUE TO BREAK IN FPS
31	3.45E-12	1.60E-03	B21-UV_-CC-F102B	CHECK VALVE #1 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.44E-04	FLOOD-RB-U43-PB5	FLOOD DURING SHUTDOWN IN REACTOR BUILDING DUE TO BREAK IN FPS
32	3.45E-12	1.60E-03	B21-UV_-CC-F103A	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
33	3.45E-12	1.60E-03	B21-UV_-CC-F103A	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
34	3.45E-12	1.60E-03	B21-UV_-CC-F103B	CHECK VALVE #2 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.44E-04	FLOOD-RB-U43-PB5	FLOOD DURING SHUTDOWN IN REACTOR BUILDING DUE TO BREAK IN FPS
35	3.45E-12	1.60E-03	B21-UV_-CC-F103B	CHECK VALVE #2 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.44E-04	FLOOD-RB-U43-PB5	FLOOD DURING SHUTDOWN IN REACTOR BUILDING DUE TO BREAK IN FPS
36	3.45E-12	1.60E-03	C12-UV_-CC-F022	CHECK VALVE F022 FAILS TO OPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.44E-04	FLOOD-RB-U43-PB5	FLOOD DURING SHUTDOWN IN REACTOR BUILDING DUE TO BREAK IN FPS

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
37	3.45E-12	1.60E-03	C12-UV_-CC-F022	CHECK VALVE F022 FAILS TO OPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.44E-04	FLOOD-RB-U43-PB5	FLOOD DURING SHUTDOWN IN REACTOR BUILDING DUE TO BREAK IN FPS
38	3.45E-12	1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.60E-03	G21-UV_-CC-F333	CHECK VALVE F333 FAILS TO OPEN
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
39	3.45E-12	1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.60E-03	G21-UV_-CC-F333	CHECK VALVE F333 FAILS TO OPEN
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
40	2.83E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
41	2.83E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
42	2.83E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
43	2.83E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
44	2.83E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
45	2.83E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
46	2.83E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
47	2.83E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
48	2.83E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
49	2.78E-12	1.20E-07	B21-LT_-CF-N001ABCD	CCF OF DIVERSIFIED LEVEL 1& 2 TRANSM. 1A/B/C/D
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
50	2.59E-12	1.60E-03	B21-UV_-CC-F102B	CHECK VALVE #1 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.08E-04	FLOOD-FB-U43-PB5	FLOOD DURING SHUTDOWN IN FUEL BUILDING DUE TO BREAK IN FPS
51	2.59E-12	1.60E-03	B21-UV_-CC-F102B	CHECK VALVE #1 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.08E-04	FLOOD-FB-U43-PB5	FLOOD DURING SHUTDOWN IN FUEL BUILDING DUE TO BREAK IN FPS
52	2.59E-12	1.60E-03	B21-UV_-CC-F103B	CHECK VALVE #2 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.08E-04	FLOOD-FB-U43-PB5	FLOOD DURING SHUTDOWN IN FUEL BUILDING DUE TO BREAK IN FPS
53	2.59E-12	1.60E-03	B21-UV_-CC-F103B	CHECK VALVE #2 IN FEEDWATER LINE B FAILS TO REOPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.08E-04	FLOOD-FB-U43-PB5	FLOOD DURING SHUTDOWN IN FUEL BUILDING DUE TO BREAK IN FPS
54	2.59E-12	1.60E-03	C12-UV_-CC-F022	CHECK VALVE F022 FAILS TO OPEN
		1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		1.08E-04	FLOOD-FB-U43-PB5	FLOOD DURING SHUTDOWN IN FUEL BUILDING DUE TO BREAK IN FPS
55	2.59E-12	1.60E-03	C12-UV_-CC-F022	CHECK VALVE F022 FAILS TO OPEN
		1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		1.08E-04	FLOOD-FB-U43-PB5	FLOOD DURING SHUTDOWN IN FUEL BUILDING DUE TO BREAK IN FPS

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
56	2.43E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
57	2.43E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
58	2.43E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
59	2.43E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
60	2.43E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
61	2.43E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
62	2.43E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
63	2.43E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
64	2.43E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
65	2.43E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.00E-03	E50-SQV-CC-F002H	SQUIB VALVE F002H FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
66	2.43E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.00E-03	E50-SQV-CC-F002H	SQUIB VALVE F002H FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
67	2.43E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.00E-03	E50-SQV-CC-F002H	SQUIB VALVE F002H FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
68	1.73E-12	1.50E-05	E50-SQV-CF-GDCS7OPEN	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
		8.00E-04	G21-UV_-TM-F332/333	MAINTENANCE FOR CV F332 OR CV F333
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
69	1.73E-12	1.50E-05	E50-SQV-CF-OPENALL	CCF OF ALL SQUIB VALVES TO OPEN
		8.00E-04	G21-UV_-TM-F332/333	MAINTENANCE FOR CV F332 OR CV F333
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
70	1.67E-12	7.20E-08	E50-OR_-CF-PLUGALL	CCF OF ALL ORIFICES TO PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
71	1.62E-12	7.00E-08	E50-OR_-CF-7PLUG	CCF OF 7 ORIFICES TO PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
72	1.45E-12	2.10E-07	C51-ACT-CF-APRMSTUCK	CCF APRM DETECTORS STUCK AT POWER LEVEL
		4.80E-02	G21-XHE-MH-F334	MISPOSITION OF VALVE F334
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
73	1.42E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		1.75E-03	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
74	1.42E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		1.75E-03	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
75	1.42E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		1.75E-03	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
76	1.42E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		1.75E-03	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
77	1.42E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		1.75E-03	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
78	1.42E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		1.75E-03	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
79	1.42E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		1.75E-03	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
80	1.42E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		1.75E-03	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
81	1.42E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		1.75E-03	E50-UV_-OC-F003D	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
82	1.42E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		1.75E-03	E50-UV_-OC-F003H	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
83	1.42E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.75E-03	E50-UV_-OC-F003A	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
84	1.42E-12	1.00E-02	E50-MP_-TM-POOLB	GDCS POOL B IN MAINTENANCE
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.75E-03	E50-UV_-OC-F003E	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
85	9.90E-13	3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009B	SQUIB DELUGE VALVE F009B SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
86	9.90E-13	3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009B	SQUIB DELUGE VALVE F009B SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
87	9.90E-13	3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009B	SQUIB DELUGE VALVE F009B SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report
Flooding Shutdown
Core Damage Frequency = 1.64E-09
Top 200 Cutsets

No.	Cutset Prob	Event Prob	Event	Description
88	9.90E-13	3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009C	SQUIB DELUGE VALVE F009C SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
89	9.90E-13	3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009C	SQUIB DELUGE VALVE F009C SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
90	9.90E-13	3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009C	SQUIB DELUGE VALVE F009C SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
91	9.90E-13	3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009F	SQUIB DELUGE VALVE F009F SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
92	9.90E-13	3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009G	SQUIB DELUGE VALVE F009G SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
93	9.90E-13	3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009J	SQUIB DELUGE VALVE F009J SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
94	9.90E-13	3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009K	SQUIB DELUGE VALVE F009K SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
95	9.90E-13	3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009F	SQUIB DELUGE VALVE F009F SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
96	9.90E-13	3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009F	SQUIB DELUGE VALVE F009F SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
97	9.90E-13	3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009G	SQUIB DELUGE VALVE F009G SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
98	9.90E-13	3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009G	SQUIB DELUGE VALVE F009G SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
99	9.90E-13	3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009J	SQUIB DELUGE VALVE F009J SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
100	9.90E-13	3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009K	SQUIB DELUGE VALVE F009K SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
101	9.90E-13	3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009J	SQUIB DELUGE VALVE F009J SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
102	9.90E-13	3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009K	SQUIB DELUGE VALVE F009K SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
103	9.90E-13	3.50E-03	E50-SQV-CO-F009B	SQUIB DELUGE VALVE F009B SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
104	9.90E-13	3.50E-03	E50-SQV-CO-F009B	SQUIB DELUGE VALVE F009B SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
105	9.90E-13	3.50E-03	E50-SQV-CO-F009B	SQUIB DELUGE VALVE F009B SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
106	9.90E-13	3.50E-03	E50-SQV-CO-F009B	SQUIB DELUGE VALVE F009B SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
107	9.90E-13	3.50E-03	E50-SQV-CO-F009B	SQUIB DELUGE VALVE F009B SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
108	9.90E-13	3.50E-03	E50-SQV-CO-F009B	SQUIB DELUGE VALVE F009B SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
109	9.90E-13	3.50E-03	E50-SQV-CO-F009C	SQUIB DELUGE VALVE F009C SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
110	9.90E-13	3.50E-03	E50-SQV-CO-F009C	SQUIB DELUGE VALVE F009C SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
111	9.90E-13	3.50E-03	E50-SQV-CO-F009C	SQUIB DELUGE VALVE F009C SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
112	9.90E-13	3.50E-03	E50-SQV-CO-F009C	SQUIB DELUGE VALVE F009C SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
113	9.90E-13	3.50E-03	E50-SQV-CO-F009C	SQUIB DELUGE VALVE F009C SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
114	9.90E-13	3.50E-03	E50-SQV-CO-F009C	SQUIB DELUGE VALVE F009C SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
115	9.90E-13	3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009F	SQUIB DELUGE VALVE F009F SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
116	9.90E-13	3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009G	SQUIB DELUGE VALVE F009G SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
117	9.90E-13	3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009J	SQUIB DELUGE VALVE F009J SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
118	9.90E-13	3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009K	SQUIB DELUGE VALVE F009K SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
119	9.90E-13	3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009F	SQUIB DELUGE VALVE F009F SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
120	9.90E-13	3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009G	SQUIB DELUGE VALVE F009G SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
121	9.90E-13	3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009J	SQUIB DELUGE VALVE F009J SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
122	9.90E-13	3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009K	SQUIB DELUGE VALVE F009K SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
123	9.90E-13	3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009F	SQUIB DELUGE VALVE F009F SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
124	9.90E-13	3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009F	SQUIB DELUGE VALVE F009F SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
125	9.90E-13	3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009G	SQUIB DELUGE VALVE F009G SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
126	9.90E-13	3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009G	SQUIB DELUGE VALVE F009G SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
127	9.90E-13	3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009J	SQUIB DELUGE VALVE F009J SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
128	9.90E-13	3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009K	SQUIB DELUGE VALVE F009K SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
129	9.90E-13	3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009J	SQUIB DELUGE VALVE F009J SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
130	9.90E-13	3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009K	SQUIB DELUGE VALVE F009K SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
131	9.90E-13	3.50E-03	E50-SQV-CO-F009F	SQUIB DELUGE VALVE F009F SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
132	9.90E-13	3.50E-03	E50-SQV-CO-F009F	SQUIB DELUGE VALVE F009F SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
133	9.90E-13	3.50E-03	E50-SQV-CO-F009G	SQUIB DELUGE VALVE F009G SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
134	9.90E-13	3.50E-03	E50-SQV-CO-F009G	SQUIB DELUGE VALVE F009G SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
135	9.90E-13	3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009J	SQUIB DELUGE VALVE F009J SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
136	9.90E-13	3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009K	SQUIB DELUGE VALVE F009K SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
137	9.90E-13	3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009J	SQUIB DELUGE VALVE F009J SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
138	9.90E-13	3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009K	SQUIB DELUGE VALVE F009K SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
139	8.50E-13	3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009B	SQUIB DELUGE VALVE F009B SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
140	8.50E-13	3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009B	SQUIB DELUGE VALVE F009B SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
141	8.50E-13	3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009B	SQUIB DELUGE VALVE F009B SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
142	8.50E-13	3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009C	SQUIB DELUGE VALVE F009C SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
143	8.50E-13	3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009C	SQUIB DELUGE VALVE F009C SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
144	8.50E-13	3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009C	SQUIB DELUGE VALVE F009C SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
145	8.50E-13	3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009F	SQUIB DELUGE VALVE F009F SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
146	8.50E-13	3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009G	SQUIB DELUGE VALVE F009G SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
147	8.50E-13	3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009J	SQUIB DELUGE VALVE F009J SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
148	8.50E-13	3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009K	SQUIB DELUGE VALVE F009K SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
149	8.50E-13	3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009F	SQUIB DELUGE VALVE F009F SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
150	8.50E-13	3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009F	SQUIB DELUGE VALVE F009F SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
151	8.50E-13	3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009G	SQUIB DELUGE VALVE F009G SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
152	8.50E-13	3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009G	SQUIB DELUGE VALVE F009G SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
153	8.50E-13	3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009J	SQUIB DELUGE VALVE F009J SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
154	8.50E-13	3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009K	SQUIB DELUGE VALVE F009K SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
155	8.50E-13	3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009J	SQUIB DELUGE VALVE F009J SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
156	8.50E-13	3.00E-03	E50-SQV-CC-F002A	SQUIB VALVE F002A FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009K	SQUIB DELUGE VALVE F009K SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
157	8.50E-13	3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009B	SQUIB DELUGE VALVE F009B SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
158	8.50E-13	3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009C	SQUIB DELUGE VALVE F009C SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
159	8.50E-13	3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009F	SQUIB DELUGE VALVE F009F SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
160	8.50E-13	3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009G	SQUIB DELUGE VALVE F009G SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
161	8.50E-13	3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009J	SQUIB DELUGE VALVE F009J SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
162	8.50E-13	3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009K	SQUIB DELUGE VALVE F009K SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
163	8.50E-13	3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009B	SQUIB DELUGE VALVE F009B SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
164	8.50E-13	3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009B	SQUIB DELUGE VALVE F009B SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
165	8.50E-13	3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009C	SQUIB DELUGE VALVE F009C SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
166	8.50E-13	3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009C	SQUIB DELUGE VALVE F009C SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
167	8.50E-13	3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009F	SQUIB DELUGE VALVE F009F SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
168	8.50E-13	3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009G	SQUIB DELUGE VALVE F009G SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
169	8.50E-13	3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009J	SQUIB DELUGE VALVE F009J SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
170	8.50E-13	3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009K	SQUIB DELUGE VALVE F009K SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
171	8.50E-13	3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009F	SQUIB DELUGE VALVE F009F SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
172	8.50E-13	3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009G	SQUIB DELUGE VALVE F009G SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
173	8.50E-13	3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009J	SQUIB DELUGE VALVE F009J SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
174	8.50E-13	3.00E-03	E50-SQV-CC-F002D	SQUIB VALVE F002D FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009K	SQUIB DELUGE VALVE F009K SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
175	8.50E-13	3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009B	SQUIB DELUGE VALVE F009B SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
176	8.50E-13	3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009B	SQUIB DELUGE VALVE F009B SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
177	8.50E-13	3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009B	SQUIB DELUGE VALVE F009B SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report
Flooding Shutdown
Core Damage Frequency = 1.64E-09
Top 200 Cutsets

No.	Cutset Prob	Event Prob	Event	Description
178	8.50E-13	3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009C	SQUIB DELUGE VALVE F009C SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
179	8.50E-13	3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009C	SQUIB DELUGE VALVE F009C SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
180	8.50E-13	3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009C	SQUIB DELUGE VALVE F009C SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
181	8.50E-13	3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009F	SQUIB DELUGE VALVE F009F SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
182	8.50E-13	3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009G	SQUIB DELUGE VALVE F009G SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
183	8.50E-13	3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009J	SQUIB DELUGE VALVE F009J SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
184	8.50E-13	3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009D	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009K	SQUIB DELUGE VALVE F009K SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
185	8.50E-13	3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009F	SQUIB DELUGE VALVE F009F SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
186	8.50E-13	3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009F	SQUIB DELUGE VALVE F009F SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
187	8.50E-13	3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009G	SQUIB DELUGE VALVE F009G SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
188	8.50E-13	3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009G	SQUIB DELUGE VALVE F009G SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
189	8.50E-13	3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009J	SQUIB DELUGE VALVE F009J SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
190	8.50E-13	3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009H	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009K	SQUIB DELUGE VALVE F009K SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
191	8.50E-13	3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009J	SQUIB DELUGE VALVE F009J SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
192	8.50E-13	3.00E-03	E50-SQV-CC-F002E	SQUIB VALVE F002E FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009K	SQUIB DELUGE VALVE F009K SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009L	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report
Flooding Shutdown
Core Damage Frequency = 1.64E-09
Top 200 Cutsets

No.	Cutset Prob	Event Prob	Event	Description
193	8.50E-13	3.00E-03	E50-SQV-CC-F002H	SQUIB VALVE F002H FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009B	SQUIB DELUGE VALVE F009B SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
194	8.50E-13	3.00E-03	E50-SQV-CC-F002H	SQUIB VALVE F002H FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009C	SQUIB DELUGE VALVE F009C SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
195	8.50E-13	3.00E-03	E50-SQV-CC-F002H	SQUIB VALVE F002H FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009F	SQUIB DELUGE VALVE F009F SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
196	8.50E-13	3.00E-03	E50-SQV-CC-F002H	SQUIB VALVE F002H FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009G	SQUIB DELUGE VALVE F009G SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
197	8.50E-13	3.00E-03	E50-SQV-CC-F002H	SQUIB VALVE F002H FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009J	SQUIB DELUGE VALVE F009J SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-8

Internal Flooding Shutdown Cutset Report

Cutsets with Descriptions Report Flooding Shutdown Core Damage Frequency = 1.64E-09 Top 200 Cutsets				
No.	**Cutset Prob**	**Event Prob**	**Event**	**Description**
198	8.50E-13	3.00E-03	E50-SQV-CC-F002H	SQUIB VALVE F002H FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009A	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009K	SQUIB DELUGE VALVE F009K SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
199	8.50E-13	3.00E-03	E50-SQV-CC-F002H	SQUIB VALVE F002H FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009B	SQUIB DELUGE VALVE F009B SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009E	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD
200	8.50E-13	3.00E-03	E50-SQV-CC-F002H	SQUIB VALVE F002H FAILS TO OPERATE
		3.50E-03	E50-SQV-CO-F009B	SQUIB DELUGE VALVE F009B SPUR. OPENING [#7]
		3.50E-03	E50-SQV-CO-F009I	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
		1.61E-01	XXX-XHE-FO-LPMAKEUP	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
		1.44E-04	FLOOD-RB-CRD-PB5	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD

Table 13-9

Internal Flooding Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Full Power
Core Damage Frequency = 3.68E-09

Event Name	Probability	F-V	RAW	Description
B21-LT_-CF-N001ABCD	1.20E-07	3.16E-03	2.63E+04	CCF OF DIVERSIFIED LEVEL 1& 2 TRANSM. 1A/B/C/D
B21-SYS-FF-1/9OPEN	5.85E-02	2.66E-04	1	1 OUT OF 9 SRV FAIL TO CLOSE AFTER OPENING
B21-UV_-CC-F102A	1.60E-03	5.94E-03	4.71	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
B21-UV_-CC-F102B	1.60E-03	9.67E-02	61.41	CHECK VALVE #1 IN FEEDWATER LINE B FAILS TO REOPEN
B21-UV_-CC-F103A	1.60E-03	5.94E-03	4.71	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN
B21-UV_-CC-F103B	1.60E-03	9.67E-02	61.41	CHECK VALVE #2 IN FEEDWATER LINE B FAILS TO REOPEN
B32-MOV-CF-F72HADOPEN	2.00E-04	9.09E-06	1.05	CCF VALVES F72HA AND D TO OPEN
B32-MOV-CF-F72HBCOPEN	2.00E-04	9.09E-06	1.05	CCF VALVES F72HB AND C TO OPEN
C12-MCB-OO-C001B	1.00E-03	1.53E-03	2.53	CIRCUIT BREAKER FOR C001B & AUX OIL PMP B FAILS TO CLOSE
C12-MOV-CC-F014A	4.00E-03	2.33E-02	6.8	MOTOR OPER. VALVE F014A FAILS TO OPEN
C12-MOV-CC-F014B	4.00E-03	2.33E-02	6.8	MOTOR OPER. VALVE F014B FAILS TO OPEN
C12-MOV-CC-F020A	4.00E-03	1.04E-02	3.59	MOTOR OPER. VALVE F020A FAILS TO OPEN
C12-MOV-CC-F020B	4.00E-03	6.35E-03	2.58	MOTOR OPER. VALVE F020B FAILS TO OPEN
C12-MOV-CF-OPEN	1.78E-04	6.92E-04	4.89	CCF MOV TO OPEN
C12-MOV-FC-F020A	3.13E-03	8.12E-03	3.59	FLOW CONTROL A FAILS WIDE OPEN
C12-MOV-FC-F020B	3.13E-03	4.94E-03	2.58	FLOW CONTROL B FAILS WIDE OPEN
C12-MP_-FS-C001BOIL	2.40E-03	3.76E-03	2.56	MOTOR-DRIVEN AUX. OIL PUMP FOR C001B FAILS TO START
C12-MPC-FR-C001A	5.76E-05	1.20E-04	3.08	MOTOR-DRIVEN PUMP C001A FAILS TO RUN, GIVEN START
C12-MPC-FR-C001B	5.76E-05	8.10E-05	2.4	MOTOR-DRIVEN PUMP C001B FAILS TO RUN, GIVEN START
C12-MPC-FS-C001B	2.40E-03	3.76E-03	2.56	MOTOR-DRIVEN PUMP C001B FAILS TO START
C12-OR_-PG-D007A	6.48E-04	1.60E-03	3.47	ORIFICE D007A FAILS TO REMAIN OPEN (PLUG)
C12-OR_-PG-D007B	6.48E-04	9.59E-04	2.48	ORIFICE D007B FAILS TO REMAIN OPEN (PLUG)
C12-SYS-TM-TRAINB	3.00E-03	4.75E-03	2.58	TRAIN B IN MAINTENANCE
C12-UV_-CC-F022	1.60E-03	9.67E-02	61.41	CHECK VALVE F022 FAILS TO OPEN

Table 13-9

Internal Flooding Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Full Power
Core Damage Frequency = 3.68E-09

Event Name	Probability	F-V	RAW	Description
C12-XHE-FO-LEVEL2	3.22E-02	9.86E-05	1	MANUAL ACTUATION FAILURE
C12-XHE-MH-F003B	1.20E-02	2.16E-02	2.78	MISPOSITION OF VALVE F003B
C12-XHE-MH-F013A	4.80E-02	2.90E-01	6.76	MISPOSITION OF VALVE F013A
C12-XHE-MH-F013B	4.80E-02	2.90E-01	6.76	MISPOSITION OF VALVE F013B
C12-XHE-MH-F015A	4.80E-02	2.90E-01	6.76	MISPOSITION OF VALVE F015A
C12-XHE-MH-F015B	4.80E-02	2.90E-01	6.76	MISPOSITION OF VALVE F015B
C12-XHE-MH-F018A	1.20E-02	3.52E-02	3.89	MISPOSITION OF VALVE F018A
C12-XHE-MH-F018B	1.20E-02	2.16E-02	2.78	MISPOSITION OF VALVE F018B
C12-XHE-MH-F021A	1.20E-02	3.52E-02	3.89	MISPOSITION OF VALVE F021A
C12-XHE-MH-F021B	1.20E-02	2.16E-02	2.78	MISPOSITION OF VALVE F021B
C31-VLU-FC-RUNBACK	7.80E-05	7.91E-05	2.01	C31 SYSTEM VOTER LOGIC UNIT FAILS
C41-SYS-FF-MAKEUP	1.00E-01	8.68E-04	1.01	INVENTORY MAKE-UP BORATION FAILURE
C41-UV_-CC-F004A	1.60E-03	4.49E-04	1.28	CHECK VALVE F004A FAILS TO OPEN
C41-UV_-CC-F004B	1.60E-03	4.49E-04	1.28	CHECK VALVE F004B FAILS TO OPEN
C41-UV_-CC-F005A	1.60E-03	4.49E-04	1.28	CHECK VALVE F005A FAILS TO OPEN
C41-UV_-CC-F005B	1.60E-03	4.49E-04	1.28	CHECK VALVE F005B FAILS TO OPEN
C41-XHE-FO-INISLCS	1.77E-01	1.54E-03	1.01	OPERATOR FAILS TO MANUALLY INITIATE SLCS (SHORT TIME)
C41-XHE-FO-OPENF002A	2.69E-01	3.04E-04	1	OPERATOR FAILS TO OPEN VALVE F002A (AFTER INADV.CLOS.)
C41-XHE-FO-OPENF002B	2.69E-01	3.04E-04	1	OPERATOR FAILS TO OPEN VALVE F002B (AFTER INADV.CLOS.)
C41-XHE-MH-F002A	4.03E-03	3.04E-04	1.08	MISPOSITION OF VALVE F002A
C41-XHE-MH-F002B	4.03E-03	3.04E-04	1.08	MISPOSITION OF VALVE F002B
C51-ACT-CF-1PRM	2.98E-04	3.02E-04	2.01	CCF APRM NEUTRON CHANNELS
C51-ACT-CF-SRNM	2.98E-04	3.02E-04	2.01	CCF OF SRNM CORE FLUX CHANNELS
C62-DTM-CF-DIDALL	5.50E-05	8.44E-05	2.53	COMMON CAUSE FAILURE 3/4 DTM DID LOGIC
C62-DTM-CF-N1EALL	5.50E-05	3.18E-04	6.77	CCF OF DIGITAL TRIP MODULES NO 1E

Table 13-9

Internal Flooding Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Full Power
Core Damage Frequency = 3.68E-09

Event Name	Probability	F-V	RAW	Description
C62-DTM-FC-N1EA	9.00E-04	2.77E-05	1.03	DIGITAL TRIP MODULE TRAIN A NO 1E FAILS
C62-DTM-FC-N1EB	9.00E-04	2.77E-05	1.03	DIGITAL TRIP MODULE TRAIN B NO 1E FAILS
C62-DTM-FC-N1EC	9.00E-04	2.77E-05	1.03	DIGITAL TRIP MODULE TRAIN C NO 1E FAILS
C62-VLU-CF-DIDALL	3.12E-05	8.71E-03	280.03	CCF OF VOTER LOGIC UNITS
C62-VLU-CF-N1EALL	3.12E-05	7.13E-05	3.28	CCF OF VOTER LOGIC UNITS
C71-SYS-FF-SCRAM	1.00E-08	3.35E-03	3.35E+05	SCRAM FAILURE
C72-DTM-CF-DPSALL	1.20E-05	1.42E-05	2.18	CCF 3/4 DTM OF DPS DIV 1/2/3/4
C74-DTM-CF-ALL	1.20E-05	1.56E-04	13.97	CCF 3/4 DTM OF SSLC DIV1/2/3/4
C74-VLU-CF-ALL	3.12E-06	2.62E-05	9.39	CCF OF VOTER LOGIC UNITS
E50-LT_-CF-N005ABCLOW	2.40E-07	8.79E-06	37.61	CCF 2/3 LEVEL TRANSMITTERS E50-N005A/B/C LOW
E50-OR_-CF-7PLUG	7.00E-08	1.80E-03	2.57E+04	CCF OF 7 ORIFICES TO PLUG
E50-OR_-CF-PLUGALL	7.20E-08	1.85E-03	2.57E+04	CCF OF ALL ORIFICES TO PLUG
E50-SQV-CC-F002A	3.00E-03	1.61E-02	6.36	SQUIB VALVE F002A FAILS TO OPERATE
E50-SQV-CC-F002D	3.00E-03	1.61E-02	6.36	SQUIB VALVE F002D FAILS TO OPERATE
E50-SQV-CC-F002E	3.00E-03	1.61E-02	6.36	SQUIB VALVE F002E FAILS TO OPERATE
E50-SQV-CC-F002H	3.00E-03	1.61E-02	6.36	SQUIB VALVE F002H FAILS TO OPERATE
E50-SQV-CF-4OPEN	1.50E-05	1.25E-04	9.33	CCF OF 4 OR MORE SQUIB VALVES TO OPEN
E50-SQV-CF-GDCS7OPEN	1.50E-05	4.13E-01	2.75E+04	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
E50-SQV-CF-OPENALL	1.50E-05	4.13E-01	2.75E+04	CCF OF ALL SQUIB VALVES TO OPEN
E50-SQV-CO-F009A	3.50E-03	3.69E-02	11.52	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
E50-SQV-CO-F009B	3.50E-03	2.71E-02	8.73	SQUIB DELUGE VALVE F009B SPUR. OPENING [#7]
E50-SQV-CO-F009C	3.50E-03	2.71E-02	8.73	SQUIB DELUGE VALVE F009C SPUR. OPENING [#7]
E50-SQV-CO-F009D	3.50E-03	3.69E-02	11.52	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
E50-SQV-CO-F009E	3.50E-03	3.69E-02	11.52	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
E50-SQV-CO-F009F	3.50E-03	2.71E-02	8.73	SQUIB DELUGE VALVE F009F SPUR. OPENING [#7]

Table 13-9

Internal Flooding Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Full Power
Core Damage Frequency = 3.68E-09

Event Name	Probability	F-V	RAW	Description
E50-SQV-CO-F009G	3.50E-03	2.71E-02	8.73	SQUIB DELUGE VALVE F009G SPUR. OPENING [#7]
E50-SQV-CO-F009H	3.50E-03	3.69E-02	11.52	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
E50-SQV-CO-F009I	3.50E-03	3.69E-02	11.52	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
E50-SQV-CO-F009J	3.50E-03	2.71E-02	8.73	SQUIB DELUGE VALVE F009J SPUR. OPENING [#7]
E50-SQV-CO-F009K	3.50E-03	2.71E-02	8.73	SQUIB DELUGE VALVE F009K SPUR. OPENING [#7]
E50-SQV-CO-F009L	3.50E-03	3.69E-02	11.52	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
E50-STR-CF-SPPLUG	3.75E-04	4.36E-03	12.59	CCF FILTER/STRAINER IN PSP TO PLUG
E50-UV_-OC-F003A	1.75E-03	9.42E-03	6.37	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
E50-UV_-OC-F003D	1.75E-03	9.42E-03	6.37	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
E50-UV_-OC-F003E	1.75E-03	9.42E-03	6.37	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
E50-UV_-OC-F003H	1.75E-03	9.42E-03	6.37	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
FLOOD-RB-CRD-POWER	3.40E-03	2.65E-05	1.01	FLOOD IN REACTOR BUILDING DUE TO BREAK IN CRD SYSTEM
FLOOD-RB-RWCU-POWER	3.40E-03	3.24E-04	1.09	FLOOD IN REACTOR BUILDING DUE TO BREAK IN RWCU SYSTEM
FLOOD-TB-ALL-POWER	2.80E-02	9.97E-01	35.59	FLOOD IN TURBINE BUILDING DUE TO BREAK IN CIRC SYSTEM
G21-ACV-CC-F321	2.00E-03	2.56E-04	1.13	AOV F321 FAILS TO OPERATE TO NOT DEENERG.POS.
G21-ACV-CC-F322	2.00E-03	2.56E-04	1.13	AOV F322 FAILS TO OPERATE TO NOT DEENERG.POS.
G21-ACV-CC-F332	2.00E-03	7.47E-03	4.73	AOV F332 FAILS TO OPERATE TO NOT DEENERG.POS.
G21-ACV-TM-F321/F322	8.00E-04	8.84E-05	1.11	AOVs F321 OR F322 IN MAINTENANCE OR TEST
G21-STR-CF-SPPLUG	1.01E-03	1.30E-04	1.13	CCF FILTER/STRAINER IN PSP TO PLUG
G21-UV_-CC-F331	1.60E-03	2.04E-04	1.13	CHECK VALVE F331 FAILS TO OPEN
G21-UV_-CC-F333	1.60E-03	5.94E-03	4.71	CHECK VALVE F333 FAILS TO OPEN
G21-UV_-CC-F348	1.60E-03	2.04E-04	1.13	CHECK VALVE F348 FAILS TO OPEN
G21-UV_-TM-F332/333	8.00E-04	2.94E-03	4.67	MAINTENANCE FOR CV F332 OR CV F333
G21-XHE-FO-LPCIADS	1.61E-02	2.30E-03	1.14	OPERATOR FAILS TO ALIGN AND ACTUATE FAPCS IN LPCI MODE
G21-XHE-MH-F334	4.80E-02	2.17E-01	5.29	MISPOSITION OF VALVE F334

Table 13-9

Internal Flooding Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Full Power
Core Damage Frequency = 3.68E-09

Event Name	Probability	F-V	RAW	Description
G31-ACV-OO-F006A	2.00E-03	1.11E-04	1.06	NOV F006A FAILS TO OPERATE TO DEENER. POSITION.
G31-ACV-OO-F3A	2.00E-03	2.47E-04	1.12	AOV F3A FAILS TO CLOSE
G31-BV_-OO-BOC	2.63E-04	3.91E-06	1.01	MANUAL VALVE RWCU BOC ISOLATION FAILS
G31-MOV-OO-F005A	4.00E-03	1.11E-04	1.03	MOTOR OPER. VALVE F005A FAILS TO CLOSE
G31-XHE-FO-MIBOC	5.32E-04	7.88E-06	1.01	OPERATOR FAILS IN MANUAL ISOLATION AFTER BOC IN RWCU
H23-EMS-CF-ALL	1.80E-06	1.51E-05	9.39	CCF OF ESSENTIAL MULTIPLEXING SYSTEM DIV 1/2/3/4
H23-EMS-CF-DIDALL	1.80E-06	4.10E-04	228.67	CCF OF ALL DIVISION OF THE EMS
H23-EMS-FC-DIVADID	6.00E-04	3.52E-05	1.06	ESSENTIAL MULTIPLEXING SYSTEM DIV A (DID) FAILS TO FUNCTION
H23-RMU-CF-ALL	9.00E-07	4.75E-06	6.25	CCF OF REMOTE MULTIPLEXING UNITS TO OPERATE
H23-RMU-CF-DIDALL	9.00E-07	2.05E-04	228.7	CCF OF REMOTE MULTIPLEXING UNITS (DID)
H23-RMU-FC-ESF1ADID	3.00E-04	1.23E-05	1.04	1ST DIV A (DID) ESF REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
H23-RMU-FC-ESF2ADID	3.00E-04	1.23E-05	1.04	2ND DIV A (DID) ESF REMOTE MULTIPLEXING UNIT FAILS TO FUNCTION
N21-ACV-OC-F016	1.31E-03	9.39E-05	1.07	AIR OPERATED VALVE N21-F016 FAILS TO REMAIN OPEN
N21-ACV-OC-F018	1.31E-03	2.42E-04	1.18	AIR OPERATED VALVE N21-F018 FAILS TO REMAIN OPEN
N21-LT_-CF-FWTKNO	4.38E-05	1.00E-04	3.28	CCF FEEDWATER STORAGE TANK LEVEL TRANSMITTERS
N21-LT_-NO-FWTKA	8.71E-03	3.74E-04	1.04	LEVEL TRANSMITTER TRAIN A FAILS
N21-LT_-NO-FWTKB	8.71E-03	3.74E-04	1.04	LEVEL TRANSMITTER TRAIN B FAILS
N21-LT_-NO-FWTKC	8.71E-03	3.74E-04	1.04	LEVEL TRANSMITTER TRAIN C FAILS
N21-MOV-CC-F061	3.13E-02	9.39E-05	1	MOTOR OPERATED VALVE N21-F061 FAILS TO OPEN
P22-ACV-FT-BYPASS	2.00E-03	3.68E-04	1.18	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
P30-XHE-MH-F015	4.80E-02	1.59E-03	1.03	MISPOSITION OF VALVE F01T
R10-CBU-FC-PRE500KV	7.20E-05	3.71E-05	1.51	500KV TRANSMISSION LINE FAILS
R11-BAC-TM-R11B2	4.80E-06	8.43E-06	2.76	6.9 KV AC BUS R11-B2 IN MANTENANCE
R12-LCB-CO-A2R12A202A	1.44E-05	1.91E-05	2.32	CIRCUIT BREAKER IN R12-A2-02A OPENS SPURIOUSLY
R12-LCB-CO-B2R12B202B	1.44E-05	1.28E-05	1.88	CIRCUIT BREAKER IN R12-B2-02B OPENS SPURIOUSLY

Table 13-9

Internal Flooding Full-Power Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Full Power
Core Damage Frequency = 3.68E-09

Event Name	Probability	F-V	RAW	Description
R12-LCB-CO-FA2R12A202A	1.44E-05	1.91E-05	2.32	CIRCUIT BREAKER FROM BUS R11-A2 OPENS SPURIOUSLY
R12-LCB-CO-FB2R12B202B	1.44E-05	1.28E-05	1.88	CIRCUIT BREAKER FROM BUS R11-B2 OPENS SPURIOUSLY
R12-XFL-LP-R12A202A	1.92E-05	2.53E-05	2.32	TRANSFORMER TO R12-A2-02AFAILS TO OPERATE
R12-XFL-LP-R12B202B	1.92E-05	1.69E-05	1.88	TRANSFORMER TO R12-B2-02B FAILS TO OPERATE
R13-LCB-CO-FR13A12	1.44E-05	1.91E-05	2.32	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-FR13B12	1.44E-05	1.28E-05	1.88	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-R13A12	1.44E-05	1.91E-05	2.32	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-R13B12	1.44E-05	1.28E-05	1.88	CIRCUIT BREAKER OPENS SPURIOUSLY
R13-LCB-CO-TOR13A1	1.44E-05	1.91E-05	2.32	CIRCUIT BREAKER TO R13-A1 OPENS SPURIOUSLY
R13-LCB-CO-TOR13B1	1.44E-05	1.28E-05	1.88	CIRCUIT BREAKER TO R13-B1 OPENS SPURIOUSLY
R13-XFL-LP-R13A12	1.92E-05	2.53E-05	2.32	TRANSFORMER FAILS DURING OPERATION
R13-XFL-LP-R13B12	1.92E-05	1.69E-05	1.88	TRANSFORMER FAILS DURING OPERATION
R16-BT_-CF-ALLBATT	9.00E-06	3.71E-05	5.11	BATTERY CCF #2
T10-XHE-FO-CLOSEIVS	1.77E-02	2.12E-04	1.01	OPERATOR FAILS TO MANUALLY CLOSE ISOLATION VALVES
T11-SYS-FF-OPEN	5.69E-02	2.65E-05	1	ALL OVERPRESSURE PROTECTION VALVES FAIL TO OPEN
U43-SYS-FF-LPCI	2.40E-02	2.08E-03	1.08	U43 HARDWARE FAILURES
U43-SYS-FF-YARD	2.00E-03	9.87E-06	1	HARDWARE FAILURES IN YARD AREA
U43-XHE-FO-LPCIADS	1.61E-02	1.38E-03	1.08	OPERATOR FAILS TO ACTUATE U43 IN LPCI MODE AFTER ADS
U43-XHE-FO-YARD	1.77E-03	8.73E-06	1	OPERATOR FAILS TO MAKE UP FROM YARD AREA
XXX-POL-RP-IC/PCC	3.00E-07	8.37E-06	28.89	LOSS OF IC/PCC POOL WATER DUE TO BREAK DURING ACCIDENT
XXX-XHE-FO-DEPRESS	1.61E-01	2.65E-05	1	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
XXX-XHE-FO-ICPCCS	1.61E-03	2.61E-05	1.02	OPERATOR FAILS TO RECOGNIZE NEED OF MAKE UP TO IC/PCCS POOLS

Table 13-10

Internal Flooding Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Shutdown
Core Damage Frequency = 1.64E-09

Event Name	Probability	F-V	RAW	Description
B21-LT_-CF-N001ABCD	1.20E-07	2.97E-03	2.47E+04	CCF OF DIVERSIFIED LEVEL 1& 2 TRANSM. 1A/B/C/D
B21-SQV-CF-DPVOPEN	1.50E-05	4.04E-05	3.69	CCF OF DPV'S TO OPEN
B21-UV_-CC-F102A	1.60E-03	4.72E-03	3.95	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
B21-UV_-CC-F102B	1.60E-03	8.26E-03	6.16	CHECK VALVE #1 IN FEEDWATER LINE B FAILS TO REOPEN
B21-UV_-CC-F103A	1.60E-03	4.72E-03	3.95	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN
B21-UV_-CC-F103B	1.60E-03	8.26E-03	6.16	CHECK VALVE #2 IN FEEDWATER LINE B FAILS TO REOPEN
B32-ACV-CF-2ICABCD	1.55E-05	5.32E-05	4.42	CCF TO OPEN 2/4 ACV VALVES TRAINS A,B,C,D
B32-MOV-CF-2ICABCD	8.08E-06	2.77E-05	4.42	CCF TO OPEN 2/4 MOV VALVES TRAINS A,B,C,D
C12-MCB-OO-C001B	1.00E-03	1.11E-04	1.11	CIRCUIT BREAKER FOR C001B & AUX OIL PMP B FAILS TO CLOSE
C12-MOV-CC-F014A	4.00E-03	1.85E-03	1.46	MOTOR OPER. VALVE F014A FAILS TO OPEN
C12-MOV-CC-F014B	4.00E-03	1.85E-03	1.46	MOTOR OPER. VALVE F014B FAILS TO OPEN
C12-MOV-CC-F020A	4.00E-03	9.41E-04	1.23	MOTOR OPER. VALVE F020A FAILS TO OPEN
C12-MOV-CC-F020B	4.00E-03	5.75E-04	1.14	MOTOR OPER. VALVE F020B FAILS TO OPEN
C12-MOV-CF-OPEN	1.78E-04	8.21E-04	5.62	CCF MOV TO OPEN
C12-MOV-FC-F020A	3.13E-03	7.36E-04	1.23	FLOW CONTROL A FAILS WIDE OPEN
C12-MOV-FC-F020B	3.13E-03	4.50E-04	1.14	FLOW CONTROL B FAILS WIDE OPEN
C12-MP_-FS-C001BOIL	2.40E-03	3.45E-04	1.14	MOTOR-DRIVEN AUX. OIL PUMP FOR C001B FAILS TO START
C12-MPC-FS-C001B	2.40E-03	3.45E-04	1.14	MOTOR-DRIVEN PUMP C001B FAILS TO START
C12-OR_-PG-D007A	6.48E-04	1.08E-04	1.17	ORIFICE D007A FAILS TO REMAIN OPEN (PLUG)
C12-OR_-PG-D007B	6.48E-04	7.22E-05	1.11	ORIFICE D007B FAILS TO REMAIN OPEN (PLUG)
C12-SYS-TM-TRAINB	3.00E-03	4.32E-04	1.14	TRAIN B IN MAINTENANCE
C12-UV_-CC-F022	1.60E-03	8.26E-03	6.16	CHECK VALVE F022 FAILS TO OPEN
C12-XHE-MH-F003B	1.20E-02	1.76E-03	1.14	MISPOSITION OF VALVE F003B
C12-XHE-MH-F013A	4.80E-02	2.74E-02	1.54	MISPOSITION OF VALVE F013A

Table 13-10

Internal Flooding Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Shutdown
Core Damage Frequency = 1.64E-09

Event Name	Probability	F-V	RAW	Description
C12-XHE-MH-F013B	4.80E-02	2.74E-02	1.54	MISPOSITION OF VALVE F013B
C12-XHE-MH-F015A	4.80E-02	2.74E-02	1.54	MISPOSITION OF VALVE F015A
C12-XHE-MH-F015B	4.80E-02	2.74E-02	1.54	MISPOSITION OF VALVE F015B
C12-XHE-MH-F018A	1.20E-02	2.91E-03	1.24	MISPOSITION OF VALVE F018A
C12-XHE-MH-F018B	1.20E-02	1.76E-03	1.14	MISPOSITION OF VALVE F018B
C12-XHE-MH-F021A	1.20E-02	2.91E-03	1.24	MISPOSITION OF VALVE F021A
C12-XHE-MH-F021B	1.20E-02	1.76E-03	1.14	MISPOSITION OF VALVE F021B
C51-ACT-CF-APRMSTUCK	2.10E-07	5.20E-03	2.47E+04	CCF APRM DETECTORS STUCK AT POWER LEVEL
C62-DTM-CF-N1EALL	5.50E-05	2.54E-04	5.62	CCF OF DIGITAL TRIP MODULES NO 1E
C62-VLU-CF-DIDALL	3.12E-05	2.27E-04	8.26	CCF OF VOTER LOGIC UNITS
C74-DTM-CF-ALL	1.20E-05	8.79E-05	8.3	CCF 3/4 DTM OF SSLC DIV1/2/3/4
C74-VLU-CF-ALL	3.12E-06	1.44E-05	5.57	CCF OF VOTER LOGIC UNITS
E50-MP_-TM-POOLB	1.00E-02	7.85E-02	8.77	GDCS POOL B IN MAINTENANCE
E50-OR_-CF-7PLUG	7.00E-08	1.73E-03	2.47E+04	CCF OF 7 ORIFICES TO PLUG
E50-OR_-CF-PLUGALL	7.20E-08	1.78E-03	2.47E+04	CCF OF ALL ORIFICES TO PLUG
E50-OR_-PG-D001A	1.44E-05	2.16E-05	2.48	ORIFICE 001A FAILS TO REMAIN OPEN (PLUG) [# 5]
E50-OR_-PG-D001D	1.44E-05	2.16E-05	2.48	ORIFICE 001D FAILS TO REMAIN OPEN (PLUG) [# 5]
E50-OR_-PG-D001E	1.44E-05	2.16E-05	2.48	ORIFICE 001E FAILS TO REMAIN OPEN (PLUG) [# 5]
E50-OR_-PG-D001H	1.44E-05	2.16E-05	2.48	ORIFICE 001H FAILS TO REMAIN OPEN (PLUG) [# 5]
E50-SQV-CC-F002A	3.00E-03	2.29E-02	8.61	SQUIB VALVE F002A FAILS TO OPERATE
E50-SQV-CC-F002D	3.00E-03	2.29E-02	8.61	SQUIB VALVE F002D FAILS TO OPERATE
E50-SQV-CC-F002E	3.00E-03	2.29E-02	8.61	SQUIB VALVE F002E FAILS TO OPERATE
E50-SQV-CC-F002H	3.00E-03	2.29E-02	8.61	SQUIB VALVE F002H FAILS TO OPERATE
E50-SQV-CF-4OPEN	1.50E-05	1.30E-04	9.64	CCF OF 4 OR MORE SQUIB VALVES TO OPEN
E50-SQV-CF-EQALLOPEN	3.00E-05	9.59E-05	4.18	CCF OF ALL 4 SQUIB VALVES TO OPEN

Table 13-10

Internal Flooding Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Shutdown
Core Damage Frequency = 1.64E-09

Event Name	Probability	F-V	RAW	Description
E50-SQV-CF-F002A/2E	3.60E-05	1.66E-04	5.61	CCF OF SQUIB VALVES F002A/ F002E
E50-SQV-CF-F002D/2H	3.60E-05	1.66E-04	5.61	CCF OF SQUIB VALVES F002D/ F002H
E50-SQV-CF-GDCS7OPEN	1.50E-05	3.78E-01	2.52E+04	CCF OF 7 SQUIB VALVES IN GDCS LINES TO OPEN
E50-SQV-CF-OPENALL	1.50E-05	3.78E-01	2.52E+04	CCF OF ALL SQUIB VALVES TO OPEN
E50-SQV-CO-F009A	3.50E-03	5.23E-02	15.92	SQUIB DELUGE VALVE F009A SPUR. OPENING [#7]
E50-SQV-CO-F009B	3.50E-03	2.54E-02	8.23	SQUIB DELUGE VALVE F009B SPUR. OPENING [#7]
E50-SQV-CO-F009C	3.50E-03	2.54E-02	8.23	SQUIB DELUGE VALVE F009C SPUR. OPENING [#7]
E50-SQV-CO-F009D	3.50E-03	5.23E-02	15.92	SQUIB DELUGE VALVE F009D SPUR. OPENING [#7]
E50-SQV-CO-F009E	3.50E-03	5.23E-02	15.92	SQUIB DELUGE VALVE F009E SPUR. OPENING [#7]
E50-SQV-CO-F009F	3.50E-03	2.54E-02	8.23	SQUIB DELUGE VALVE F009F SPUR. OPENING [#7]
E50-SQV-CO-F009G	3.50E-03	2.54E-02	8.23	SQUIB DELUGE VALVE F009G SPUR. OPENING [#7]
E50-SQV-CO-F009H	3.50E-03	5.23E-02	15.92	SQUIB DELUGE VALVE F009H SPUR. OPENING [#7]
E50-SQV-CO-F009I	3.50E-03	5.23E-02	15.92	SQUIB DELUGE VALVE F009I SPUR. OPENING [#7]
E50-SQV-CO-F009J	3.50E-03	2.54E-02	8.23	SQUIB DELUGE VALVE F009J SPUR. OPENING [#7]
E50-SQV-CO-F009K	3.50E-03	2.54E-02	8.23	SQUIB DELUGE VALVE F009K SPUR. OPENING [#7]
E50-SQV-CO-F009L	3.50E-03	5.23E-02	15.92	SQUIB DELUGE VALVE F009L SPUR. OPENING [#7]
E50-STR-CF-SPPLUG	3.75E-04	6.38E-03	17.97	CCF FILTER/STRAINER IN PSP TO PLUG
E50-UV_-OC-F003A	1.75E-03	1.30E-02	8.39	CHECK VALVE F003A FAILS TO REMAIN OPEN OR PLUG
E50-UV_-OC-F003D	1.75E-03	1.30E-02	8.39	CHECK VALVE F003D FAILS TO REMAIN OPEN OR PLUG
E50-UV_-OC-F003E	1.75E-03	1.30E-02	8.39	CHECK VALVE F003E FAILS TO REMAIN OPEN OR PLUG
E50-UV_-OC-F003H	1.75E-03	1.30E-02	8.39	CHECK VALVE F003H FAILS TO REMAIN OPEN OR PLUG
FLOOD-FB-U43-PB6	1.08E-04	3.82E-02	354.88	FLOOD DURING SHUTDOWN IN THE FUEL BUILDING DUE TO BREAK IN FPS
FLOOD-RB-CRD-PB5	5.80E-04	8.08E-05	1.14	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD DURING MODE 5
FLOOD-RB-CRD-PB6	1.44E-04	9.09E-01	6.31E+03	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN CRD DURING MODE 6

Table 13-10

Internal Flooding Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Shutdown
Core Damage Frequency = 1.64E-09

Event Name	Probability	F-V	RAW	Description
FLOOD-RB-U43-PB6	1.44E-04	5.31E-02	369.79	FLOOD DURING SHUTDOWN IN THE REACTOR BUILDING DUE TO BREAK IN FPS
G21-ACV-CC-F332	2.00E-03	6.79E-03	4.38	AOV F332 FAILS TO OPERATE TO NOT DEENERG.POS.
G21-UV_-CC-F333	1.60E-03	4.72E-03	3.95	CHECK VALVE F333 FAILS TO OPEN
G21-UV_-OC-F331	2.16E-04	5.70E-04	3.64	CHECK VALVE F331 FAILS TO CLOSE
G21-UV_-TM-F332/333	8.00E-04	2.30E-03	3.87	MAINTENANCE FOR CV F332 OR CV F333
G21-XHE-MH-F334	4.80E-02	1.70E-01	4.38	MISPOSITION OF VALVE F334
G31-ACV-OO-F006A	2.00E-03	1.15E-05	1.01	NOV F006A FAILS TO OPERATE TO DEENER. POSITION.
G31-ACV-OO-F3A	2.00E-03	9.73E-05	1.05	AOV F3A FAILS TO CLOSE
G31-MOV-OO-F005A	4.00E-03	1.15E-05	1	MOTOR OPER. VALVE F005A FAILS TO CLOSE
H23-EMS-FC-DIVADID	6.00E-04	1.65E-05	1.03	ESSENTIAL MULTIPLEXING SYSTEM DIV A (DID) FAILS TO FUNCTION
N21-ACV-OC-F018	1.31E-03	2.91E-04	1.22	AIR OPERATED VALVE N21-F018 FAILS TO REMAIN OPEN
P21-MP_-CS-5ALL	6.50E-06	3.01E-05	5.61	CCF TO START PUMPS DIVISIONS A AND B
P22-ACV-FT-BYPASS	2.00E-03	4.44E-04	1.22	HEAT EXCHANGERS BYPASS VALVE FAILS TO REGULATE
P30-XHE-MH-F015	4.80E-02	7.68E-04	1.02	MISPOSITION OF VALVE F01T
P41-FAN-CS-2ALL	7.20E-06	3.34E-05	5.62	CCF TO START 2 FAN UNITS
P41-MP_-CR-3ALL	1.17E-05	5.43E-05	5.62	CCF TO RUN 3 PUMPS TRAINS A AND B
P41-MP_-CS-3ALL	6.26E-06	2.90E-05	5.62	CCF TO START PUMPS TRAINS A AND B
P41-STR-CF-3ALL	1.07E-05	4.94E-05	5.61	CCF 3 STRAINERS PLUGGED
P51-CMP-CR-RUN	1.49E-04	3.31E-05	1.22	CCF OF P51 COMPRESSORS TO RUN
R10-CBU-FC-PRE500KV	7.20E-05	1.57E-04	3.18	500KV TRANSMISSION LINE FAILS
R16-BT_-CF-ALLBATT	9.00E-06	1.57E-04	18.41	BATTERY CCF #2
T10-XHE-FO-CLOSEIVS	1.77E-02	1.02E-04	1.01	OPERATOR FAILS TO MANUALLY CLOSE ISOLATION VALVES
U43-SYS-FF-LPCI	2.40E-02	8.52E-02	4.46	U43 HARDWARE FAILURES
U43-XHE-FO-LPCIADS	1.61E-02	5.71E-02	4.49	OPERATOR FAILS TO ACTUATE U43 IN LPCI MODE AFTER ADS
XXX-XHE-FO-DEPRESS	1.61E-01	2.02E-05	1	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

Table 13-10

Internal Flooding Shutdown Importance Measure Report

F-V and RAW Importance Measures Report
(F-V = Fussell-Vesely Importance Measure; RAW = Risk Achievement Worth Importance Measure)
Flooding Shutdown
Core Damage Frequency = 1.64E-09

Event Name	Probability	F-V	RAW	Description
XXX-XHE-FO-LPMAKEUP	1.61E-01	5.72E-01	3.98	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP (LOCA)
B21-LT_-CF-N001ABCD	1.20E-07	2.97E-03	2.47E+04	CCF OF DIVERSIFIED LEVEL 1& 2 TRANSM. 1A/B/C/D
B21-SQV-CF-DPVOPEN	1.50E-05	4.04E-05	3.69	CCF OF DPV'S TO OPEN
B21-UV_-CC-F102A	1.60E-03	4.72E-03	3.95	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
B21-UV_-CC-F102B	1.60E-03	8.26E-03	6.16	CHECK VALVE #1 IN FEEDWATER LINE B FAILS TO REOPEN
B21-UV_-CC-F103A	1.60E-03	4.72E-03	3.95	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN
B21-UV_-CC-F103B	1.60E-03	8.26E-03	6.16	CHECK VALVE #2 IN FEEDWATER LINE B FAILS TO REOPEN
B32-ACV-CF-2ICABCD	1.55E-05	5.32E-05	4.42	CCF TO OPEN 2/4 ACV VALVES TRAINS A,B,C,D
B32-MOV-CF-2ICABCD	8.08E-06	2.77E-05	4.42	CCF TO OPEN 2/4 MOV VALVES TRAINS A,B,C,D
C12-MCB-OO-C001B	1.00E-03	1.11E-04	1.11	CIRCUIT BREAKER FOR C001B & AUX OIL PMP B FAILS TO CLOSE
C12-MOV-CC-F014A	4.00E-03	1.85E-03	1.46	MOTOR OPER. VALVE F014A FAILS TO OPEN
C12-MOV-CC-F014B	4.00E-03	1.85E-03	1.46	MOTOR OPER. VALVE F014B FAILS TO OPEN
C12-MOV-CC-F020A	4.00E-03	9.41E-04	1.23	MOTOR OPER. VALVE F020A FAILS TO OPEN
C12-MOV-CC-F020B	4.00E-03	5.75E-04	1.14	MOTOR OPER. VALVE F020B FAILS TO OPEN
C12-MOV-CF-OPEN	1.78E-04	8.21E-04	5.62	CCF MOV TO OPEN
C12-MOV-FC-F020A	3.13E-03	7.36E-04	1.23	FLOW CONTROL A FAILS WIDE OPEN
C12-MOV-FC-F020B	3.13E-03	4.50E-04	1.14	FLOW CONTROL B FAILS WIDE OPEN
C12-MP_-FS-C001BOIL	2.40E-03	3.45E-04	1.14	MOTOR-DRIVEN AUX. OIL PUMP FOR C001B FAILS TO START
C12-MPC-FS-C001B	2.40E-03	3.45E-04	1.14	MOTOR-DRIVEN PUMP C001B FAILS TO START
C12-OR_-PG-D007A	6.48E-04	1.08E-04	1.17	ORIFICE D007A FAILS TO REMAIN OPEN (PLUG)
C12-OR_-PG-D007B	6.48E-04	7.22E-05	1.11	ORIFICE D007B FAILS TO REMAIN OPEN (PLUG)
C12-SYS-TM-TRAINB	3.00E-03	4.32E-04	1.14	TRAIN B IN MAINTENANCE
C12-UV_-CC-F022	1.60E-03	8.26E-03	6.16	CHECK VALVE F022 FAILS TO OPEN
C12-XHE-MH-F003B	1.20E-02	1.76E-03	1.14	MISPOSITION OF VALVE F003B

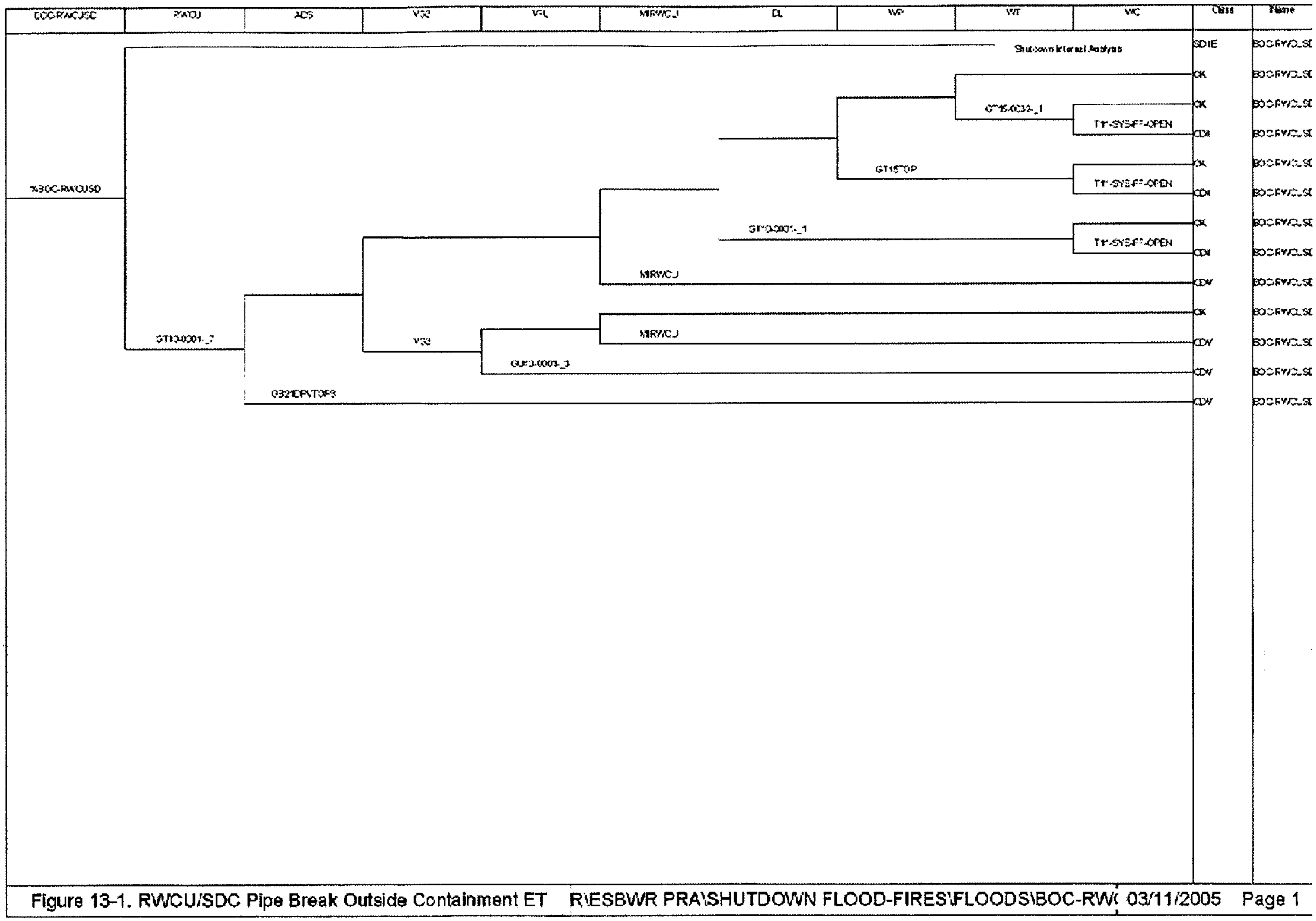

Figure 13-1. RWCU/SDC Pipe Break Outside Containment Event Tree

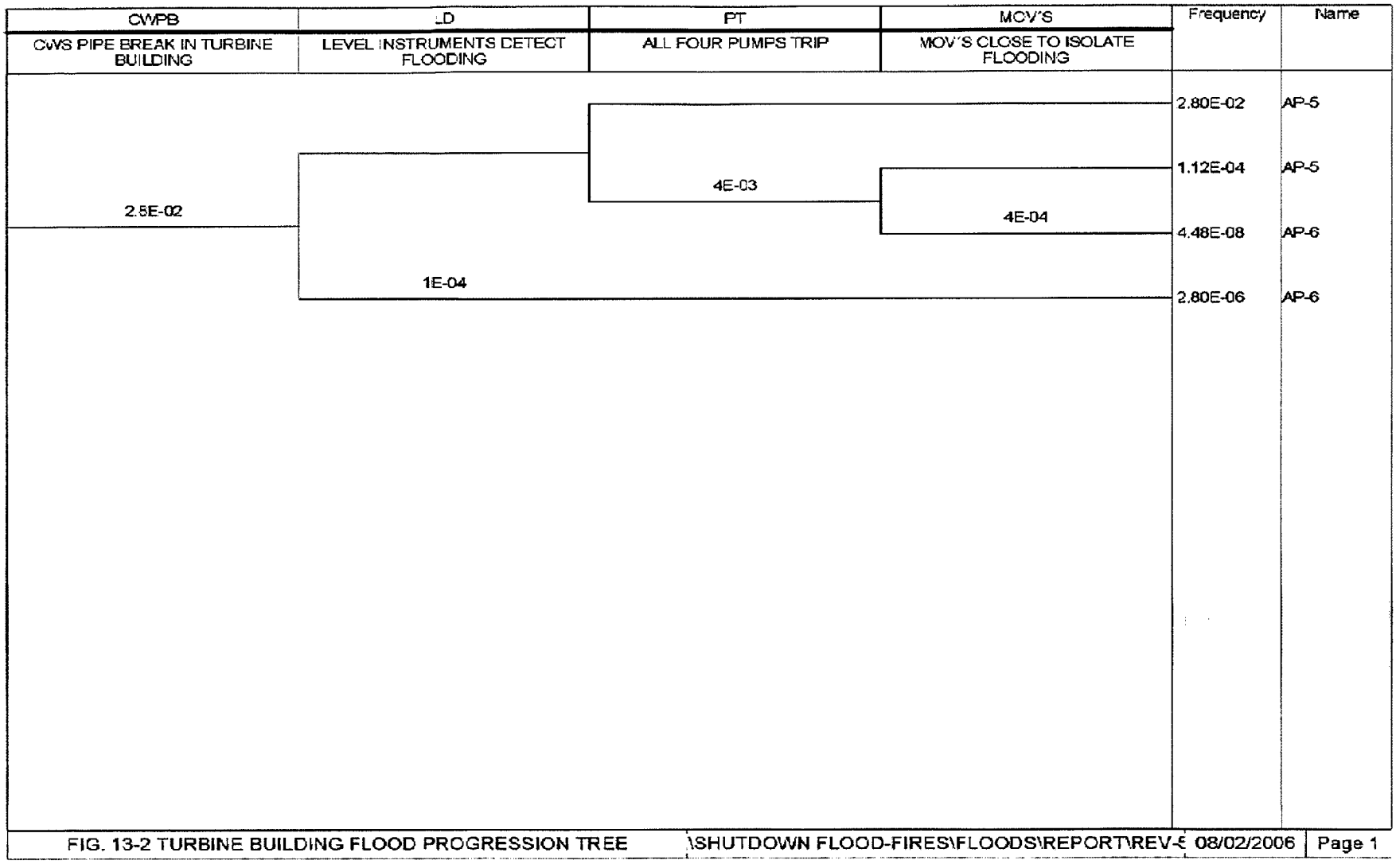

Figure 13-2. Turbine Building Flood Progression Event Tree