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10 CFR 50.71(e)

April 25, 2001
2130-01-20086

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

SUBJECT: OYSTER CREEK GENERATING STATION
FACILITY OPERATING LICENSE NO. DPR-16
DOCKET NO. 50-219
UPDATED FINAL SAFETY ANALYSIS REPORT (UFSAR), REVISION 12
FIRE HAZARDS ANALYSIS REPORT (FHAR), REVISION 11
UFSAR REFERENCED DRAWING PRINT BOOK SUBMITTAL

Dear Sir or Madam:

In accordance with 10CFR50.71(e)(4) and 10CFR50.4(b)(6), this letter submits one original and ten copies of Revision 12 of the Updated Final Safety Analysis Report (UFSAR) and Revision 11 of the Fire Hazards Analysis Report (FHAR) for Oyster Creek Generating Station. The enclosed UFSAR copies are being provided to the NRC with page revision listings that identify the latest revision date of all current pages in accordance with 10CFR50.71(e)(1). We have also provided page replacement instructions for incorporating Revision 12 into the UFSAR. It is requested when updating the FHAR, that all text be removed and replaced with Revision 11. As required by 10CFR50.71(e)(5), each UFSAR replacement page contains a vertical line in the margin adjacent to each area changed, or bolded text for additions, along with the date of the change. Each revised page of the FHAR contains a vertical margin bar adjacent to each area changed. Revision 11 of the FHAR and Revision 12 of the UFSAR reflect changes made up to a maximum of six months prior to this submittal in accordance with the requirements of 10CFR50.71(e)(4). As a result, the UFSAR Revision 12 and FHAR Revision 11 reflect changes made to Oyster Creek under the provision of 10CFR50.59 at least up to December 31, 2000.

Also enclosed is one book of controlled drawings currently referenced but not contained in the Oyster Creek UFSAR. These drawings were current at least up to December 31, 2000.

A053
A006
1/11 Rev 12 UFSAR
1 Rev 11 FHAR
1 Drawing Print Book Submittal

As required by 10CFR50.71(e)(2)(i), I certify that to the best of my knowledge, Revision 11 of the FHAR and Revision 12 of the UFSAR accurately reflect information and analyses submitted to the NRC, or prepared pursuant to NRC requirements as described above. In addition, as required by 10CFR50.71(e)(2)(ii), Attachment 1 to this letter identifies changes made under the provision of 10CFR50.59, and included in Revision 12 of the UFSAR, but not previously submitted to the NRC. FHAR Revision 11, Volume 1, Summary of Changes, page ii, identifies changes made under the provision of 10CFR50.59, and included in Revision 11 of the FHAR, but not previously submitted to the NRC.

If you have any questions or require further information, please contact us.

Very truly yours,

Joseph J. Hagan
Senior Vice President - Nuclear Operations
Mid-Atlantic Regional Operating Group

JAH/djd/vvg

Attachment
Enclosures: Oyster Creek UFSAR, Revision 12
Oyster Creek FHAR, Revision 11
UFSAR Referenced Drawing Print Book

cc: H. J. Miller, USNRC Administrator, Region I
H. N. Pastis, USNRC Senior Project Manager, OCGS
L. A. Dudes, USNRC Senior Resident Inspector, OCGS
File No. 01047

ATTACHMENT 1

10CFR50.71(e)(2)(ii) requires that revisions to the UFSAR include changes made under the provisions of 10CFR50.59, but not previously submitted to the NRC. Accordingly, the list below identifies these plant modifications and projects included in Revision 12 of the Updated Final Safety Analysis Report (UFSAR) that were not previously submitted to the NRC. The list does not represent a complete list of UFSAR change packages incorporated.

Modification Number	Revision	Description
12-001 #1	00	Update FSAR to incorporate 3 recirculation loop operation.
12-001 #2	00	Change design condition of Core Spray Test Valves from 200ºF to 350ºF.
12-002	00	Revise references of Turbine Building pressure requirements from "approximately – 0.25" W.G." to "negative pressure."
12-003	00	Change design condition of Core Spray Test Valves from 200ºF to 350ºF.
12-004	00	Delete reference to service water pressure switches and their annunciators, CWS supply.
12-008	00	Revise valve names to be consistent with the equipment tags.
12-009	00	Reflects removal of vendor mobile solidification system and reduced generation of concentrated liquid waste.
12-010	00	(1) 9.5.1.2.6 – add "/fixed temperature" after rate compensated in the 2nd sentence. (2) Table 9.5-8 – For Fire Water Pump House, Reduce Qty. to 2 for Rate of Rise; Add 2 Thermal (Rate Compensated/Fixed Temperature).
12-011	00	(1) Change description of check valves, mixer, rupture disc on Table 9.2-18. (2) Location of chem.. tank alarm is 1F/2F and not 7F. (3) Other minor corrections found during walkdown/review.
12-012	00	Change LPRM high alarm setpoint value from 90 watts/cm^2 to 97 watts/cm^2. Include LPRM 36-41 in section describing detectors removed from service in 15R.
12-013	00	Delete sump pump design details.
12-014	00	To remove out of date information regarding Well and Domestic Water Systems due to modification.
12-016	00	Change "The batteries are rated at 100 ampere hours at a four hour discharge rate." to "The batteries are rated at 100 ampere hours at a eight hour discharge rate."
12-017	00	This change is being made to allow concurrent verification while executing a switching order.
12-018	00	Add descriptions for refueling and internals handling equipment for tools used during outages.
12-019	00	Change alarm actuation from 2.2 second time delay to 2.2 second time lag.
12-020	00	Delete Item f. Intake Structure from list on pg. 3.5-9 in Sect. 3.5.2 Table.
12-021	00	LPRM Trend Recorder was removed under MM-402910-005, remove statement related to LPRM Trend Recorder.
12-022	00	Remove reference to radio transmitter.

Modification Number	Revision	Description
12-023	00	Add reference calculation C-1302-211-E540-124 documenting the requirement of system purging for 8 hours every 44 days to maintain its operable status.
12-024	00	Change voltage rating for Core Spray MOVs, Change max allowable open Stroke time and remove the closing time limit for the outside isolation valves, remove the maximum allowable times under surveillance conditions for the isolation condenser MOVs and editorial corrections.
12-025	00	The High Temperature Trip is deleted. The alarm remains.
12-026	00	Revise Section 5.4.8 of UFSAR such that it incorporates the use of a freeze seal as a temporary part of the reactor coolant pressure boundary.
12-028	00	Incorporates factual information found during the preparation of LER 98-006 and OC-MD-H093-001.
12-030	00	The System Description is updated to reflect the equipment status and stand-by status of the NRWCCW System and to correct corresponding table information.
12-031	00	Change description of spent fuel pool liner thickness from "1/4" to "1/4 for the pool floor, north wall, and opening to the reactor cavity and nominal 1/8" for the other walls.
12-032	00	Deletion and rewording for clarification.
12-033	00	Table 9.2-20 corrections based on Level 1 and Level 2 UFSAR review, as are 3.1.42, 9.2.2.2.4.
12-034	00	Revise statement regarding heavy loads.
12-035	00	Delete note that refers to Recorder TR-IA0014.
12-037	00	Change the storage capacity from 190 new fuel bundles to 170 new fuel bundles. The actual installed capacity of NFSV is 170 bundles which is 30 percent of core loading.
12-038	00	TE No. Column – LD12 (IA01-40) is referenced to Note 2. This is a typo. It should be referenced to Note 3 (spare or abandoned in place).
12-039	00	For the pressure control valve delete "diaphragm" in "air diaphragm operated"; change "spring and flow to close" to "fail close".
12-040	00	Per CAP No. 01996-0557, revise OC UFSAR Section 5.4.1.2.3 and UFSAR Section 6.3.1.3.3 to be consistent with the requirements of Technical Specification 3.3F.
12-041	00	Reflect transfer of license to AmerGen.
12-042	00	Delete description related to 100 ton ISFSI spent fuel cask movement during plant shutdown. This evolution was not performed and not planned with the existing RB crane. The corresponding SE-402880-009, Rev. 1 is archived and is no longer active and not applicable.
12-043	00	Proposed changes were not properly included in Update 11 as documented in PFU 11-226. SE 000641-024 issued for PFU 11-226 supports the proposed UFSAR changes. This is considered an editorial change due to Update 11 omission.
12-044	00	UFSAR changes resulting from one-time UFSAR review of the Reactor Protection System (RPS) and correction of minor editorial comments and correction of References.
12-045	00	Correct identification of FRCT to GPUE vs JCP&L.

Modification Number	Revision	Description
12-046	00	Editorial changes, One reference deleted, Figure 3.11-3A, B and C deleted, Figures 3.11-2 and 3.11-3A replaced.
12-047	00	Remove references to GPUN.
12-048	00	Change design discharge pressure of Cleanup Recirc. Pump from 1250 psig to 1670 psig (ref. CAP 01999-1522).
12-049	00	Correct typographical error – "Period" mark omitted from the headings.
12-050	00	Configuration changes in the status of offsite power connections.
12-051	00	Change department name from "Radiological Controls" to "Radiation Protection", clarify organization and external support groups.
12-052	00	Incorporates Generic Letter 96-06 – 18R Modification
12-053	00	Revised to include description of Seal Well Bypass Valves – 18R Modification.
12-054	00	Correct typo, delete misleading sentence, update results and figures to the latest (cycle 18).
12-055	00	Clarify statement and update results and figures to the latest (cycle 18).
12-056	00	Clarify that the loss of condenser vacuum is bounded by a turbine trip with bypass failure when reactor trip and turbine trip are both set at 22" Hg vacuum.
12-057	00	Add specific reference to text.
12-058	00	Clarify event description, assumptions and initial conditions and results.
12-059	00	Clarify event description, update table and figure to the latest (cycle 18).
12-060	00	Reformat equations and add references.
12-061	00	Management and technical support organizational changes effective on Legal Day 1 of the PECO/Unicom merger.
12-061	01	Management and technical support organizational changes as a result of the PECO/Unicom merger and restructuring. Effective on Restructuring Day 1.
12-062	00	Provided wording clarification to indicate there was an initial leak reduction program with an 11-system scope and an ongoing program with the current scope indicated in TS 6.15.
12-063	00	The sections are revised to incorporate the removal of V-20-24 & V-20-25.
12-064	00	Reflect modifications to Isolation Condenser System Valves V-14-36 and V-14-37.
12-065	00	The ability to pump sump 1-1, and 1-5 directly overboard, via the 60" circ water backwash pipes, is being eliminated.
12-066	00	Delete references to system pressure indication and flow indication/control. Information is incorrect and contains unnecessary detail.
12-067	00	Add new paragraph to acknowledge use of portable drum evaporators.
12-068	00	Revise FSAR to reflect cycle 18 core load changes.
12-070	00	Update FSAR for new boral racks in the spent fuel pool.
12-073	00	Change wording for EDG cranking time limit to nominal value
12-074	00	Change to show change in type of fire detectors in cable bridge tunnels.

Modification Number	Revision	Description
12-075	00	Revise the "Drawing Cross Reference Index" to reflect the deletion of Figures 15.4-8, 15.4-9, 15.4-10, 15.4-11 and 15.4-12.
12-076	00	Revise the text to add an appropriate reference for the analysis of the "Transient on May 2, 1979" that is described in UFSAR Subsection 15.2.7.4.
12-077	00	Delete the text associated with "Mechanical Failure of Isolation Condenser Isolation Valve" from Subsection 6.3.2.5.1. This text is obsolete.
12-078	00	Correct administrative errors, remove obsolete references, remove inconsistent and incomplete tables, update tables for accuracy and changed tooling.
12-079	00	Correct two typographical errors. Add a statement for the backup high pressure isolation signal (source is PS-215-1044) that closes V-16-2 and V-16-14.
12-080	00	Deletion of H2/02 monitor from list of "Other Engineered Safety Features" in UFSAR Section 6.8.
12-081	00	The table is revised to include the replacement of the tube bundles in A Isolation Condenser.
12-082	00	Identifies that the liquid overboard discharge monitor has been abandoned.

RECEIPT ACKNOWLEDGMENT FORM

For OCNGS USFAR Controlled Copy # 1-11

Assigned to: Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555
Mail Station 12 G18
Attn: Document Control Desk

Please sign below as evidence of receipt of the Oyster Creek Nuclear Generating Station's Updated Final Safety Analysis Report (UFSAR) Revision 12 replacement pages with the associated Referenced Drawings Book, and the Fire Hazard Analysis Report (FHAR), Revision 11. These are controlled documents that must be inserted into your copy of the UFSAR and FHAR volumes.

Please take this opportunity to verify the accuracy of your documents by conducting a self-audit. This can be done, while inserting the revisions, by making a comparison of each individual page in your documents to the Page Revision Listing. The most current revision is indicated in the bottom right-hand corner of each page. This revision number should coincide with that indicated on the Page Revision Listing.

If these controlled documents are not needed, or you wish to report missing pages, please contact the UFSAR Revision Coordinator in Licensing at the address below.

_____/ _____ _____

Signed Organization Date

Return to: Karl Moyer (610-765-5518)
Exelon Nuclear
KSA3-E, Licensing Section
200 Exelon Way
Kennett Square, PA 19348
karl.moyer@exeloncorp.com

AmerGen

O.C. IRMC VALIDATED 3/26/01 C/AD

Configuration Management Transmittal

Transmittal No. 401400

Date 3/26/01

0/3/13

Information Resources Management

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Originator:	Tel.	Home Base #	Unit:
MARK CARLSON	2207	E120	☒ OC ☐ OC Sim.

COMPANY	DOCUMENT #	TITLE	KEYWORDS	REV #	BA #	SYS #	REL STAT	REV PRIOR	DRAWINGS ONLY	
									SHEET	TYPE
AmerGen	990-1746	FIRE HAZARDS ANALYSIS REPORT		11		911	U	3		
	1									

Special Instruction:

CC:

Department Approval: Mark Carlson Date: 3/26/01

D& D Approval: (for release of "information" and "Use" drawings) Date:

AG1080 (03/00)

OYSTER CREEK NUCLEAR GENERATING STATION

FIRE HAZARDS ANALYSIS REPORT

VOLUME 1

DOCUMENT NO. 990-1746
REVISION 11

Summary of Changes - Revision 11

This summary of changes provides the change document and supporting documentation for each revised page incorporated in Revision 11. All changes due to Revision 11 are identified with a revision bar to the right. Summaries of changes up to and including Revision 10 are no longer included. These are now on file per document release forms #069400, #078757, #117655, # 187807, #171443, #183519 and #402868.

ITEM #

1. ECD C307162 & C400502
   Corrected discrepancy between field and FHAR for Valve numbers
   Administrative Change - No Safety Review

2. ECD C313937
   Corrected discrepancy between TDR 350 and FHAR
   Administrative Change - Safety Review

3. ECD C313962
   Safety Evaluation SE-000911-0003

4. ECD C313967
   Fire Protection Evaluation FPE-OC-000911-003
   Safety Evaluation SE-000911-006

5. ECD C314501
   Fire Protection Evaluation FPE-OC-000665-001
   Safety Evaluation SE-000665-012

6. ECD C314524
   Safety Evaluation SE-000911-004

7. ECD C314535
   Fire Protection Evaluation FPE-OC-000665-002
   Safety Evaluation SE-000665-013

8. ECD C401100
   Safety Evaluation SE-000911-007

9. ECD C401135
   Fire Protection Evaluation FPE-OC-000665-003
   Safety Evaluation SE-000665-014

10. ECD C401147
    Fire Protection Evaluation FPE-OC-000770-001 and FPE-OC-000814-004
    Safety Evaluation SE-000911-008

11. ECD C313966
    Safety Evaluation SE-000911-005

12. ECD C400503
    Safety Evaluation SE-000814-003

13. ECD C400506
    Safety Evaluation SE-000911-004

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FIRE PROTECTION PROGRAM

OYSTER CREEK NUCLEAR GENERATING STATION

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FIRE PROTECTION PROGRAM

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3D-911-02-006	Turbine Building - Operating Floor
3D-911-02-007	Turbine Building - Sections A-A & B-B
3D-911-02-008	Turbine Building - Sections C-C & D-D
3D-911-02-009	Turbine Building - Sections E-E & F-F
3D-911-02-010	Office Building - 1st & 2nd Floor
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3D-911-02-033	New Radwaste Building - Plan Floor El. 48'-0"
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3D-911-02-035	New Warehouse - Fl. El. 24'-6"
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3D-911-02-038	Site Emergency Building - 2nd Floor Plan
3D-911-02-039	Legend and Notes

1.0 INTRODUCTION

The fire protection program at Oyster Creek Nuclear Generating Station is established to minimize both the probability of fires and the consequences of any fires which might occur. To assure that the program functions properly, the following Fire Protection Plan has been developed.

The Fire Protection Plan covers, in detail, all aspects of the fire protection program at the plant.

The main purpose of the Fire Protection Plan is to provide a single source document which pulls together all the requirements for fire protection administrative controls and presents them in a cohesive fashion.

2.0 DEFINITIONS

Approved - signifies devices or assemblies having been tested and accepted for a specific purpose or application by a nationally recognized testing laboratory.

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

Combustible Liquid - a liquid having a flash point at or above 100m35F (37.8m35C).

Liquids with flash points at or above 100°F (38°C) are referred to as combustible liquids and may be subdivided as follows:

1. Class II liquids have flash points at or above 100°F (38°C) and below 140°F (60°C).

2. Class IIIA liquids have flash points at or above 140°F (60°C) and below 200°F (93°C).

3. Class IIIB liquids have flash points at or above 200°F (93°C).

Combustible Material - any material which will burn or sustain the combustion process whether or not it exhibits flame under exposure fire conditions that can exist at their point of application.

Concealed - if space containing combustible material is inaccessible to the extinguishing agent, the combustibles are considered to be concealed.

Design Basis Fires - are those that are considered to cause the most damage and are fires that may develop in local areas assuming no manual, automatic, or other fire fighting action has been initiated.

Electrical Conduit - rigid or flexible tubing usually either steel or aluminum in which electrical cables are run.

Enclosed - surrounded by a case which will prevent a person from accidentally contacting live electrical parts. Can also apply to flammable liquids which are contained or encased in fire resistive materials or buildings.

Fire Area - an area bounded by construction which will contain a fire to that area without reliance on automatic or manual fire suppression activities.

Fire Barrier - those components of construction (walls, floors, and roofs) that are rated by approving laboratories in hours for resistance to a standard time/temperature curve to prevent the spread of fire.

Fire Break - a feature of construction which prevents fire propagation along the length of cables(s) or prevents spreading of fire to nearby combustibles within a given fire area or fire zone.

Fire Brigade - the team of plant personnel assigned to fire fighting and who are trained in the fighting of fires by an established training program.

Fire Detector - a device designed to automatically detect the presence of fire and initiate an alarm system.

Classification of Typical Fire Detectors

Heat Detector - a device which detects abnormally high temperature or rate-of-temperature rise.

Smoke Detector - a device which detects the visible or invisible particles of combustion.

Flame Detector - a device which detects the infrared, ultraviolet, or visible radiation produced by a fire.

Products-of-Combustion Detector - a detector whose actuation mechanism depends upon pyrolysis or combustion products.

For further definitions, see NFPA 72, "National Fire Alarm Code."

Fire Protection Plan - encompasses the components, procedures, and personnel utilized in carrying out all activities of fire protection and includes such items as fire prevention, detection, administrative procedures, fire brigade organization, inspection and maintenance, training, quality assurance, and testing.

Fire Rating - refers to the endurance period of a fire barrier or structure and defines the period of resistance to a standard fire exposure elapsing before the first critical point in behavior is observed (Refer to NFPA 251).

Fire Suppression - refers to capability for control and/or extinguishment of fires (fire fighting). Manual fire suppression activities refer to use of standpipe and hose or portable extinguishers. Automatic fire suppression refers to fixed systems such as water sprinklers, halon, or carbon dioxide.

Fire Zone - A subdivision of a fire area in which the fire suppression systems are designed to combat a particular type of fire. The concept of fire zone aids in defining to the fire fighter the fire parameters and the actions which would be necessary.

Flame Spread Rating - refers to ratings obtained according to the Method of Test of Surface Burning Characteristics of Building Materials, NFPA No. 255; Underwriters Laboratories No. U.L. 723; ASTM No. E-84 and ANSI No. A-25.

Flammable Liquids

1. Flammable liquids have flash points below 100°F (38°C) and vapor pressures not exceeding 40 psia at 100°F (275 kPa at 38°C).

2. Class I liquids include those with flash points below 100°F (38°C) and may be subdivided as follows:

   (a) Class IA liquids includes those with flash points below 73°F (23°C) and with boiling points at or below 100°F (38°C).

   (b) Class IB liquids includes those with flash points below 73°F (23°C) and with boiling points at or above 100°F (38°C).

   (c) Class IC liquids includes those with flash points at or above 73°F (23°C) and below 100°F (38°C).

F.M. - Factory Mutual Engineering Corporation and Factory Mutual Research Corporation.

Hydraulically Designed Sprinkler System - a fixed water suppression system in which sprinkler spacing and pipe sizing is, within established limits, determined by hydraulic calculations rather than a standard schedule of allowable pipe sizes.

NFPA - National Fire Protection Association.

Noncombustible - materials no part of which will ignite and burn when subjected to fire.

Raceway - any channel for holding wires, cables, or bus-bars which is designed expressly for and used solely for this purpose.

Safety Related Systems and Components - systems and components required to shutdown the reactor and mitigate the consequences of postulated accidents and maintain it in a safe shutdown condition.

Sprinkler System - a fixed system of piping and components from the supply valve to the point at which water discharges from the system to the fire area. The system is normally activated by heat from a fire.

Sprinkler System Classification -

Wet Pipe - a system employing automatic closed head (fusible link operated) sprinklers and/or nozzles attached to a fixed piping system containing water and connected to a water supply so that water discharges immediately from sprinklers individually opened by a fire.

Dry Pipe - a system employing automatic closed head sprinklers and/ or nozzles attached to a fixed piping system containing air or nitrogen under pressure, the release of which (as from the opening of a sprinkler) permits the water pressure to open a valve known as a "dry-pipe" valve. The water then flows into the piping system and through the opened sprinklers.

Pre-Action System - a system employing automatic closed head sprinklers and/or nozzles attached to a fixed piping system containing air or nitrogen that may or may not be under pressure, with a fire detection system installed in the same areas as the sprinklers. Actuation of the fire detection system, as from a fire, opens a valve which permits water to flow into the sprinkler piping system and then to be discharged from any sprinklers which may have been opened by the heat from the fire.

Deluge System - a system employing open head sprinklers and/or nozzles attached to a piping system connected to a water supply through a valve which is opened by the operation of a fire detection system installed in the same areas as the sprinklers and/or nozzles. When this valve opens, water flows into the piping system and discharges from all sprinklers and/or nozzles simultaneously.

Standpipe and Hose Systems - a fixed piping system connected to a water supply to provide effective fire hose streams for manual use by the fire brigade in specific areas inside the building.

U.L. - Underwriters Laboratories, Inc.

3.0 REFERENCES

3.1 Regulatory References

10CFR 50.48
10CFR 50 Appendix R
OCNGS Technical Specifications
BTP APCSB 9.5-1 Appendix A
Fire Protection Safety Evaluation Report (including supplements) Nuclear Plant Protection Functional Responsibilities;
Administrative Controls and Quality Assurance, July 1977

3.2 Plant References

Operational Quality Assurance Plan
O.C. Fire Brigade Training Program
O.C. Emergency Plan

3.3 Administrative Procedures

101.2	Fire Protection Program
116	Surveillance Test Program
EP-013	Fire Protection Evaluation

3.4 Emergency Procedures

EPIP-OC-01 Classification of Emergency Conditions
2000-ABN-3200.23 Fire in AOG Charcoal Beds
2000-ABN-3200.29 Response to Fires
2000-RAP-3024.05 Fire System Alarm Response Procedures
2000-ABN-3200.30 Control Room Evacuation

3.5 Technical Data Reports

TDR 717, "OCNGS Fire Door and Fire Door Frame Evaluation"

3.6 Other

OCIS 551-81-6 Grouting
Station Procedure 2400-GMM-3900.55 Fire Barrier Penetration Seal Repair & Installation Procedure

SP-9000-42-001 Criteria and Methods for Sealing of Conduits Internally for Fire Protection

GPUN Calculation C-9000-810-5360-001, "Combustible Energy Heat Release Values".

GPUN Calculation C-1302-810-5720-002, "Fire Areas/Zones Floor Areas - O.C."

4.0 ORGANIZATION AND PERSONNEL

Overall responsibility of the fire protection program is with the Vice President - Oyster Creek. This position is responsible for operating and maintaining the Oyster Creek Plant in a safe, reliable, and efficient manner in accordance with corporate policies and all applicable laws, regulations, licenses, and technical requirements.

Reporting to this position is the Director, Engineering - Oyster Creek, who is responsible for directing activities in accordance with policies and all applicable laws, regulations, licenses and technical requirements. This is accomplished, in part, through the Senior Manager Systems who directs fire protection functions in the day-to-day support of station operation and maintenance.

The Fire Protection Coordinator reporting to the Manager, System Engineering, and the Fire Protection Program Engineer reporting to the Manager of Engineering Programs has direct responsibility for the administration of the station fire protection program to assure that technical specifications, fire plan, company and insurance requirements are fulfilled. The position requires previous experience at a nuclear generating station or in a fire protection related field, or the satisfactory completion of a program of academic training in an engineering or scientific field.

The Fire Protection Coordinator and Fire Protection Program Engineer responsibilities are defined in OC Procedure 101.2 "Fire Protection Program".

5.0 OPERATIONAL FIRE PROTECTION ACTIVITIES

5.1 Administrative Procedures

Administrative Procedures have been developed to control fire loading, barrier penetrations, ignition sources, and fire detection and suppression systems' operability requirements. All procedures are developed and revised under stringent rules. Final authorization for issuing a procedure is with the Director, Operations & Maintenance - Oyster Creek after review within the originating department and by the Plant Review Group (PRG).

Potential fire hazards are evaluated for any plant modification in accordance with the Fire Protection Evaluation Procedure (EP-013) to ensure that adequate fire protection measures are maintained; combustible loading inventories are kept up to date; overall fire protection is not degraded; and requirements and guidelines of regulatory agencies such as NRC, Insurance, State and Local Codes have been considered. Evaluation also addresses specific commitments to BTP APCSB 9.5-1, Appendix A and 10CFR50, Appendix R. The Fire Hazards Analysis Report is revised as required to reflect any significant change in plant configuration. The Fire Hazards Analysis Report contains an area-by-area evaluation of the plant to determine the ability of the passive and active fire protection systems to protect against the hazards present in the area. In the Fire Hazards Analysis Report, the fire resistance rating of barriers has been evaluated in order to delineate fire areas. The presence of properly rated fire dampers, fire door assemblies and penetration seals are an integral step in rating a fire barrier.

While fire barrier penetrations are under construction, they are required to be temporarily fire stopped at the end of work shifts or a fire watch will be posted.

When penetrations are completed, they must be sealed with silicone foam or an equivalent product. Conduit penetrations are evaluated for the need to install an internal conduit fire or smoke seal.

Specific procedures exist to control fire hazards by routing monthly inspections to the Fire Protection Coordinator. The monthly inspection includes a check of trash accumulation, unauthorized smoking, combustible storage, fire door integrity, use of welding, burning or grinding work permits, handling of flammable liquids, use of fire retardant wood in safety related areas, and fire barrier integrity. The monthly inspection report is reviewed by the Lead Fire Protection Coordinator and appropriate department Managers for appropriate corrective action.

Procedures have been developed to outline the specific requirements for housekeeping, control of combustibles, welding, burning and grinding, fire hazard impact of modifications, and precautions necessary when fire detection or suppression systems are impaired.

Surveillance procedures have been provided for fire detection, fire suppression, and water supply systems. These surveillance procedures require testing of the above systems and components to assure system operability. Surveillance is performed by the staff reporting to the Director/Maintenance and reviewed by the Fire Protection Coordinator.

5.2 Control of Combustibles

Compressed gases are and will be stored in accordance with established sound practice. Bulk storage of gases is located outside the plant structure. Gas cylinders are stored separately, according to type, with long axis parallel to building walls and safety related equipment. Hydrogen installations are in compliance with NFPA 50A.

The use of plastics, especially halogenated plastics, PVC, neoprene, etc., is minimized. New cable installations use IEEE-383 generically qualified cables. Combustibles are controlled through housekeeping procedures which require the plant to be clean and orderly. Monthly housekeeping inspections and monthly fire protection inspections verify that combustibles are adequately controlled.

Additional manual suppression measures are provided when flammable liquids are used for decontamination processes. Flammable liquids and combustible materials are stored in approved containers in areas designated by the Fire Protection Coordinator and in accordance with NFPA 30, "Flammable and Combustible Liquids Code".

Quantities of oil greater than five gallons are not left unattended unless stored in approved containers. Oily rags, paper, trash, etc., are to be promptly disposed of in an approved container.

Fire retardant treated wood or fiberglass with a 25 or less flame spread is used. If it is required to use untreated wood, the Fire Protection Coordinator is consulted for the necessary guidance. Transient combustibles are controlled in accordance with the plant "Control of Combustibles" procedure.

5.3 Control of Ignition Sources

Smoking is permitted in designated areas only. "No smoking" signs are posted. No open flame or combustion generated smoke is used for leak testing where safety related systems could be affected. The guidance set forth in NFPA 51B, "Standard for Fire Prevention in Use of Cutting and Welding Processes," is used when welding, burning, or grinding (hot work) operations take place in the plant. The Fire Protection Coordinator approves the permits, or if not available, the Fire Protection Program Engineer, Group Shift Supervisor may approve the permits. If a fire system is removed from service (impairment), the compensatory measures shall be established in accordance with the Fire Protection Program Technical Requirements.

5.4 Fire Brigade

The Oyster Creek Nuclear Generating Station fire brigade is organized and trained to combat fires utilizing plant equipment. Public fire department response is available to supplement plant fire brigade operations. The brigade is staffed to provide an adequate number of trained personnel on each shift to fight fires.

Training is provided for all fire brigade members by the GPUNC Training Department, the Fire Protection Coordinator, and fire brigade leaders. Classroom instruction includes the following:

1. Identification of fire hazards and types of fire that could occur in the plant;

2. Proper use of available fire fighting equipment and the method of fighting each type of fire. Types of fires include electrical fires, fires in cables and cable trays, hydrogen fires, flammable liquid fires, waste/debris fires, and record file fires.

3. The plant fire fighting plan with specific coverage of each individual's responsibilities.

4. The proper use of communication, lighting, ventilation, and emergency breathing equipment.

5. Toxic characteristics of products of combustion.

6. Fire fighting methods for inside buildings and tunnels.

7. Review of fire fighting strategies.

8. Review of plant modifications and corresponding changes in fire fighting plans.

Meetings of fire brigade personnel are held quarterly. Fire brigade members are required to attend or make up missed meetings. Meetings are utilized to cover basic training material over a two - year period. In addition, changes to fire fighting procedures and latest plant modifications are reviewed.

The initial training at the Oyster Creek Fire School includes actual fire fighting and extinguishment as well as the use of breathing apparatus under real fire conditions. Each fire brigade member is required to attend this training once every two years. This satisfies our commitment for this training, at least once every three years.

This actual fire fighting experience, plus quarterly training meetings on the proper method of fighting various type of fires which can occur in nuclear power plants, provide a firm operating base for the fire brigade.

Fire drills are conducted quarterly. Each shift fire brigade performs in at least one unannounced fire drill every year. Unannounced drills are designed and critiqued to determine the fire readiness of the plant fire brigade leader, brigade, fire protection systems and equipment. Each shift performs walk-through fire drills quarterly. Walk-through drills consist of a review and discussion of specific area pre-fire plans, and, as necessary, a visit to the area to discuss problems and become familiar with the fire hazards and suppression equipment within the area.

Drills are pre-planned by the Training Department. Critiques of drills are done by the Fire Protection Coordinator, Training Department, and the Fire Brigade Leader. An unannounced drill is critiqued by a qualified individual independent of the staff at an interval no less frequent than every 3 years.

Records of initial training, quarterly meetings, walk-through drills, and unannounced drills, including critiques, are maintained and are available for review.

Fire Brigade Leaders are given instruction in the direction and coordination of fire fighting activities.

The recommendations of the National Fire Codes, including the applicable NFPA publications, have been utilized in the organization and training of the fire brigade. Pre-fire plans have been developed for all plant areas housing safety related equipment.

5.5.2 Quality Assurance Program of GPUNC

The Quality Assurance Plan of General Public Utilities Nuclear Corporation includes fire protection and meets all Quality Assurance requirements of Branch Technical Position 9.5-1.

6.0 FIRE PROTECTION DESIGN

6.1 Building & Equipment Design

6.1.1 Oyster Creek Nuclear Generating Station utilizes the defense-in-depth concept to provide assurance that the occurrence of a fire will not prevent safe shutdown or increase the risk of radioactive releases to the environment. Fire protection features are provided to prevent fires from starting, rapidly detect, control and extinguish those that do occur, and provide protection for structures, systems and components essential to shutdown so that a fire not promptly extinguished does not impair safe shutdown capability.

The defense-in-depth concept is applied as well to structures, systems and components which are not directly related to safe shutdown of the plant in order to minimize exposure to safe shutdown systems and to limit the consequences of a fire to personnel and property.

Administrative procedures form the basis for fire prevention. Active and passive fire protection features assure rapid detection, control and extinguishment of fires. The active and passive fire protection features are described for each fire area/fire zone in the Fire Hazards Analysis Report.

6.1.2 Cables

All cable trays are constructed of non-combustible materials. The vast majority of the cabling in the plant is jacketed with Vulkene, which passes the horizontal flame test of Underwriters Laboratories (UL #510) but not the IEEE-383 test. Safety related cable trays containing these cables as identified in the FHAR as commitments to comply with BTP 9.5-1 have been protected with automatic fire suppression systems. Cables in the control cabinets of the Control Room are protected with a fixed automatic halon extinguishing system. Non-safety related cable trays are typically provided with automatic suppression when they are in the same areas as safety related cables. As a minimum, automatic fire detection systems and manual suppression equipment is provided in areas containing grouped electrical cables.

All new cable installations use IEEE-383 generically qualified cables which do not give off corrosive gases while burning except as follows:

Cable run in conduit or enclosed panels is considered noncombustible with respect to the fire hazard it poses and therefore need not meet the IEEE383 flame test requirements. Some applications utilize cable construction which is not tested to the IEEE383 flame test. It may not be practical or possible to require conformance to IEEE383. In such cases, the fire hazards analysis which reviews the modification will document the acceptability of the deviation.

In the Fire Hazards Analysis, the presence and adequacy of penetration seals, including internal conduit seals, was considered when determining the fire resistance rating of barriers to establish fire areas. Penetration seals must match the fire resistance rating of the barriers in which they are installed. Penetration seals are constructed using RTV silicone/foam or equivalent.

Cable Spreading Room (OB-FZ-4) is protected by a water spray system which will limit damage from a fire. Activation of a detector in the "A" or "B" Battery Room cable tunnel will shut the ventilation system dampers in order to maintain the design concentration for the halon total flooding system. There is cabling located above the suspended ceiling of the Control Room, which do not terminate in the Control Room.

6.1.3 Ventilation

The ventilation system is designed to facilitate smoke removal from plant areas after a fire. Manual damper operations are utilized to support this feature. The system has been evaluated to assure that single failures or inadvertent operations do not exhaust potentially radioactive smoke or gases to the environment which exceeds established acceptable limits. Charcoal filters for the Standby Gas Treatment System are located at the base of the stack. Since the trays holding the charcoal are metal and there are no surrounding combustibles, manual suppression is sufficient. HVAC flow will stop in areas protected by total flooding gaseous extinguishing systems before agent discharge.

The supply and exhaust ducts for the Control Room and CSR are common and have the potential to contaminate the supply air for the other room. A back-draft damper has been installed in the exhaust ductwork for the Control Room to prevent the possibility of spreading smoke to the other area. All other inlets and outlets are sufficiently remote.

Stairwells that communicate between fire areas are enclosed in masonry construction in order not to compromise the integrity of the fire areas they serve. Elevator shafts and chutes are enclosed in masonry construction. Forced ventilation is provided in the CSR, battery room, and the switchgear rooms which exceed the requirements of Appendix A.

The breathing apparatus are all minimum one-half hour rated with positive pressure regulators and NIOSH approval. Sufficient extra bottles are maintained on site to provide two spare bottles for each set of self-contained breathing apparatus and a six-hour reserve supply.

6.1.4 Lighting and Communication

Fixed emergency lighting with eight-hour battery backup has been provided as indicated in Report No. 3731-043 of Reference 3.7 and in the body of this Fire Hazards Analysis Report. Sealed beam battery powered hand lights are available for use at the site with at least six reserved for emergency use. A fixed paging system exists which communicates between all parts of the plant and the Control Room. Battery powered two-way portable radios with a repeater system exists for emergency use only. These are sufficient for safe shutdown purposes. Fixed emergency lighting, portable hand lights, and portable radios are checked a minimum of every three months for operability.

6.1.5 Drainage

Floor drains are designed to remove anticipated fire water flow from areas where water accumulation could cause unacceptable damage to equipment. In areas where water drainage may contain radioactivity, the drainage is confined, collected, and tested for necessary treatment before discharge to the environment.

6.1.6 Interior Finish

While some walls in the plant are painted, this surface coating does not present an appreciable flame spread hazard. All interior finishes have an ASTM E-84 test rating of 45 or less for flame spread, smoke and fuel contribution. All interior finishes utilized since 1982 are noncombustible or will be verified as having an ASTM E-84 test rating of 25 or less, unless specifically identified in the Fire Hazards Analysis.

6.2 Fire Detection and Suppression

6.2.1 Fire Alarms

Fire alarm systems comply with the requirements of NFPA 72, National Fire Alarm Code, with minor exceptions: NFPA 72 requires all signals received at the supervising station be recorded. Fire alarms received in the Control Room are graphically displayed at the main control panel with audible and visual alarms. NFPA 72 requires fire alarm supervision be the sole duty of the central station personnel. Control Room personnel perform this function but have other duties as well as monitoring the fire alarm panel.

6.2.2 Fire Suppression in Water Supply

The underground and yard fire main loop is constructed of coated carbon steel pipe. A cross connection exists in the middle of the loop. Sufficient sectional control valves are installed so that portions of the system can be isolated without shutting off service to large sections of the loop. The fire protection piping system is used to supply water to the Circulating Water, Service Water Pumps, and Dilution Pump oil coolers. A separate pump is used to maintain this flow and pipes are sized to handle this flow in addition to fire protection demands without excessive pressure drop (approximately 210 GPM).

The fire protection system has two separate water supplies and pump installations with independent connections to the yard loop. One water supply is the fire protection pond which supplies water to two 100% capacity diesel driven fire pumps. Each pump has its own driver and controls. Pump running and pump malfunction alarms sound in the Control Room. The other water supply is a 300,000 gallon capacity steel ground tank. It supplies a 100% capacity manually started electric motor driven backup pump.

Hydrants are located at maximum intervals of 250 feet on the yard main. Each hydrant lateral has a key operated (curb box) valve. A fully equipped hose house is provided at least every 1000 feet. Hydrant and hose coupling threads have been verified and are compatible with those of the local fire department. The hydrants are flushed at least once every 12 months. The center of the hose outlets on four hydrants (outside Refuel Canteen, West of NR-FA-20, between NR-FA-20 and OR-FA-19, east of OG-FA-21) are less than 12 inches above grade. The 5 to 9 in. available space does not impede use by the fire brigade.

6.2.3 Automatic Sprinkler & Water Spray Systems

Sprinkler and water spray systems for plant areas are designed to assure that one pump will be able to supply the sprinkler demand and hose stream requirements in addition to flow for the pump seals. Either water supply is sufficient to provide the maximum flow demand for more than two hours. (The tank can be refilled within eight hours.)

Sprinkler systems, water spray systems, and manual hose station standpipes in the Reactor Building are fed by a common header which is supplied at both ends by the yard system. A single line break will not impair both primary and secondary suppression systems. Primary suppression in safety related areas of the Turbine Building include sprinkler systems or gaseous total flooding systems. Backup is provided by manual hose stations supplied from the underground fire main.

Every sprinkler and standpipe system is equipped with approved OS&Y shut-off valves. Sprinkler system discharge will not have an adverse affect on safety related equipment which is not specifically protected by aqueous suppression systems. Not all valves are electrically supervised. Valves are visually inspected on a monthly basis and locked open through the plant's key control system.

All sprinkler and water spray (deluge) systems are installed in accordance with appropriate NFPA standards. The wet pipe sprinkler systems are designed with a 1/4" pressure equalizing line between the upstream side and downstream side of the Fire Protection alarm check valve. Deviations are justified and documented. Hose stations are supplied with 50, 75, or 100 feet of 1 1/2-inch fire hose and spray nozzles. Hose stations are located so that at least one effective hose stream can be brought to bear on any location containing safety related equipment or on any area which presents a fire exposure hazard. Hose stations are equipped with shut-off valves. An AFFF nozzle, portable foam concentrate, and an appropriate proportioning nozzle are kept in hose houses adjacent to the Diesel Generator and Off-Gas Building and Fire Brigade Vehicle.

6.2.4 Halon System

Halon 1301 installations comply with the requirements of NFPA 12A, "Standards on Halogenated Fire Extinguishing Agent Systems - Halon 1301." The halon design concentration meets the 5% minimum code required concentration by volume.

Halon soak times comply with the recommendations of NFPA 12A for solid surface fires. Automatic closing of ventilation system fans and/or dampers facilitate maintenance of the design concentration for extended periods. Provision has been made for manually releasing additional halon in order to maintain the design concentration. Halon that has not thermally decomposed does not present a health hazard for short term exposure in the concentrations utilized at Oyster Creek (5-6%). (See JCP&L docketed letter dated Oct. 3, 1977). Thermal decomposition products are corrosive to metal and will cause irritation of the respiratory tract. Halon 1301 produces rapid extinguishment and thereby reduces the amount of decomposition products. Early detection is of obvious importance in reducing the amount of thermal decomposition products produced. Manual operation of the ventilation system in areas utilizing halon suppression provides a means of purging these areas.

6.2.5 CO2 System

A total flooding manual CO_2 system is provided in the 4160V Switchgear Vault. Refer to Fire Hazards Analysis of TB-FA-3A/3B for construction/rating of the 4160V Switchgear Vaults. Fire dampers will close upon activation of a smoke detector. Normal leakage areas around openings in walls and joints where barriers meet will be sufficient to vent air displaced by CO_2 discharge. Installation and design of the system complies with NFPA 12. There is no danger of overpressurization causing barrier failure because of the substantial nature of the construction.

Carbon dioxide is a colorless, odorless gas and the switchgear vault will not support human life when the CO_2 reaches its design concentration of 50% which is maintained for a minimum of 7 minutes (JCP&L docketed letter dated Oct. 3, 1977). However, the initial discharge of CO_2 has a wintergreen additive so that it can be detected, but subsequent discharges will not have the additive. The switchgear vault is normally unoccupied and the CO_2 system must be manually actuated from stations located outside of vault doorways. Therefore, danger to human life is minimal and the system will not be rendered out of service due to life safety considerations. SCBA will be used when entering the vault after CO_2 discharge.

6.2.6 Portable Fire Extinguishers

Fire extinguishers are provided in accordance with NFPA 10, "Standard for Portable Fire Extinguishers." Fire extinguishers are inspected monthly to check for correct location, condition, and charge. Consideration is given to the type of fire anticipated for the selection of extinguishing agent. Dry chemical extinguishers have not been used where damage to equipment would be caused by the extinguishing agent.

7.0 FIRE HAZARDS ANALYSIS

The Fire Hazards Analysis has been revised to reflect the plant fire protection modifications outlined in the Fire Protection Program Review dated December 3, 1976, the Fire Protection Safety Evaluation Report, Docket No. 50-219, dated March 3, 1978, and subsequent plant modifications. This revision meets the SER commitment.

7.1 Methodology

The Fire Hazards Analysis was conducted by gathering germaine information relating to building construction; plant system, components, and equipment; fire hazards; and fire protection systems and equipment. This information was gathered on an area-by-area basis and used to evaluate the consequences of fire.

This analysis was divided into the following parts:

7.1.1 Building Construction

This evaluation established fire resistance ratings on existing structural elements such as walls, floors, doors, etc. This evaluation included identifying unprotected penetrations through ratable structural elements.

Also included was an analysis of interior finishes. All interior finishes, except as noted in the Fire Hazards Analysis, are non-combustible or limited-combustible as defined by NFPA Standard 220.

The plant is divided into Fire Areas and Fire Zones. For purposes of the Fire Hazard Analysis, a Fire Area is defined as an area bounded by construction which would contain the fire to that area, without reliance on automatic or manual fire suppression activities. A Fire Zone is defined as a subdivision of a fire area in which the fire suppression systems are designed to combat a particular type of fire. These divisions were based on the need for separation of equipment and hazards, and as an aid in defining the fire parameters and actions which would be necessary for fire suppression activities.

7.1.2 Equipment

Equipment in each building was evaluated by floor elevation and/or room. Particular attention was given to safety related and safe shutdown equipment as to location, consequences of loss, and exposure from non-safety related equipment. This information was incorporated into the Fire Hazard Analysis as a major basis for conclusions.

7.1.3 Fire Hazards

Fire loading estimates were made by building and by floor elevation and/or room within each building. This analysis was an "as is" evaluation based on the on-site inspections over a three-year period. The quantities of materials were estimated and multiplied by standard BTU/ unit weight or volume to establish total heat value. GPUN Calculation No. C-9000-810-5360-001 provides the design basis energy heat release values for determining BTU content of combustible materials. These values were later divided by the floor areas of the individual fire areas or fire zones to establish a fire loading in BTU/sq. ft. GPUN Calculation No. C-1302-810-5720-002, "Fire Areas/Zones Floor Areas", provides the floor areas for all indoor fire areas and zones. Small quantities of combustible materials contained in tanks, piping, sumps, or metal containers were not evaluated, although the hazard analysis identifies some of these areas with regard to the probability of loss. The combustibles in sizeable tanks were included. Electrical cable in conduit (or metal enclosures) is not considered a combustible loading. Fire loading in most areas was relatively light with little or no contribution from building construction in most areas. However, there are a few fire areas/zones where the administrative limit guidelines for combustible loading for permanently installed combustible materials are high due to the total amount of oil and/or cable in a particular area. Oyster Creek's fire protection features have been evaluated for these combustible loads and further guidelines are contained in the site Transient Combustible Procedure as detailed below. Temporary compensatory measures (i.e. fire watches, continuous manning, use of alternative materials) may be required when transient loads exceed the allowable administrative limit depending on the transient combustible load evaluation which considers the type of combustible material, the room's configuration, location of safe shutdown equipment and the location of the transient material in the room. Also, administrative controls are implemented for flammable or combustible liquids. These provisions will continue to ensure that transient loads do not affect safe shutdown capability and maintain compliance with Appendix R. This evaluation is maintained current by including additional combustibles introduced in subsequent plant modifications. Note that certain structures or areas do not require maintenance of combustible loading because of either of the following: 1) there is nothing to contain the heat release; 2) no radioactive release is possible; 3) no impact on safe plant operation. Refer to Section 8.0 of this fire hazards analysis for area by area fire loading.

Only those fire area/zones that are categorized as having a "B" boundary have a maximum limitation of 40,000 BTU/ft^2. The maximum limitation for fire areas/zones with an "A" boundary and/or fire rated boundaries were established based on judgement for the purpose of limiting combustibles but they do not constitute a regulatory commitment. Section 1.3 of Volume II "Delineation of Fire Areas/Fire Zones" give the criteria for distinguishing between an "A" or "B" boundary.

For the purpose of description, throughout the Fire Hazards Analysis Report, the following criteria has been established:

"Low" Combustible Load - 0 to 80,000 BTU/$ft.^2$
"Moderate" Combustible Load - 80,000 to 160,000 BTU/ft^2
"High" Combustible Load - over 160,000 BTU/$ft.^2$

7.1.4 Fire Protection

Fire protection systems and equipment, including detection and suppression, are evaluated to assure the design objectives are met.

7.1.5 Analysis and Conclusions

With the plant divided into Fire Areas and Fire Zones, equipment identified, and combustible content quantified, an analysis of the fire protection requirements is conducted by area. This review commenced with an analysis of the consequences of the Design Basis Fire in each area. The Design Basis Fire was considered to be the worst reasonable case fire or a fire that would burn without any attempt to control the spread and would be limited only by the ignitability and location of combustibles. In some areas, this included the total consumption of all combustibles within the fire area. However, in cases where continuity of combustibles and/or the potential for a room "flashover" condition did not exist, the largest extent of any fire was taken to be the Design Basis Fire. The evaluation of the consequences of the Design Basis Fire emphasized the effect on safe shutdown and cooling of the plant.

Conclusions state the effects of a fire within a fire area. In many cases, the conclusions are based on the assumption that the Alternate Shutdown Panel will be provided as outlined in the SER.

Volume II (Section 9.0) of this FHAR contains the Appendix R Section III.G Safe Shutdown Evaluation. Where reference to combustible loading (low, moderate or high) is indicated in the safe shutdown evaluation, Section 8.0 which contains the current loading, governs and supersedes the criteria noted in Section 9.0.
The definition of low, moderate or high combustible loading is contained in Section 7.1.3.