



**GPU Nuclear**  
P.O. Box 480  
Middletown, Pennsylvania 17057  
717-944-7621  
Writer's Direct Dial Number:

April 20, 1982  
5211-82-080

Office of Nuclear Reactor Regulation  
Attn: D. G. Eisenhut, Director  
Division of Licensing  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555



Dear Sir:

Three Mile Island Nuclear Station, Unit 1 (TMI-1)  
Operating License No. DPR-50  
Docket No. 50-289  
10 CFR 50 Appendix R Compliance Additional Information

During the phone conversation on March 2, 1982, between E. G. Wallace of my staff and R. H. Jacobs (NRC), we agreed to provide you with additional sample information regarding our plans for addressing the requirements of 10 CFR 50 Appendix R, Section III.G. This information is preliminary and is subject to change. It is being provided to make you aware of our approach. This information provides support of our exemption request (Ref. LIL 364, dated 12/15/82). Attachment 1 is enclosed, however, attachments 2 and 3, summarized below, were provided to R. H. Jacobs at a separate meeting on April 1, 1982.

1. Attachment 1 - Corrective Modifications

This attachment described the equipment in each fire zone of the Intermediate Building which is required to bring the reactor to hot and cold shutdown. It lists the combustible loadings in each fire zone. Please note that additional plant modifications are being reviewed at this time to assess the impact of additions to the present combustible loadings. The total loading in a zone may change slightly in our final submittal. Finally, this attachment describes the modifications proposed to eliminate non-compliances with Section III.G of Appendix R consistent with GPU Nuclear's exemption request.

2. Attachment 2 Fire Area Layout

The following drawings are a part of this attachment:

<u>Drawing No.</u>	<u>Title</u>
1-FHA-001	Legend
1-FHA-039	Fire Area Layout-Intermediate Building Plan - Floor

*Rec'd w/out  
Attachments  
2 & 3*

*A006  
5*

8204270411  
F

GPU Nuclear is a part of the General Public Utilities System

<u>Drawing No.</u>	<u>Title</u>
1-FHA-040	Fire Area Layout - Intermediate Building Plan - Floor El. 305 <sup>0</sup> -0"
1-FHA-041	Fire Area Layout - Intermediate Building Plan - Floor El. 322 <sup>0</sup> -0"
1-FHA-042	Fire Area Layout - Intermediate Building Plan - Floor El. 355 <sup>0</sup> -0"
1-FHA-043	Fire Area Layout - Intermediate Building Sections

3. Attachment 3 - Cable Tray and Conduit Layouts

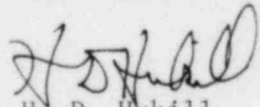
The following drawings are a part of this attachment:

- a. Conduit and Cable Layout - Intermediate Building - Elev.  
295<sup>0</sup>-0", 305<sup>0</sup>-0" and 322<sup>0</sup>-0".
- b. Electrical Cable Trays - Intermediate Building - Below el. 322<sup>0</sup>-0".

These drawings illustrate the actual tray and conduit containing circuits to be protected as well as their redundant counterparts in the same fire area.

Should you have any questions on the enclosed information, please do not hesitate to call.

Sincerely,

  
H. D. Hukill  
Director, TMI-1

HDH:CJS:vjf

Enclosure

cc: R. H. Jacobs

## ATTACHMENT 1

### Corrective Modifications

The following is a discussion of non-compliances in the Intermediate Building with the requirements outlined in Section III.G. of Appendix R to 10 CFR 50. The following also discusses the means to be employed to eliminate the above mentioned non-compliances in accordance with GPU Nuclear's exemption request as outlined in letter LIL 364 to the Commission which is dated December 15, 1981. Note that the data presented in this interim submittal is still undergoing an evaluation process and may change prior to the issuance of the formal submittal on October 2, 1982. However, this submittal typifies present conditions throughout the plant which allowed GPU Nuclear to determine the basis for the exemption request mentioned in the above referenced letter.

1. Zone IB-FZ-1 Combustible Loading 17,430 Btu/ft<sup>2</sup>

Nuclear Services Valves NS-V52A, B, C, NS-V53A, B, C and Reactor Building Emergency Cooling River Water Valves RR-V3A, B, C and RR-V4A, B, C are all located within this zone. All valves are normally open, required to be open for shutdown and are susceptible to hot shorts. There is ample time, however, for local manual operation in the event of inadvertant closure due to hot shorts.

2. Zone IB-FZ-2 Combustible Loading 24,607 Btu/ft<sup>2</sup>

A. Main Steam Valves MS-V2A, 2B, 8A, 8B, 10A, 10B, 13A and 13B are all located within this fire zone. All valves are normally open, are required to be in the open position for shutdown and are susceptible to hot shorts. There is ample time, however, for local manual operation in the event of inadvertant closure due to hot shorts.

B. Atmospheric Dump Valves MS-V4A and B are located within this fire zone. There is ample time for local manual operation of these valves.

3. Zone IB-FZ-3 Combustible Loading 12,817 Btu/ft<sup>2</sup>

A. Power Circuits for Motor Driven Emergency Feedwater Pumps EF-P-2A & B do not meet Appendix R separation criteria. Circuits in trays and conduit for pump EF-P-2A will be protected by a one (1) hour fire barrier in this zone as shown on Fire Area Drawing 1-FHA-040. A partial barrier is provided between pumps EF-P-2A and 2B. No additional protection is anticipated for pump EF-P-2A, since one pump is adequate for bringing the plant to hot shutdown from full power.

B. Circuits for valves EF-V1A, 1B, 2A & 2B run in this fire zone. These valves are normally open, are required to be open for shutdown and are susceptible to hot shorts. Since inadvertant closure of these valves is unacceptable, GPU will revise the appropriate Operating Procedures and Technical Specifications to have these valves verified open during a fire and have the power circuit breakers at 480 V, AC ES CC-1A and 1B opened. This will assure that the valves would not be inadvertantly closed due to a hot short affecting the control circuits to the valves.

C. Emergency Feedwater Control Valve EF-V30A and B are both located within this fire zone. The valves are set to fail half open upon loss of power and to fail open upon loss of instrument air. Therefore, the possibility of a fire in this zone or any place else in the plant (except in the Control Room/Relay Room) of closing these valves is nil. To prevent closure of these valves due to complications associated with a control Room/Relay Room fire, control of these valves will be provided at an alternate shutdown facility.

D. Emergency Feedwater Pump Room Air Handling Units AH-E-24A and B are physically located one on top of each other in this fire zone. The effect of the loss of these units in the event of a fire is still under consideration. However, present plans call for the protection of Unit AHE-24A by a partial fire barrier. In addition, circuits for this fan as shown on Fire Area Drawing 1-FHA-040 will be protected by a one hour fire barrier.

4. Diesel Generator Room Air Handling Units AH-E-29A & B redundant power circuits pass through zones IB-FZ-3 & 5. To assure operation of at least one ventilation unit, Train A trays and conduit will be protected by a one hour fire barrier.

#### 5. General

A. Main Steam Isolation Valves MS-V1A, 1B, 1C & 1D located in fire zone IB-FZ-6 will not require additional protection as the Turbine Stop Valves will close automatically upon Turbine Trip. The stop valves are located in the Turbine Building and also have the capability, as do the MSIV's to be locally controlled.

B. Loss of Instrument Air Compressors IA-P-1A and 1B and Back-up Instrument Air Compressor IA-P-2A will not prevent the plant from achieving hot and cold shutdown. Therefore, no additional protection will be provided for this equipment.

#### Conclusions

The following is a summary of the fire loadings in each fire zone of the Intermediate Building:

<u>Fire Zone</u>	<u>Fire Loading - Btu/ft<sup>2</sup></u>
IB-FZ-1	17,430
IB-FZ-3	24,607
IB-FZ-3	12,817
IB-FZ-4	1,952
IB-FZ-5	14,835
IB-FZ-6	10,666
IB-FZ-7	3,456

The fire loadings calculated for each zone in this building are below that which is equivalent to a one hour fire (80,000 Btu/Ft<sup>2</sup>). Based upon the protective features to be added as described in items 1-4 above and the fact that the present fire loadings are below a one hour fire equivalent, it is GPU Nuclear's position that the addition of an automatic fire suppression system (in particular in zones IB-FZ-1, 2, 3 and 5) will not enhance the safe shutdown capability of the plant. Therefore, the exemption request as outlined in letter LLL 364 dated December 15, 1981 is justified.