

June 25, 1990

Docket No. 50-219

Mr. E. E. Fitzpatrick
Vice President and Director
Oyster Creek Nuclear Generating Station
Post Office Box 388
Forked River, New Jersey 08731

Dear Mr. Fitzpatrick:

SUBJECT: EXEMPTION FROM CERTAIN TECHNICAL REQUIREMENTS CONTAINED IN
SECTION III.G OF APPENDIX R TO 10 CFR PART 50 (TAC NO. 62229)

The Commission has issued exemptions from certain technical requirements contained in Section III.G of Appendix R to 10 CFR Part 50 for specific areas of the Oyster Creek Nuclear Generating Station in response to your letter of August 25, 1986.

We have reviewed GPU Nuclear Corporation's (GPUN) request and the supporting technical information. We agree with GPUN and in each case we have concluded that the requested exemption is valid and should be granted. Our Safety Evaluation regarding this matter is enclosed.

This exemption is being forwarded to the Office of the Federal Register for publication.

Sincerely,

Original signed by

Alexander W. Dromerick, Senior Project Manager
Project Directorate I-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:

- 1. Exemption
- 2. Safety Evaluation

cc w/enclosures:
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Mr. E. E. Fitzpatrick
Oyster Creek Nuclear Generating Station

Oyster Creek Nuclear
Generating Station

cc:

Ernest L. Blake, Jr.
Shaw, Pittman, Potts and Trowbridge
2300 N Street, NW
Washington, D.C. 20037

Resident Inspector
c/o U.S. NRC
Post Office Box 445
Forked River, New Jersey 08731

J.B. Liberman, Esquire
Bishop, Liberman, Cook, et al.
1155 Avenue of the Americas
New York, New York 10036

Commissioner
New Jersey Department of Energy
101 Commerce Street
Newark, New Jersey 07102

Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, Pennsylvania 19406

Kent Tosch, Chief
New Jersey Department of Environmental
Protection
Bureau of Nuclear Engineering
CN 415
Trenton, New Jersey 08625

BWR Licensing Manager
GPU Nuclear Corporation
1 Upper Pond Road
Parsippany, New Jersey 07054

Mayor
Lacey Township
818 West Lacey Road
Forked River, New Jersey 08731

Licensing Manager
Oyster Creek Nuclear Generating Station
Mail Stop: Site Emergency Bldg.
P. O. Box 388
Forked River, New Jersey 08731

UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of

(GPU NUCLEAR CORPORATION AND
JERSEY CENTRAL POWER & LIGHT
COMPANY)

}
Docket No. 50-219

(Oyster Creek Nuclear Generating
Station)

EXEMPTION

I.

The GPU Nuclear Corporation and Jersey Central Power & Light Company (GPUN/the licensee) are the holders of Provisional Operating License No. DPR-16, which authorizes operation of the Oyster Creek Nuclear Generating Station, (the facility) at steady state reactor core power levels not in excess of 1930 megawatts thermal. The license provides, among other things, that Oyster Creek Nuclear Generating Station is subject to all rules, regulations, and Orders of the Commission now or hereafter in effect.

The plant is a boiling water reactor (BWR) located at the licensee's site in Ocean County, New Jersey.

II.

On November 19, 1980, the NRC published a revised Code of Federal Regulations, Section 10 CFR 50.48 and a new Appendix R to 10 CFR Part 50 regarding fire protection features of nuclear power plants. The revised Section 50.48 and Appendix R became effective on February 17, 1981. Section III of Appendix R contains fifteen (15) subsections, lettered A through O, each of which specifies requirements for a particular aspect of the fire protection features at a nuclear power plant. One of these fifteen subsections, III.G, is the subject of this exemption request. Specifically, Section III.G requires that the plant have fire protection of shutdown capability.

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III.

By letter dated August 25, 1986, the licensee requested exemptions from certain technical requirements of Section III.G of Appendix R to 10 CFR Part 50 for specific areas of the plant. The specific exemptions requested are as follows:

1. An exemption is requested from the requirement of Section III.G.2 for not providing area wide automatic fire suppression in Fire Zone RB-FZ-1D, Elevation 51 feet.
2. An exemption is requested from the requirement of Section III.G.2 for not providing area wide automatic fire suppression in Fire Zone RB-FZ-1E, Elevation 23 feet.
3. For the Fire Zone RB-FZ-1E, elevation 23 feet, a second exemption is requested from the requirement of Section III.G.2 for not providing specific protection for the reactor scram system circuitry in the fire zone.
4. For the Fire Zone RB-FZ-1E, elevation 23 feet, a third exemption is requested from the requirement of Section III.G.2 for not providing either additional separation from insitu combustibles or protection for CRD Hydraulic System Bypass Valve V-15-30.
5. For the Fire Zone RB-FZ-1E, elevation 23 feet, a fourth exemption is requested from the requirement of Section III.G.2 for not providing a one-hour fire barrier for drywell penetration box P-13.
6. An exemption is requested from the requirement of Section III.G.2 for not providing area wide automatic suppression in Fire Zone RB-FX-1F, elevation (-19) feet.
7. For Fire Zone RB-FZ-1F, elevation (-19) feet, a second exemption is requested from the requirement of Section III.G.2 for not providing either additional separation from insitu combustibles or protection for core spray system valve V-20-1.
8. An exemption is requested from the requirement of Section III.G.2 for not providing a 3-hour rated fire barrier for the portion of circuit 14-25 that is located in Fire Zone TF-FZ-1B Turbine Lube Oil Storage, Pumping and Purification Areas.
9. An exemption is requested from the requirements of Section III.G.2 and III.G.3 for not providing automatic fire detection in Fire Zone TB-FZ-11D.

10. An exemption is requested from the requirement of Section III.G.3 for not providing automatic fire detection in Fire Zone TB-FZ-11E.
11. An exemption is requested from the requirement of Section III.G.2 for not providing a 3-hour fire barrier for Train "A" electrical power system circuit 14-22.
12. An exemption has been requested from the requirement of Section III.G.2 for not providing automatic fire suppression for the corridor area of new Fire Zone OB-FZ-6B, which has been created out of the Fire Area OB-FA-6.
13. An exemption has been requested from the requirement of Section III.G.2 for not providing that at least one safe shutdown path needed to maintain hot shutdown is free of fire damage without any repair. The exemption is requested to allow minor repairs outside of Fire Area OB-FZ-6A-480 Volt Switchgear Room to provide the required hot shutdown capability for the new Fire Zone OB-FZ-6 created out of Fire Area OB-FA-6.
14. An exemption has been requested from the requirements of Section III.G.2 for not providing automatic fire detection in Fire Zone OB-FZ-8A Motor Generator Set Room.
15. For the Fire Zone OB-FZ-8A, a second exemption is requested from the requirement of Section III.G.2 for not providing specific protection for the reactor recirculation valve circuits contained in this fire zone.
16. An exemption is requested from the requirements of Section III.G.2 for not providing specific protection to reactor scram circuits located in Fire Zone OB-FZ-8C-Battery Room, Tunnel and Electrical Tray Room, elevation 35 feet.
17. For the Fire Zone OB-FZ-8C, a second exemption is requested from the provisions of Section III.G.2 for not providing specific protection to the reactor recirculation valve circuits contained in this fire zone.

The staff has reviewed the licensee's request and the supporting technical information contained in the licensee's August 25, 1986 letter, in a Safety Evaluation, dated June 25, 1990 . For the reasons set out in that evaluation, the staff agrees with GPU Nuclear Corporation and in each case we have concluded that the requested exemptions are valid and should be granted.

IV.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, this exemption is authorized by law, will not present an undue risk to the

public health and safety, and is consistent with the common defense and security. The Commission has further determined that special circumstances, as set forth in 10 CFR 50.12(a)(2)(11), are present justifying the exemption, namely that the application of the regulation in the particular circumstances is not necessary to achieve the underlying purpose of the rule. The underlying purpose of this rule is to provide the plant with fire protection of shutdown capability. As a result of the staff's review, the staff concludes that because modifications assure that safe shutdown will occur for each affected fire zone, strict compliance of the rule is not necessary to achieve fire protection shutdown capability. Accordingly, the Commission hereby grants an exemption as described in Section III above from the requirements of Section III.G of Appendix R to 10 CFR Part 50.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will have no significant impact on the environment (55 FR 25752).

This exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Steven A. Varga, Director
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland
this 25th day of June , 1990.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REQUEST FOR EXEMPTIONS FROM SPECIFIC TECHNICAL

REQUIREMENTS OF APPENDIX R TO 10 CFR PART 50

GPU NUCLEAR CORPORATION AND

JERSEY CENTRAL POWER & LIGHT COMPANY

OYSTER CREEK NUCLEAR GENERATING STATION

DOCKET NO. 50-219

1.0 Introduction

By letter dated August 25, 1986, GPU Nuclear Corporation (the licensee) requested exemptions with supporting justification from certain of the technical requirements of Section III.G of Appendix R to 10 CFR Part 50 for specific areas of the plant.

The staff's evaluation of the requested exemptions based on its review of the supporting justification is given below:

2.0 Fire Zone RB-FZ-1D, Elevation 51 Feet

2.1 Exemption Requested

An exemption is requested from the requirement of Section III.G.2 for not providing area wide automatic fire suppression in the fire zone.

2.1.1 Evaluation

Modifications provided to protect safe shutdown capability located in this fire zone include:

- Relocating selected electrical circuits in conduit within the zone.
- Providing selected electrical circuits run in conduits with one-hour fire rated barriers.
- Relocating selected electrical circuits outside this fire zone.
- Assuring that all manual actions required for hot and cold shutdown due to fire in this zone will be accomplished from outside this zone and are not affected by a fire in this zone.
- Installation of water curtain sprinklers and open heat deluge water spray systems to protect open hatch and stairway penetrations through floors.

In addition to the modifications listed above, several other mitigating factors are available in this zone which preclude the need for area wide automatic fire suppression in the zone. These factors are:

- ° Fire loading in the zone is low with approximately 12,500 BTU per square foot, consisting primarily of cable insulation, and corresponds to a fire severity of about 10 minutes as measured on the ASTM E-119 time/temperature curve.
- ° Automatic fire detection capability which alarms locally and in the control room and which covers approximately 90% of the zone with all combustibles (cable trays) protected.
- ° Two automatic open-head water spray deluge systems are installed to protect the cable trays and the open equipment hatch and open stairwell. Each system is controlled by its own cross-zoned automatic ionization fire detection system. Standpipe and hose station and portable extinguishers for manual fire fighting capability supplement the automatic fire suppression capability.

2.1.2 Conclusion

Based on the above evaluation, we conclude that any fire in Fire Zone RB-FZ-1D, elevation 51 feet, will be promptly detected and extinguished, and that automatic fire suppression need not be expanded to provide coverage for the entire zone. We, therefore, conclude that this requested exemption should be granted.

3.0 Fire Zone RB FZ-1E, Elevation 23 Feet

3.1 Exemption Requested

An exemption is requested from the requirement of Section III.G.2 for not providing area wide automatic fire suppression in this fire zone.

3.1.1 Evaluation

Modifications provided for protection of safe shutdown capability, and other mitigating factors in this fire zone, are the same as those described for Fire Zone RB-FZ-1D, elevation 51 feet, in Section 2.1.1 above, except that the fire loading (while still low) is approximately 20,000 BTU per square foot and corresponds to a fire severity of about 15 minutes as measured on the ASTM E-119 time/temperature curve.

3.1.2 Conclusion

For the same reason outlined in Section 2.1.2 above, we conclude that this requested exemption should be granted.

3.2 Exemption Requested

For the Fire Zone RB-FZ-1E, elevation 23 feet, a second exemption is requested from the requirement of Section III.G.2 for not providing specific protection for the reactor scram system circuitry in this fire zone.

3.2.1 Evaluation

In addition to the modifications provided for protection of safe shutdown capability for this fire zone, the following conditions apply specifically to the reactor scram system circuitry.

1. All reactor scram circuitry is contained in conduit except for the backup scram valve circuitry.
2. There are no external system circuits contained within the reactor scram conduits.
3. Reactor scram circuits are normally energized until reactor scram is desired. At this time, power is interrupted and the scram discharge volume (SDV) vent and drain pilot valves, the scram pilot air valves, and the backup scram pilot valves are deenergized to scram the reactor.
4. To achieve a reactor scram either the scram pilot air valves or the backup scram pilot valves are required to be deenergized.
5. The effects of fire on the reactor scram circuits in conduit would be to interrupt power and initiate a scram.

3.2.2 Conclusion

For all of the reasons given above, we conclude that additional protection is not required for the reactor scram system circuitry and that the requested exemption should be granted.

3.3 Exemption Requested

For the Fire Zone RB-FZ-1E, elevation 23 feet, a third exemption is requested from the requirement of Section III.G.2 for not providing either additional separation from insitu combustibles or protection for CRD Hydraulic System Bypass Valve V-15-30.

3.3.1 Evaluation

In addition to the modifications provided for the protection of safe shutdown capability for this zone, the following conditions apply specifically to the CRD Hydraulic System Bypass Valve V-15-30.

Valve V-15-30 will be manually opened to provide a flow path for coolant makeup to the vessel with loss of offsite power. Makeup to the vessel is not required until 3 hours 24 minutes after scram based on the vessel inventory analysis. Fusing of this valve as a result of a fire such that the valve cannot be operated is not considered a credible event because of the low fire loading in this zone, and the pipes connected to the valve being filled with water which provides ample heat sink capability to protect the valves.

In addition, the principle combustible (cable insulation) is protected by automatic fixed water spray deluge system, and the valve is physically located within the spray area of the cable tray deluge system (approximately 6 feet below the trays and 1 foot to the side).

3.3.2 Conclusion

Since a fire in this fire zone would not be of significant magnitude, the duration of the fire will be short due to automatic extinguishment or extinguishment by the plant fire brigade. The valve is located within the spray area of a deluge system and the heat conduction to the water filled piping will provide cooling of the valve. The valve is not required to operate for almost 3 1/2 hours after the fire. Therefore manual operation of the valve is considered to be achievable without the addition of any further protection.

We therefore conclude that this exemption should be granted.

3.4 Exemption Requested

For the Fire Zone RB-FZ-1E, elevation 23 feet, a fourth exemption is requested from the requirement of Section III.G.2 for not providing a one-hour fire barrier for drywell penetration box P-13.

3.4.1 Evaluation

In addition to the modifications provided for the protection of safe shutdown capability for this zone, the following conditions apply specifically to the drywell penetration box P-13.

1. The only portion of the EMRV circuits located in this fire zone which could potentially be subjected to spurious operation due to a hot short is contained inside the penetration box. (A short to ground will not cause spurious actuation). A fire cannot be initiated inside the penetration boxes as the result of electrical fault protective devices.
2. The penetration box is located approximately five (5) feet below the bottom of the fire zone ceiling. Fire detection utilized to actuate the cable tray deluge water spray systems is located on the ceiling in the area of the penetration box (area-wide ionization detection is provided in the fire zone). Therefore, a fire in the zone will be detected and alarmed prior to any significant heat buildup at the elevation of the penetration box.
3. The penetration box is effectively within the spray pattern of the existing automatic cable tray deluge water spray system. The water spray will provide cooling and prevent the propagation of fire from outside into the penetration box.

A fire in this zone would not be of significant magnitude, and the duration of the fire will be short due to self extinguishment, extinguishment by the deluge system, or extinguishment by the plant fire brigade. Consequently, the general heat buildup in the area due to the fire will be limited. The addition of fire barriers to the cables (not in conduit) could cause damage to the cables due to

the inability to add adequate cable supports because of severe space limitations. The box is located within the spray area of the cable tray deluge system which will further limit any heat buildup inside the penetration box. Since a fire initiated inside the penetration box is not a credible event and since the effects on the penetration box due to an outside fire will be limited by the low fire loading and water spray system, the addition of a fire barrier will not increase the level of fire protection safety above that provided by existing fire protection features in order to achieve safe shutdown.

3.4.2 Conclusion

For all of the reasons cited in the evaluation above, we conclude that this exemption should be granted.

4.0 Fire Zone RB-FZ-1F, Elevation (-) 19 Feet

4.1 Exemption Requested

An exemption is requested from the requirement of Section III.G.2 for not providing area wide automatic suppression in this fire zone.

4.1.1 Evaluation

The fire loading in this zone is negligible, consisting primarily of cable insulation, at about 1500 BTU per square foot. This corresponds to a fire severity of about two minutes as measured on the ASTM E-119 time/temperature curve. Automatic fire detection capability, which alarms locally and in the control room, is located in this fire zone. Portable extinguishers and hose stations are provide for manual fire fighting operations.

A fire in this zone would not be of significant size or duration and would not compromise the one-hour fire rated barriers provided for protection of the safe shutdown components. In addition, the automatic fire detection available in this fire zone is expected to alert the fire brigade to the onset of fire in the zone so that prompt manual suppression of any fire in the zone can be accomplished.

4.1.2 Conclusion

For all of the reasons listed in the evaluation above, we conclude that automatic fire suppression throughout this zone is not required and therefore, this requested exemption should be granted.

4.2 Exemption Requested

For the Fire Zone RB-FZ-1F, elevation (-19) feet, a second exemption is requested from the requirement of Section III.G.2 for not providing either additional separation from insitu combustibles or protection for core spray system valve V-20-1.

4.2.1 Evaluation

In addition to the conditions described above in Section 4.1.1 for this fire zone, the following conditions apply specifically to valve V-20-1 in the core spray system.

Manual action required for hot and cold shutdown for a fire in this zone will be accomplished outside of the fire zone except for opening valve V-20-1. This valve, located in Room RB-FZ-1F3 (North-West corner of room in the same fire zone) must be opened following a fire in RB-FZ-1F3 but only within 3 hours 24 minutes after scram to complete the alignment of the condensate storage tank to the core spray pump NZ01B. Other manual actions will not be affected by a fire in this zone.

Fusing of this valve by heat from a fire in this zone resulting in the valve becoming inoperable is considered not credible because of (1) the low fuel loading in the zone, (2) the provision of automatic fire detection and manual fire suppression capability, and (3) the heat sink capability of the water filled piping connected to the valve.

4.2.2 Conclusion

Based on the above evaluation, we conclude that the provision of additional protection for this valve will not significantly enhance fire protection in this zone and, therefore, we recommend that this requested exemption be granted.

5.0 Fire Zone TF-FZ-11B - Turbine Lube Oil Storage, Pumping and Purification Areas

5.1 Exemption Requested

An exemption is requested from the requirement of Section III.G.2 for not providing a 3-hour rated fire barrier for the portion of circuit 14-25 that is located in this fire zone.

5.2 Evaluation

A pull pit beneath the floor of a corridor in the turbine building contains circuit 14-25. The floor and walls of this pull pit are of sand, and all electrical cables routed through the pit are run in conduits. Physical separation of the pit, and therefore circuit 14-25, from TB-FZ-11B, consists of (1) an aluminum cover plate bolted in place near the bottom of the floor slab penetration, (2) six inch minimum depth RTV foam floor penetration seal, and (3) a steel plate cover at the top of the floor slab, flush with the floor slab.

Based on the separation of this pull pit from the remainder of the Fire Zone TB-FZ-11B by the minimum 6-inches of RTV foam; the lack of combustibles in the pit; all cables routed in conduits; negligible fuel loading in the area above the pit; limited access to the pit because of high radiation levels and consequent low probability for an exposure fire due to transient combustibles; and the fact that all conduits enter and leave the pit through the sand walls - fire is considered not to be a credible event in this pull pit. Therefore, further fire protection modifications or additional protection for circuit 14-25 in the pull pit is not required.

5.3 Conclusion

Based upon the above evaluation, we conclude that further fire protection modifications or additional protection for circuit 14-25 in the pull pit in Fire Zone TB-FZ-11B is not required and this requested exemption should be granted.

6.0 Fire Zone TB-FZ-11D

6.1 Exemption Requested

An exemption is requested from the requirements of Section III.G.2 and III.G.3 for not providing automatic fire detection in this zone.

6.2 Evaluation

Selected "B" train safe shutdown circuits have been relocated and/or protected by one-hour rated fire barriers. Manual actions required for hot and cold shutdown due to a fire in this zone will be accomplished outside of this zone and will not be affected by any fire in this zone. In addition, the fire loading in this zone is low (about 22,000 BTU per square foot) and corresponds to a fire severity of about 16 minutes as measured on the ASTM E-119 time/temperature curve. This low fuel loading consists primarily of cable insulation, lubricating and hydrogen seal oil, and transient combustibles.

Fire protection provided in this fire zone consists of an area wide automatic sprinkler system and a localized automatic sprinkler system installed to protect the hydrogen seal oil units. Both of these sprinkler systems alarm in the control room and thus function also as a fire alarm system, although not as an early warning detection system.

6.3 Conclusion

Based upon the above evaluation, we conclude that any fire that might occur will not be of significant magnitude or duration, and that it will be promptly extinguished by one of the two automatic sprinkler systems installed in this fire zone. In addition, when the sprinklers operate, an alarm will sound in the control room, promptly alerting the fire brigade who will respond for any manual fire fighting or salvage operations that remain. For the above reasons we conclude that the addition of a zone wide fire detection system will not provide significantly more fire protection than what is already available, and therefore, the requested exemption should be granted.

7.0 Fire Zone TB-FZ-11E

7.1 Exemption Requested

An exemption is requested from the requirement of Section III.G.3 for not providing automatic fire detection in this zone.

7.2 Evaluation

The fire loading in this zone consists of electrical cable insulation in trays and minor amounts of lubrication oil in pumps. The fire loading is low (approximately 8,000 BTU per square foot) and corresponds to a fire severity of about 7 minutes as measured on the ASTM E-119 time/temperature curve. In addition, an automatic closed head sprinkler system protects all areas west of columns Line F and includes all cable trays. Operation of the sprinkler system alarms in the control room which serves the function of an automatic detection system. Such alarm will promptly alert the fire brigade for performing any residual fire fighting operations.

7.3 Conclusion

Based upon the above evaluation, we conclude that any fire that might occur will not be of significant magnitude or duration. Also, any such fire will be promptly extinguished by operation of the automatic sprinkler systems. If for some reason, the automatic sprinklers are able only to control the fire but not achieve extinguishment, the fire brigade, having been alerted as a result of alarm in the control room from the sprinkler system, will be able to achieve prompt extinguishment. Therefore, we conclude that the addition of zone wide fire detection capability will not provide significantly more fire protection than what has already been provided and, therefore, the requested exemption should be granted.

8.0 Fire Zone TB-FZ-114 - Basement and Mezzanine Southeast End

8.1 Exemption Requested

An exemption is requested from the requirement of Section III.G.2 for not providing a 3-hour fire rated barrier for Train "A" electrical power system circuit 14-22.

8.2 Evaluation

The Train "A" electrical power system circuit 14-22 cables in this fire zone are located in a pull pit located beneath the basement floor. It is similar to the pit described in Section 5 above. All of the cables in the pull pit are routed in electrical conduit. The pit has been filled with sand to provide the conduits with a minimum cover of six-inches. Thus, there are no exposed combustibles in the pull pit. A steel plate flush with the zone floor covers the entrance to the pull pit.

8.3 Conclusion

We conclude from the above evaluation that the lack of exposed combustibles in the pull pit, the fact that the electrical cables for the Train "A" electrical power system circuit 14-22 are routed in conduits, and the fact that these conduits have a minimum cover of 6-inches of sand and the steel plate cover to the pull pit, provide protection at least equivalent to a three-hour fire rated barrier. Therefore, the provision of a 3-hour rated fire barrier between the cables in the pull pit and the remainder of Fire Zone TB-FZ-11H would not provide significantly more fire protection than what is already available. Therefore, this requested exemption should be granted.

9.0 Fire Area OB-FA-6 - 480 Volt Switchgear Room

9.1 Exemption Requested

An exemption has been requested from the requirement of Section III.G.2 for not providing automatic fire suppression for the corridor area of new Fire Zone OB-FZ-6B, which has been created out of the Fire Area OB-FA-6.

9.1.1 Evaluation

This requested exemption has already been accepted by the staff. It was discussed and evaluated in Section 2.0-2.4 of our safety evaluation that was transmitted to the licensee by NRC letter dated March 24, 1986.

9.2 Exemption Requested

An exemption has been requested from the requirement of Section III.G.2 for not providing that at least one safe shutdown path needed to maintain hot shutdown is free of fire damage without any repair. The exemption is requested to allow minor repairs outside of this zone to provide the required hot shutdown capability for the new Fire Zone OB-FZ-6A created out of Fire Area OB-FA-6.

9.2.1 Evaluation

The licensee stated that the 480V switchgear room, Fire Area OB-FA-6, will be modified to create two separate Fire Zones, OB-FZ-6A and 6-B. Fire Zone OB-FZ-6A and 6B will contain the Bus 480V USS 1A2 and the redundant Bus 480V USS 1B2 respectively. For a fire in Fire Zone OB-FZ-6A, the licensee will use hot shutdown path 1 which, in turn, requires the Bus USS 1B2 to power the needed equipment for the hot shutdown path. The proposed design incorporates a cable tie between the buses. Consequently a fire induced fault in the bus cable tie in Fire Zone OB-FZ-6A can result in loss of the Bus USS 1B2 and, therefore, comprise the hot shutdown capability for the Fire Zone OB-FZ-6A. Therefore, the licensee has proposed the following operator actions in the sequence described below outside the Fire Zone OB-FZ-6A to restore the Bus USS 1B2 and thereby ensure hot shutdown capability for the Fire Zone OB-FZ-6A.

- (1) Deenergize the Bus USS 1B2 locally in the Fire Zone OB-FZ-6B.
- (2) In the control room, trip the feeder breaker at 4160 switchgear 1C feeding the Bus USS 1A2.
- (3) Disconnect the cable bus tie which is directly bolted to the bus bars in USS 1B2 in the Fire Zone OB-FZ-6B.
- (4) Reenergize the Bus USS 1B2.

In their telephone conversations with us on February 16 and 20, 1989, the licensee stated that the above manual actions will require 20 minutes to complete and that they will be performed immediately after a fire in Fire Zone OB-FZ-6A. The licensee further stated that the plant areas where the manual actions have to be performed will be easily accessible and will not involve any transient through the affected Fire Zone OB-FZ-6A.

In their submittal, the licensee examined the impact of temporary unavailability of hot shutdown equipment in Fire Zone OB-FZ-6A resulting from short term loss of the Bus USS 1B2 which powers these equipment. These are "B" 480V switchgear HVAC supply and exhaust fans, reactor coolant makeup CRD pump NCOBB, A/B battery room exhaust fan and static charger and MG set B. The licensee determined that reactor coolant makeup (because of available vessel water inventory) and the battery room exhaust fan will not be needed for at least 3 hours after scram by which time the Bus USS 1B2 would have been restored and the above components powered by the bus; and the static charger and MG set B will not be needed for quite some time after scram since the DC loads supplied by the 125 VDC Distribution Center B can be powered from the station batteries alone for a time period well in excess of the time required to restore the Bus USS 1B2. The licensee further determined that since the majority of the electrical loads in the Zone OB-FZ-6B are powered by the Bus USS 1B2, the loss of the bus will result in significant reduction in heat output in the zone and consequently the need for the 480V switchgear supply and exhaust fans will not arise for a time period well in excess of the time required to restore the Bus USS 1B2 and power the fans.

9.2.2 Conclusion

Based on the above, we find that the identified operator actions (1) involve only one minor hot shutdown repair, namely, disconnecting the cable bus tie, (2) can be completed well before an unrecoverable reactor condition occurs, (3) do not involve any transit through the fire affected zone, and (4) do not require any offsite components or tools. For the above reasons, we have determined that with the completion of all the identified operator actions including the minor repair in a timely manner, there is reasonable assurance that hot shutdown can be achieved and maintained following a fire in Fire Zone OB-FZ-6A. Therefore, the requested exemption for performing the identified hot shutdown repair should be granted.

10.0 Fire Zone OB-FZ-8A - Motor Generator Set Room

10.1 Exemption Requested

An exemption has been requested from the requirements of Section III.G.2 for not providing automatic fire detection in this fire zone.

10.1.1 Evaluation

The zone is protected by an automatic fire suppression system (automatic sprinkler) which also serves as an automatic fire detection system (although not providing an early warning), since actuation of the system alarms in the control room. Such system actuation and automatic alarm will result in promptly alerting the plant fire brigade for performing any required fire fighting actions. In addition, the combustible fuel loading in the area is low and corresponds to a fire severity of about 35 minutes as measured on the ASTM E-119 time/temperature curve. Also, the licensee has rerouted some circuits within this fire zone in conduits and has rerouted other circuits out of the zone to assure that at least one train of safe shutdown circuits within the zone will not be damaged by any fire that may occur in this zone.

10.1.2 Conclusion

Based on the above evaluation, we conclude that any fire which might occur in Fire Zone OB-FZ-8A will be relatively small and will be controlled by the automatic sprinkler system. Since operation of the sprinkler system will alarm in the control room, we expect prompt notification of, and response by, the fire brigade for any required manual fire fighting activities. Therefore, the installation of a separate automatic fire detection system would not provide a significant increase in fire protection for this fire zone and the requested exemption should be granted.

10.2 Exemption Requested

For the Fire Zone OB-FZ-8A, a second exemption is requested from the requirement of Section III.G.2 for not providing specific protection for the reactor recirculation valve circuits contained in this fire zone.

10.2.1 Evaluation

In addition to the information given above in Section 10.1.1 for this fire zone, the following information addresses the issue of protecting the reactor recirculation valve circuits.

- A. There are a total of five (5) recirculation loops located in two fire zones (OB-FZ-8A and OB-FZ-8C). All five loops are open during normal power operation.
- B. The Oyster Creek Technical Specifications require four (4) loops to be open during normal power operation.

- C. Two (2) recirculation loops are required to be open to provide natural circulation through the core for safe shutdown.
- D. Assuming fire damage to the valve for one recirculation loop, three (3) loops will remain open to provide natural circulation cooling of the core for safe shutdown.

10.2.2 Conclusion

Based on the evaluations in Sections 10.1.1 and 10.2.1 above, we conclude that any fire which might occur in Fire Zone OB-FZ-8A will not damage more than one reactor recirculation loop valve circuit. Since the remaining three open recirculation loops provide sufficient natural coolant circulation through the core to achieve and maintain safe shutdown, the requested exemption should be granted.

11.0 Fire Zone OB-FZ-8C. - Battery Room, Tunnel and Electrical Tray Room 35' Elevation

11.1 Exemption Requested

An exemption is requested from the requirements of Section III.G.2 for not providing specific protection to reactor scram circuits located in this fire zone.

11.1.1 Evaluation

The licensee has identified the battery room ventilation system modifications, instrument modifications and electrical modifications to assure safe shutdown capability for this zone. The licensee further stated that all manual actions for hot and cold shutdown will be accomplished from outside of this fire zone and will not be affected by a fire in this zone. Additionally, the licensee provided the following justification to support this exemption request:

- A. All reactor scram circuitry is contained in conduit except for the backup scram valve circuitry.
- B. There are no external system circuits contained within the reactor scram conduits.
- C. Reactor scram circuits are normally energized until a reactor scram is desired. At this time, power is interrupted and the scram discharge volume (SDV) vent and drain pilot valves, scram pilot air valves and the backup scram pilot valves are deenergized to scram the reactor.
- D. To achieve a reactor scram either the scram pilot air valves or the backup scram pilot valves are required to be deenergized.
- E. The effects of fire on the reactor scram circuits in conduit would be to interrupt power and initiate a scram.

11.1.2 Conclusion

Based on the above evaluation we conclude that the licensee's justification for this requested exemption is valid and that it should be granted.

11.2 Exemption Requested

For the Fire Zone OB-FZ-8C, a second exemption is requested from the provisions of Section III.G.2 for not providing specific protection to the reactor recirculation valve circuits contained in this fire zone.

11.2.1 Evaluation

The situation for the reactor recirculation valve circuits located in this zone is similar to that described in Section 10.2.1 for the reactor recirculation valve circuits located in Fire Zone OB-FZ-8A and the same technical reasons which support that exemption request apply here also.

11.2.2 Conclusion

Based on the above, we conclude that this requested exemption should be granted.

Dated: June 25, 1990

Principal Contributor: D. Notley