



John C. Brons
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September 19, 1985
IPN-85-47

Director of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Mr. Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing

Subject: Indian Point 3 Nuclear Power Plant
Docket No. 50-286
Information to Support the Evaluation of IP-3 to 10 CFR
50.48 and Appendix R to 10 CFR 50

- References:
- (1) J.P. Bayne letter to S.A. Varga, dated August 16, 1984.
 - (2) S.A. Varga letter to J.P. Bayne, dated July 22, 1983.
 - (3) C.A. McNeill, Jr. letter to S.A. Varga, dated March 15, 1985.
 - (4) J.C. Brons letter to S.A. Varga, dated June 14, 1985.
 - (5) J.P. Bayne letter to S.A. Varga, dated August 13, 1984.
 - (6) S.A. Varga letter to J.P. Bayne, dated April 16, 1984.
 - (7) D.G. Eisenhut letter to J.P. Bayne, dated February 2, 1984.

Dear Sir:

In Reference (1), the New York Power Authority submitted a comprehensive reevaluation of the Indian Point 3 Nuclear Power Plant compliance to Sections III.G and III.L of Appendix R to 10 CFR 50. The reevaluation was undertaken, in part, to resolve the concerns cited by the NRC Staff in the draft Safety Evaluation Report of Reference (2).

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The attached information is provided to clarify the Reference (1) reevaluation report and to assist the Staff in the review of the proposed exemption requests. The information provided in Attachment 1 consists of revised pages to the Reference (1) report to facilitate the Staff's review. In addition, the Authority is providing a discussion of Sections III.J and III.O of Appendix R as well as other matters related to fire protection and safe shutdown at IP-3. A summary of the attached information follows.

A new Table 2-4 has been prepared from Table 2-1 to indicate the extent of detection and suppression in each fire area at IP-3.

Table 2-2 of the Reference (1) report has been revised to more clearly indicate the fire barriers credited in the evaluation of IP-3 to the requirements of Section III.G of Appendix R. The fire barriers which separate adjacent fire areas, protect fire areas from hazards in the yard area, and provide separation for specific plant components (as described in the Reference (1) report) will be controlled. The Technical Specifications will be revised to include any of these barriers not currently included in the license.

Several fire area boundaries include unrated penetrations as described in the notes to Table 2-2. In accordance with Generic Letter 85-01, these penetrations have been evaluated and found acceptable. The evaluations will be submitted for your information under separate cover.

As requested by the staff, the Authority has reviewed Section 4 of the Reference (1) report. This Section describes the operator actions which would be performed to achieve safe shutdown in the event of a fire which disables the normal plant control and instrumentation systems. The safe shutdown scheme and procedures are based on the available minimum shift manpower excluding those personnel dedicated to the fire brigade. While realistically the fire brigade's responsibilities for a fire event would be completed in a finite period of time and these people would be available to assist in plant shutdown, the Authority does not take credit for the two operations personnel assigned to the fire brigade for safe shutdown functions. Safe shutdown can be achieved utilizing only those personnel on shift who are not dedicated to the fire brigade.

Section 5 of the Reference (1) report has been revised to more clearly describe the modifications which the Authority has undertaken to address fire protection and safe shutdown at IP-3. The revised Section is included in Attachment 1.

Included in Attachment 2 hereto are two additional exemption requests from specific requirements of Section III.G.2 of Appendix R to 10 CFR 50. These exemptions are requested pursuant to 10 CFR 50.12 and relate to the Cable Tunnels (Fire Area ETN-4) and the Yard Area. The first addresses a stairway penetrating a fire barrier which the Authority has taken credit for in separating safe shutdown cabling in the upper and lower electrical penetration area of the cable

tunnels. The second exemption deals with the lack of detection and suppression systems in the yard area between the normal and backup Service Water Pumps.

The Authority hereby withdraws the exemption requested in Section 6.2.1(1) of Reference (1) for the safe shutdown instrumentation cables at the electrical tunnel entranceway from the Cable Spreading Room. Additional modifications are being completed during the current outage which will achieve compliance with Appendix R for these cables. The cables are being wrapped in a one hour barrier to a point within the Cable Tunnels where credit can be taken for the separation afforded by the floor/ceiling assembly located between fire zones 7A and 60A. Additional details regarding this modification and the basis for compliance with Appendix R in this Fire Area are provided in Attachment 2.

The Authority provided the Staff with information clarifying the as-built design of the Cable Tunnel sprinkler systems in Reference (3). The information addressed the conformance of the system to NFPA-13 in light of the NRC Safety Evaluation for the BTP 9.5-1, Appendix A review of IP-3. The modification to the Cable Tunnel sprinkler systems discussed in Reference (3) will be completed during the current refueling outage. The modification will result in these sprinkler systems conforming to the supervision requirements specified in the 1978 version of NFPA-13.

Reference (1) provided a discussion of Appendix R Sections III.J and III.O. It was noted in Reference (1) that implementation of modifications to achieve compliance with Sections III.G or III.L of Appendix R to 10 CFR 50 might necessitate modification of the emergency lighting system. It has been the Authority's position that compliance with Section III.J of Appendix R exists at IP-3. Modifications to the plant to install an additional onsite power supply to resolve NRC Staff positions on alternate shutdown necessitated the filing of an exemption from specific requirements of Section III.J in Reference (4) for the yard area. The modifications described in Section 5 of Reference (1), other than the new onsite emergency power supply, have not compromised the conformance of IP-3 to Section III.J of Appendix R. As with any system credited in the Appendix R evaluations, enhancements to the emergency lighting system may be made without affecting the original assessment of compliance to Section III.J.

Reference (5) provided an evaluation of the IP-3 Reactor Coolant Pump (RCP) oil collection system seismic capability. Based on a visual inspection of the oil collection system and the evaluation, it has been concluded that there is reasonable assurance that the system will withstand the Safe Shutdown Earthquake (0.15g for IP-3). Notwithstanding this evaluation, the Authority has undertaken modifications to the piping in the lower portion of the oil collection system, from the lower drip pan to the collection tank, to provide for a more permanent installation. Previously, the lower and upper piping systems were dismantled to conduct various maintenance activities on the reactor coolant pumps. The collection tanks are

also being replaced in conjunction with this work. The modification will result in a more permanent installation for the lower portion of the oil collection system which will facilitate future maintenance activities. The modification is being engineered and installed to withstand the SSE. The upper portions of the oil collection system will be unchanged and its seismic capability is described in Reference (5). The Authority concludes that the design of the RCP oil collection system installed at IP-3 provides reasonable assurance that the system will remain functional following the safe shutdown earthquake.

Attachment 3 provides clarifying information for the proposed exemption request for the charging pumps on the 55 foot elevation of the Primary Auxiliary Building. Construction features of the pump cubicals and corridor are described as well as the normal and alternate power cable routings. This information supports the exemption request submitted in Reference (1), Section 6.4.1. In addition, Attachment 3 includes information regarding separation of safe shutdown cables and equipment on the 34 foot elevation of the Primary Auxiliary Building (PAB) and at the motor control center area on the 55 foot elevation of the PAB.

Attachment 3 also includes the information requested by the staff during an August 28, 1985 meeting. Specifically, manual operation of certain motor operated valves following a fire and reactor coolant system make up water sources are described.

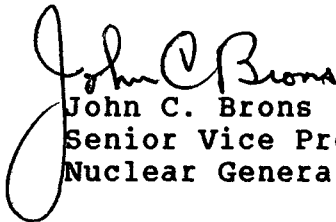
Indian Point 3 is currently shutdown for refueling and maintenance. The Authority is proceeding with the installation of the modifications described in the Reference (1) report. All modifications associated with alternate shutdown of the plant are scheduled to be completed within the schedule prescribed in 10 CFR 50.48.C.4 based on the termination of the tolling provisions of 10 CFR 50.48.C.6 by Reference (6). To the extent that the modifications other than those related to alternate shutdown, described in Reference (1) require a plant shutdown to install, the Authority intends to meet the schedule prescribed in 10 CFR 50.48.C.3 based on the termination of the tolling provisions of 10 CFR 50.48.C.6 by Reference (7).

The Authority had requested an exemption from the scheduler requirements of 10 CFR 50.48.C, pursuant to 10 CFR 50.12, in Reference (1). The Authority reiterates this exemption request in the event that the Staff disagrees with our interpretation of the schedule requirements of 10 CFR 50.48.C. The requested schedule extension to the current refueling outage also applied to modifications on the 41 foot elevation of the PAB described in Section 5.3 of the Reference (1) report. The modification to install a noncombustible partial height barrier and the pump power cable wrapping is complete.

To the extent that the modifications to install the partial height barrier and cable wrapping are complete, the schedule exemption no longer applies. The Authority considers the scheduler exemption necessary with regards to assessing compliance with 10 CFR 50.48.C unless the Staff determines otherwise.

We trust you find this information satisfactory. If you have any questions, please call Mr. P. Kokolakis of my staff.

Very truly yours,


John C. Brons
Senior Vice President
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cc: Resident Inspector's Office
Indian Point Unit 3
U.S. Nuclear Regulatory Commission
P.O. Box 66
Buchanan, NY 10511

ATTACHMENTS TO IPN-85-47

1. Revised pages to the Appendix R Section III.G
Reevaluation Report submitted August 16, 1984.
2. Proposed Exemptions from Section III.G.2 of Appendix
R to 10 CFR 50.
3. Additional Information Supporting the Exemption for
the Charging Pumps on the Primary Auxiliary Building
55' Elevation, and Discussion of Safe Shutdown
Equipment Separation on the 34' and 55' Elevations
of the PAB.

NEW YORK POWER AUTHORITY

INDIAN POINT 3 NUCLEAR POWER PLANT

DOCKET NO. 50-286

ATTACHMENT 1
IPN-85-47

REVISED PAGES TO THE APPENDIX R
SECTION III.G REEVALUATION
REPORT

NEW YORK POWER AUTHORITY
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286

- (e) Turbine Building (including portions of the Auxiliary Boiler Building) Fire Area TBL-5
- (f) Auxiliary Boiler Feedwater Pump Room Fire Area AFW-6
- (g) All other areas of the plant comprise the seventh Fire Area.

Revised combustible loadings including cable insulation, identification of external walls for fire areas and their adequacy, identification of fire area boundaries and their minimum required fire rating in accordance with the fire hazards present or expected, improvements in the detection and suppression systems, and use of fire barriers in III.G.2 areas were also defined.

(3) Improved Alternative Shutdown Capability

Enhancements to the existing alternative shutdown capability at IP3 have been defined by:

- (a) An additional on-site ac alternative diesel generator independent from the emergency diesel generators, associated power distribution and existing support systems
- (b) Inclusion of additional alternative instrument indications for hot and cold leg temperatures and source range neutron flux
- (c) Steam generator pressure gauges at the atmospheric steam dump stations

(4) Post-Fire Safe Shutdown

A manpower analysis was conducted that confirmed the adequacy of existing manpower at IP3 in coping with a fire requiring Control Room evacuation. The revisions of the plant emergency procedures reflect the additional safe shutdown flexibility provided by the enhanced alternative shutdown capability.

(5) Appendix R Section III.G Compliance Documentation

A safe shutdown database was redefined based on the revised safe shutdown equipment, cables, and fire area boundaries. A computer-oriented separation analysis performed on a fire area basis identified additional Appendix R nonconformances for the Primary Auxiliary Building, cable tunnels, and Auxiliary Boiler Feedwater

2.2.3 Controlled Barrier

A controlled barrier is a plant design feature that may or may not have an assigned fire resistive rating. However, in this analysis, controlled barriers have been credited with providing an acceptable level of protection in order to assure the availability of sufficient safe shutdown components and therefore must be under a surveillance control program. Examples of controlled barriers are the floor/ceiling assembly between the upper and lower cable tunnels, cable wrapping, partial height wall separating the CCW pumps and the radiant energy shields inside containment. Such barriers are identified in Table 2-3.

2.2.4 Fire Area

That portion of a building or plant that is separated from other areas by boundary fire barriers. The rating of the barrier or boundary must exceed, with margin, the fire loading in the area. Fire area boundaries need not be completely sealed floor-to-ceiling, wall-to-wall boundaries. However, where such boundaries are not wall-to-wall, floor-to-ceiling boundaries with all penetrations sealed to the fire rating required of the boundaries, an evaluation will be performed to assess the adequacy of fire boundaries to determine if the boundaries will withstand the hazards associated with the area and protect important equipment within the area from a fire outside the area.

2.2.5 Fire Barrier

Those components of construction (walls, floors and their supports), including beams, joists, columns, penetration seals or closures, fire doors, and fire dampers that are rated by approving laboratories in hours of resistance to fire and are used to prevent the spread of fire. Fire barriers must be under a surveillance control program and all penetrations are to be sealed unless an engineering evaluation as defined in 2.2.4 above has been completed. Fire barriers are identified in Table 2-2.

2.2.6 Fire Resistance Rating

The time, in minutes or hours, that materials or assemblies have successfully withstood an exposure fire in accordance with test procedures of "Standard Methods of Fire Tests of Building Construction and Materials," NFPA STD-251[1].

- (2) Material having a structural base that is noncombustible with a surface coating or layer that does not exceed 1/8-inch, and having a flame-spread rating not higher than 50 when measured using the ASTM E-84 Test, "Surface Burning Characteristics of Building Materials,"[2].

2.2.12 Penetration

A designed opening in a fire barrier, such as a floor, wall or ceiling, through which may pass conduit, cables, cable trays, piping, HVAC ducting, dampers, and similar equipment. Some penetration openings may not be sealed with fire-rated materials. However, all penetrations that do not have a fire rating equivalent to that required of the barrier will be identified and evaluated.

2.2.13 Radiant Energy Shield

A radiant energy shield is a barrier that resists heat energy and is constructed of noncombustible material. This shield may or may not have an assigned fire resistive rating. Such shields are found throughout Fire Area CNT-1 and those that protect redundant safe shutdown equipment must be under a surveillance control program.

2.3 Establishment of Fire Areas

Fire areas for this reevaluation were established to meet the fire protection requirements of Appendix R for safe shutdown systems. The previous fire hazards analyses were based on fire zones and sub-fire zones created for the sole purpose of facilitating the electrical system analysis, and not on the accepted fire protection definitions for fire areas or fire zones. Although exemption requests were accepted for the Control

NEW YORK POWER AUTHORITY - INDIAN POINT 3 NUCLEAR POWER PLANT
TABLE 2-2 FIRE AREA BOUNDARY CHARACTERISTICS

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Fire area Zone	Fire Description.... Zone	Fire zone... Boundary	External Wall	Adjacent... Fire area	Adjacent Fire Area Zone	Adjacent..... Fire zone Fire severity (minutes)	Minimum Reserve..... Boundary Rating Required (hr)	
AFW-6	23 AUXILIARY BOILER FEED PUMP ROOM	CEILING		TBL-5	52A	0	1	
AFW-6	23 AUXILIARY BOILER FEED PUMP ROOM	EAST	Y		YARD	0	0	
AFW-6	23 AUXILIARY BOILER FEED PUMP ROOM	FLOOR	Y		YARD	0	0	
AFW-6	23 AUXILIARY BOILER FEED PUMP ROOM	NORTH	Y		YARD	0	0	SEE TABLE 2-2 NOTE 4
				TBL-5	54A	0	1	
AFW-6	23 AUXILIARY BOILER FEED PUMP ROOM	SOUTH	Y		YARD	0	0	
AFW-6	23 AUXILIARY BOILER FEED PUMP ROOM	WEST	Y		YARD	0	0	

Fire area.	Fire Description....	Fire zone...	External Adjacent....	Adjacent Adjacent.....	Minimum.		
Zone		Boundary	Wall	Fire area	Fire zone		
				Fire Area	Fire zone		
				Zone	Fire severity		
					(minutes)		
					Rating		
					Required		
					(hr)		
CNT-1	70A RCP AREA	FLOOR	Y		YARD	0	0
CNT-1	71A RCP AREA	FLOOR	Y		YARD	0	0
CNT-1	72A OUTER ANNULUS	EAST		PAB-2	59A	4	1
					90A	0	1
					91A	0	1
CNT-1	72A OUTER ANNULUS	FLOOR	Y		YARD	0	0
CNT-1	72A OUTER ANNULUS	SOUTH		PAB-2	59A	4	1
				PAB-2	622	0	1
				PAB-2	62A	0	1
CNT-1	75A OUTER ANNULUS	FLOOR	Y		YARD	0	0
CNT-1	75A OUTER ANNULUS	SOUTH	Y	ETN-4	73A	62	2
					YARD	0	2
CNT-1	75A OUTER ANNULUS	WEST	Y	TBL-5	57A	13	2
					YARD	0	2
				ETN-4	73A	62	2
CNT-1	76A OUTER ANNULUS	FLOOR	Y		YARD	0	0
CNT-1	76A OUTER ANNULUS	WEST	Y	TBL-5	57A	13	1
					YARD	0	1
CNT-1	77A OUTER ANNULUS	EAST	Y		YARD	0	0
CNT-1	77A OUTER ANNULUS	FLOOR	Y		YARD	0	0
CNT-1	77A OUTER ANNULUS	NORTH	Y		YARD	0	0
CNT-1	78A RECIRCULATION PUMPS AND RHR HEAT EXCHANGER	FLOOR	Y		YARD	0	0
CNT-1	80A CONTAINMENT FAN SOUTH COOLER AREA		Y		YARD	0	0
CNT-1	80A CONTAINMENT FAN WEST COOLER AREA		Y		YARD	0	0
CNT-1	81A CONTAINMENT FAN NORTH COOLER AREA		Y		YARD	0	0
CNT-1	81A CONTAINMENT FAN WEST COOLER AREA		Y	TBL-5	57A	13	1

Fire area.	Fire Description....	Fire zone...	External Adjacent....	Adjacent	Adjacent.....	Minimum.
Zone		Boundary	Wall	Fire area	Fire zone	Boundary
				Fire Area Zone	Fire severity (minutes)	Rating Required (hr)
				YARD	0	1
CNT-1	B2A CONTAINMENT FAN NORTH COOLER AREA		Y	YARD	0	0
CNT-1	B2A CONTAINMENT FAN WEST COOLER AREA		Y	YARD	0	0
CNT-1	B3A CONTAINMENT FAN EAST COOLER AREA		Y	YARD	0	0
CNT-1	B3A CONTAINMENT FAN NORTH COOLER AREA		Y	YARD	0	0
CNT-1	B4A CONTAINMENT FAN EAST COOLER AREA		Y	YARD	0	1
				PAB-2	BBA	2
						1
CNT-1	B4A CONTAINMENT FAN SOUTH COOLER AREA		Y	PAB-2	59A	4
				PAB-2	BBA	2
						1
				YARD	0	1
CNT-1	B5A INCORE DETECTOR SOUTH DRIVE AREA		Y	YARD	0	0
CNT-1	B7A OUTER ANNULUS EAST		Y	YARD	0	0
CNT-1	B6A REFUELING FLOOR CEILING AREA		Y	YARD	0	0
CNT-1	B6A REFUELING FLOOR EAST AREA		Y	YARD	0	0
CNT-1	B6A REFUELING FLOOR NORTH AREA		Y	YARD	0	0
CNT-1	B6A REFUELING FLOOR SOUTH AREA		Y	YARD	0	0
CNT-1	B6A REFUELING FLOOR WEST AREA		Y	YARD	0	0

NEW YORK POWER AUTHORITY - INDIAN POINT 3 NUCLEAR POWER PLANT
TABLE 2-2 FIRE AREA BOUNDARY CHARACTERISTICS 15:23:29 15 AUG 1985 PAGE 4

Fire area.	Fire Description....	Fire zone....	External	Adjacent....	Adjacent	Adjacent.....	Minimum	Remarks.....
Zone		Boundary	Wall	Fire area	Fire Area Zone	Fire zone Fire severity (minutes)	Boundary Rating Required (hr)	
CTL-3	14 SWITCHGEAR ROOM FLOOR				YARD	0	0	
CTL-3	14 SWITCHGEAR ROOM NORTH				66A	0	3	
					YARD	0	3	
					64A	0	3	
					65A	0	3	
					67A	0	3	
CTL-3	14 SWITCHGEAR ROOM SOUTH		Y		YARD	0	0	
CTL-3	14 SWITCHGEAR ROOM WEST			TBL-5	37A	24	3	
CTL-3	33A DELUGE VALVE ROOM	FLOOR	Y		YARD	0	0	
CTL-3	33A DELUGE VALVE ROOM	NORTH	Y		YARD	0	0	
CTL-3	33A DELUGE VALVE ROOM	WEST		TBL-5	37A	24	3	
CTL-3	35A AIR CONDITIONING ROOM	EAST	Y		YARD	0	0	
CTL-3	35A AIR CONDITIONING ROOM	NORTH	Y		YARD	0	0	
CTL-3	34A FAN ROOM	CEILING	Y		YARD	0	0	
CTL-3	34A FAN ROOM	EAST	Y		YARD	0	0	
CTL-3	34A FAN ROOM	SOUTH	Y		YARD	0	0	
CTL-3	11 CABLE SPREADING EAST ROOM			ETN-4	60A	63	3	SEE TABLE 2-2 NOTE 4
				ETN-4	7A	56	3	
CTL-3	11 CABLE SPREADING NORTH ROOM		Y		YARD	0	0	
CTL-3	11 CABLE SPREADING SOUTH ROOM		Y		YARD	0	0	
CTL-3	11 CABLE SPREADING WEST ROOM			TBL-5	43A	11	3	SEE TABLE 2-2 NOTE 4
CTL-3	12 BATTERY ROOM 31 SOUTH		Y		YARD	0	0	

Fire area.	Fire Description....	Fire zone...	External Adjacent....	Adjacent Adjacent.....	Minimum.
Zone		Boundary	Wall	Fire area	Fire zone
				Fire Area	Fire severity
				Zone	(minutes)
					Rating
					Required
					(hr)
CTL-3	13 BATTERY ROOM 32 SOUTH		Y	YARD	0
CTL-3	15 CONTROL ROOM CEILING		Y	YARD	0
CTL-3	15 CONTROL ROOM NORTH		Y	YARD	0
CTL-3	15 CONTROL ROOM SOUTH		Y	YARD	0
CTL-3	15 CONTROL ROOM WEST			TBL-5 49A	1
					3
CTL-3	10 DG NO. 31 ROOM CEILING		Y	YARD	0
CTL-3	10 DG NO. 31 ROOM FLOOR		Y	YARD	0
CTL-3	10 DG NO. 31 ROOM SOUTH		Y	YARD	0
CTL-3	10 DG NO. 31 ROOM WEST		Y	YARD	0
CTL-3	101A DIESEL GENERATOR ROOM NO. 32 CEILING		Y	YARD	0
CTL-3	101A DIESEL GENERATOR ROOM NO. 32 FLOOR		Y	YARD	0
CTL-3	101A DIESEL GENERATOR ROOM NO. 32 SOUTH		Y	YARD	0
CTL-3	102A DIESEL GENERATOR ROOM NO. 33 CEILING		Y	YARD	0
CTL-3	102A DIESEL GENERATOR ROOM NO. 33 EAST		Y	YARD	0
CTL-3	102A DIESEL GENERATOR ROOM NO. 33 FLOOR		Y	YARD	0
CTL-3	102A DIESEL GENERATOR ROOM NO. 33 SOUTH		Y	YARD	0
CTL-3	36A SUMP AND PUMP ROOM EAST		Y	YARD	0

Fire area. Zone	Fire Description....	Fire zone... Boundary	External Adjacent.... Wall	Fire area	Adjacent Fire Area Zone	Adjacent..... Fire zone Fire severity (minutes)	Minimum. Boundary Rating Required (hr)
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CTL-3	36A SUMP AND PUMP ROOM	FLOOR	Y		YARD	0	0
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CTL-3	36A SUMP AND PUMP ROOM	SOUTH	Y		YARD	0	0
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NEW YORK POWER AUTHORITY - INDIAN POINT 3 NUCLEAR POWER PLANT
TABLE 2-2 FIRE AREA BOUNDARY CHARACTERISTICS 15:23:34 15 AUG 1985 PAGE 7

Fire area	Fire Description....	Fire zone...	External Boundary	Adjacent Wall	Adjacent Fire area	Adjacent Fire zone	Adjacent Fire severity (minutes)	Minimum Boundary Rating Required (hr)	Remarks.....
ETN-4	7A ELECTRICAL TUNNEL (LOWER)	EAST			PAB-2	4A	1	2	
					PAB-2	58A	4	2	
					PAB-2	5A	0	2	
					PAB-2	68A	1	2	
					PAB-2	9	1	2	
					PAB-2	622	0	2	
ETN-4	7A ELECTRICAL TUNNEL (LOWER)	FLOOR			PAB-2	10A	0	2	
					PAB-2	14A	2	2	
					PAB-2	15A	0	2	
					PAB-2	8A	0	2	
ETN-4	7A ELECTRICAL TUNNEL (LOWER)	NORTH			PAB-2	622	0	2	
ETN-4	7A ELECTRICAL TUNNEL (LOWER)	SOUTH	Y			YARD	0	0	
ETN-4	7A ELECTRICAL TUNNEL (LOWER)	WEST			CTL-3	11	143	3	SEE TABLE 2-2 NOTE 4
						65A	0	3	
						67A	0	3	
ETN-4	74A ELECTRICAL PENETRATION AREA (LOWER)	EAST	Y		PAB-2	622	0	2	
ETN-4	74A ELECTRICAL PENETRATION AREA (LOWER)	FLOOR	Y			YARD	0	0	
ETN-4	74A ELECTRICAL PENETRATION AREA (LOWER)	NORTH	Y			YARD	0	2	
					TBL-5	52A	0	2	
ETN-4	74A ELECTRICAL PENETRATION AREA (LOWER)	SOUTH	Y			YARD	0	0	
						67A	0	0	
ETN-4	74A ELECTRICAL PENETRATION AREA (LOWER)	WEST	Y			65A	0	2	
						67A	0	2	
						YARD	0	2	
					TBL-5	52A	0	2	

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 TABLE 2-2 FIRE AREA BOUNDARY CHARACTERISTICS 15:23:37 15 AUG 1985 PAGE 8

Fire area Zone	Fire Description.... Zone	Fire zone... Boundary	External Wall	Adjacent... Fire area	Adjacent Fire Area Zone	Adjacent..... Fire zone Fire severity (minutes)	Minimum. Boundary Rating Required (hr)	Remarks.....
ETN-4	60A ELECTRICAL TUNNEL (UPPER)	CEILING		PAB-2	17A	8	2	
				PAB-2	63A	0	2	
ETN-4	60A ELECTRICAL TUNNEL (UPPER)	EAST		PAB-2	58A	4	2	
				PAB-2	5A	0	2	
				PAB-2	622	0	2	
ETN-4	60A ELECTRICAL TUNNEL (UPPER)	NORTH		PAB-2	622	0	2	
ETN-4	60A ELECTRICAL TUNNEL (UPPER)	SOUTH	Y		YARD	0	0	
ETN-4	60A ELECTRICAL TUNNEL (UPPER)	WEST		CTL-3	11	143	3	SEE TABLE 2-2 NOTE 4
					65A	0	3	
					67A	0	3	
ETN-4	73A ELECTRICAL PENETRATION AREA (UPPER)	CEILING	Y		YARD	0	0	
ETN-4	73A ELECTRICAL PENETRATION AREA (UPPER)	EAST		PAB-2	59A	4	2	
				PAB-2	622	0	2	
				CNT-1	75A	105	2	
ETN-4	73A ELECTRICAL PENETRATION AREA (UPPER)	NORTH		TBL-5	57A	13	2	
				CNT-1	75A	105	2	
ETN-4	73A ELECTRICAL PENETRATION AREA (UPPER)	SOUTH	Y		65A	0	0	
					YARD	0	0	
					67A	0	0	
ETN-4	73A ELECTRICAL PENETRATION AREA (UPPER)	WEST		TBL-5	57A	13	2	
					YARD	0	2	
					65A	0	2	
					67A	0	2	

Fire area. Zone	Fire Description....	Fire zone... Boundary	External Wall	Adjacent.... Fire area	Adjacent Fire Area Zone	Adjacent.... Fire zone Fire severity (minutes)	Minimum. Boundary Rating Required (hr)
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Fire area.	Fire Description....	Fire zone...	External Adjacent....	Adjacent	Adjacent	Adjacent.....	Minimum.
Zone		Boundary	Wall	Fire area	Fire Area Zone	Fire zone Fire severity (minutes)	Boundary Rating Required (hr)
PAB-2	10A VALVE CORRIDOR	CEILING		ETN-4	7A	56	2
PAB-2	10A VALVE CORRIDOR	FLOOR	Y		YARD	0	0
PAB-2	10A VALVE CORRIDOR	WEST	Y		YARD	0	0
PAB-2	11A SUMP TANK AND PUMP ROOM	FLOOR	Y		YARD	0	0
PAB-2	12A CORRIDOR PAB ELEV. 15-0	EAST	Y		YARD	0	0
PAB-2	12A CORRIDOR PAB ELEV. 15-0	FLOOR	Y		YARD	0	0
PAB-2	13A LARGE GAS DECAY EAST TANK ROOM		Y		YARD	0	0
PAB-2	13A LARGE GAS DECAY FLOOR TANK ROOM		Y		YARD	0	0
PAB-2	13A LARGE GAS DECAY SOUTH TANK ROOM		Y		YARD	0	0
PAB-2	14A CORRIDOR PAB ELEV 15-0	CEILING		ETN-4	7A	56	2
PAB-2	14A CORRIDOR PAB ELEV 15-0	FLOOR	Y		YARD	0	0
PAB-2	14A CORRIDOR PAB ELEV 15-0	SOUTH	Y		YARD	0	0
PAB-2	14A CORRIDOR PAB ELEV 15-0	WEST	Y		YARD	0	0
PAB-2	15A SPENT RESIN STORAGE TANK ROOM	CEILING		ETN-4	7A	56	2
PAB-2	15A SPENT RESIN STORAGE TANK ROOM	FLOOR	Y		YARD	0	0
PAB-2	15A SPENT RESIN STORAGE TANK ROOM	SOUTH	Y		YARD	0	0
PAB-2	15A SPENT RESIN	WEST	Y		YARD	0	0

Fire area. Zone	Fire Description.... Zone	Fire zone... Boundary	External Adjacent.... Wall	Adjacent Fire area	Adjacent Fire Area Zone	Adjacent..... Fire zone Fire severity (minutes)	Minimum. Boundary Rating Required (hr)
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STORAGE TANK
ROOM

PAB-2	16A	CHEMICAL DRAIN TANK ROOM	FLOOR	Y		YARD	0	0
PAB-2	16A	CHEMICAL DRAIN TANK ROOM	SOUTH	Y		YARD	0	0
PAB-2	3	RHR PUMP ROOM 31	FLOOR	Y		YARD	0	0
PAB-2	3	RHR PUMP ROOM 31	NORTH	Y		YARD	0	0
PAB-2	4	RHR PUMP ROOM 32	EAST	Y		YARD	0	0
PAB-2	4	RHR PUMP ROOM 32	FLOOR	Y		YARD	0	0
PAB-2	4	RHR PUMP ROOM 32	NORTH	Y		YARD	0	0
PAB-2	69A	PIPING AND VALVE ROOM	FLOOR	Y		YARD	0	0
PAB-2	69A	PIPING AND VALVE ROOM	NORTH	Y		YARD	0	0
PAB-2	8A	EMPTY ROOM	CEILING		ETN-4	7A	56	2
PAB-2	8A	EMPTY ROOM	FLOOR	Y		YARD	0	0
PAB-2	8A	EMPTY ROOM	NORTH	Y		YARD	0	0
PAB-2	8A	EMPTY ROOM	WEST	Y		YARD	0	0
PAB-2	9A	RHR FUTURE PUMP ROOM	FLOOR	Y		YARD	0	0
PAB-2	9A	RHR FUTURE PUMP ROOM	NORTH	Y		YARD	0	0
PAB-2	5A	PIPING TUNNEL	EAST	Y			0	0
PAB-2	5A	PIPING TUNNEL	NORTH	Y		YARD	0	0
PAB-2	5A	PIPING TUNNEL	WEST		ETN-4	7A	56	2

Fire area.	Fire Description....	Fire zone...	External	Adjacent....	Adjacent	Adjacent.....	Minimum.
Zone		Boundary	Wall	Fire area	Fire Area Zone	Fire zone Fire severity (minutes)	Boundary Rating Required (hr)
				ETN-4	60A	63	2
PAB-2	4A CORRIDOR	WEST		ETN-4	7A	56	2
PAB-2	68A ION EXCHANGE COLUMN ROOM	SOUTH	Y		YARD	0	0
PAB-2	68A ION EXCHANGE COLUMN ROOM	WEST		ETN-4	7A	56	2
PAB-2	9 SAFETY INJECTION PUMP ROOM	WEST		ETN-4	7A	56	2
PAB-2	2 CONTAINMENT SPRAY PUMP ROOM	EAST	Y		YARD	0	0
PAB-2	2 CONTAINMENT SPRAY PUMP ROOM	FLOOR	Y		YARD	0	0
PAB-2	2 CONTAINMENT SPRAY PUMP ROOM	SOUTH	Y		YARD	0	0
PAB-2	3A PIPING TUNNEL	EAST	Y		YARD	0	0
PAB-2	3A PIPING TUNNEL	FLOOR	Y		YARD 98A	0 0	0 0
PAB-2	1 CCW PUMP ROOM	FLOOR	Y		YARD	0	0
PAB-2	1 CCW PUMP ROOM	NORTH	Y		YARD	0	0
PAB-2	1A FLASH EVAPORATOR ROOM	EAST	Y		YARD	0	0
PAB-2	1A FLASH EVAPORATOR ROOM	FLOOR	Y		YARD	0	0
PAB-2	1A FLASH EVAPORATOR ROOM	NORTH	Y		YARD	0	0
PAB-2	2A PRIMARY MAKEUP WATER PUMP ROOM	FLOOR	Y		YARD	0	0
PAB-2	2A PRIMARY MAKEUP WATER PUMP ROOM	SOUTH	Y		YARD	0	0
PAB-2	58A PIPING TUNNEL	FLOOR	Y		YARD	0	0

Fire area.	Fire Description....	Fire zone...	External	Adjacent....	Adjacent	Adjacent.....	Minimum.
Zone		Boundary	Wall	Fire area	Fire Area Zone	Fire zone Fire severity (minutes)	Boundary Rating Required (hr)
PAB-2	58A PIPING TUNNEL	WEST		ETN-4 ETN-4	7A 60A	56 63	2 2
PAB-2	17A CORRIDOR	FLOOR		ETN-4	60A	63	2
PAB-2	17A CORRIDOR	NORTH	Y		YARD	0	0
PAB-2	17A CORRIDOR	SOUTH	Y		YARD	0	0
PAB-2	17A CORRIDOR	WEST	Y		YARD	0	0
PAB-2	18A WASTE GAS COMPRESSOR ROOM	SOUTH	Y		YARD	0	0
PAB-2	19A WASTE EVAPORATOR ROOM	SOUTH	Y		YARD	0	0
PAB-2	21A WASTE STORAGE AND DRUMMING AREA	NORTH	Y		YARD	0	0
PAB-2	5 CHARGING PUMP ROOM 31	NORTH	Y		YARD	0	0
PAB-2	6 CHARGING PUMP ROOM 32	NORTH	Y		YARD	0	0
PAB-2	63A WASTE CONDENSATE TANK ROOM	CEILING	Y		YARD	0	0
PAB-2	63A WASTE CONDENSATE TANK ROOM	FLOOR		ETN-4	60A	63	2
PAB-2	63A WASTE CONDENSATE TANK ROOM	SOUTH	Y			0	0
PAB-2	63A WASTE CONDENSATE TANK ROOM	WEST	Y		YARD	0	0
PAB-2	7 CHARGING PUMP ROOM 33	NORTH	Y		YARD	0	0
PAB-2	8 BORIC ACID TANK AREA	EAST	Y			0	0

Fire area.	Fire Description....	Fire zone...	External Adjacent....	Adjacent	Adjacent.....	Minimum.
Zone		Boundary	Wall	Fire area	Fire zone	Boundary
				Fire Area	Fire severity	Rating
				Zone	(minutes)	Required
						(hr)
PAB-2	B BORIC ACID TANK NORTH AREA		Y		YARD	0
PAB-2	22A BORIC ACID CEILING EVAPORATOR ROOM 32		Y		YARD	0
PAB-2	22A BORIC ACID SOUTH EVAPORATOR ROOM 32		Y		YARD	0
PAB-2	23A ENTRY FOR ZONES CEILING 22A AND 24A		Y		YARD	0
PAB-2	23A ENTRY FOR ZONES SOUTH 22A AND 24A		Y		YARD	0
PAB-2	24A BORIC ACID CEILING EVAPORATOR ROOM 31		Y		YARD	0
PAB-2	24A BORIC ACID SOUTH EVAPORATOR ROOM 31		Y		YARD	0
PAB-2	25A SEAL WATER HEAT CEILING EXCHANGER ROOM		Y		YARD	0
PAB-2	25A SEAL WATER HEAT SOUTH EXCHANGER ROOM		Y		YARD	0
PAB-2	25A SEAL WATER HEAT WEST EXCHANGER ROOM		Y		YARD	0
PAB-2	26A REACTOR COOLANT CEILING FILTER		Y		YARD	0
PAB-2	26A REACTOR COOLANT NORTH FILTER		Y		YARD	0
PAB-2	26A REACTOR COOLANT WEST FILTER		Y		YARD	0
PAB-2	27A CORRIDOR PAB CEILING ELEV. 73-0		Y		YARD	0
PAB-2	27A CORRIDOR PAB EAST ELEV. 73-0		Y			0

Fire area.	Fire Description....	Fire zone...	External	Adjacent....	Adjacent	Adjacent.....	Minimum.
Zone		Boundary	Wall	Fire area	Fire Area Zone	Fire zone Fire severity (minutes)	Boundary Rating Required (hr)
PAB-2	27A CORRIDOR PAB ELEV. 73-0	NORTH	Y		YARD	0	0
PAB-2	28A VALVE CORRIDOR	CEILING	Y		YARD	0	0
PAB-2	29A VOLUME CONTROL TANK ROOM	CEILING	Y		YARD	0	0
PAB-2	29A VOLUME CONTROL TANK ROOM	NORTH	Y		YARD	0	0
PAB-2	30A VALVE CORRIDOR	CEILING	Y		YARD	0	0
PAB-2	30A VALVE CORRIDOR	NORTH	Y		YARD	0	0
PAB-2	31A CONCENTRATE HOLDING TANK ROOM	CEILING	Y		YARD	0	0
PAB-2	31A CONCENTRATE HOLDING TANK ROOM	NORTH	Y		YARD	0	0
PAB-2	32A NON-REGENERATIVE HEAT EXCHANGER ROOM	CEILING	Y		YARD	0	0
PAB-2	32A NON-REGENERATIVE HEAT EXCHANGER ROOM	NORTH	Y		YARD	0	0
PAB-2	89A STORAGE AREA	CEILING	Y		YARD	0	0
PAB-2	89A STORAGE AREA	EAST	Y			0	0
PAB-2	89A STORAGE AREA	SOUTH	Y			0	0
PAB-2	61A PIPING TRENCH	EAST	Y		YARD	0	0
PAB-2	61A PIPING TRENCH	FLOOR	Y		YARD	0	0
PAB-2	61A PIPING TRENCH	NORTH	Y		YARD	0	0
PAB-2	622 BORON INJECTION TANK	FLOOR	Y		YARD	0	0
PAB-2	622 BORON INJECTION TANK	NORTH		CNT-1	72A	5	1

Fire area.	Fire Description....	Fire zone...	External	Adjacent....	Adjacent	Adjacent.....	Minimum.
Zone		Boundary	Wall	Fire area	Fire Area Zone	Fire zone Fire severity (minutes)	Boundary Rating Required (hr)
PAB-2	622 BORON INJECTION SOUTH TANK			ETN-4	60A	63	2
				ETN-4	7A	56	2
PAB-2	622 BORON INJECTION WEST TANK			ETN-4	7A	56	2
				ETN-4	60A	63	2
				ETN-4	73A	62	2
				ETN-4	74A	39	2
PAB-2	79A STEAM GENERATOR FLOOR BLOWDOWN TANK		Y		YARD	0	0
PAB-2	62A PIPING TRENCH	FLOOR	Y		YARD	0	0
PAB-2	62A PIPING TRENCH	NORTH		CNT-1	72A	5	1
PAB-2	59A PIPING PENITRATION AREA	EAST	Y		90A	0	0
					91A	0	0
					YARD	0	0
PAB-2	59A PIPING PENITRATION AREA	FLOOR	Y		YARD	0	0
PAB-2	59A PIPING PENITRATION AREA	NORTH		CNT-1	72A	5	1
				CNT-1	84A	0	1
PAB-2	59A PIPING PENITRATION AREA	WEST		CNT-1	72A	5	2
				ETN-4	73A	62	2
PAB-2	88A PAB FSB AND CONTAINMENT VENTILATION SYSTEMS AREA	CEILING	Y		YARD	0	0
PAB-2	88A PAB FSB AND CONTAINMENT VENTILATION SYSTEMS AREA	EAST			90A	0	1
					91A	0	1
PAB-2	88A PAB FSB AND	NORTH		CNT-1	87A	10	1

Fire area. Zone	Fire Description.... Zone	Fire zone... Boundary	External Adjacent.... Wall	Adjacent Adjacent.... Fire area	Adjacent Adjacent.... Fire zone Area Zone	Adjacent Adjacent.... Fire severity (minutes)	Minimum. Boundary Rating Required (hr)
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CONTAINMENT
VENTILATION
SYSTEMS AREA

CNT-1 B4A 0 1

PAB-2	B8A PAB FSB AND CONTAINMENT VENTILATION SYSTEMS AREA	SOUTH	Y		YARD	0	0
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Fire area Zone	Fire Description....	Fire zone... Boundary	External Wall	Adjacent... Fire area	Adjacent Fire Area Zone	Adjacent..... Fire zone Fire severity (minutes)	Minimum. Boundary Rating Required (hr)	Remarks.....
TBL-5	52A CHEMICAL ADDITION AREA	EAST	Y	ETN-4	74A	39	2	
					YARD	0	2	
TBL-5	52A CHEMICAL ADDITION AREA	FLOOR		AFW-6	23	6	1	
TBL-5	52A CHEMICAL ADDITION AREA	SOUTH	Y	ETN-4	74A	39	1	
					YARD	0	1	
TBL-5	52A CHEMICAL ADDITION AREA	WEST	Y		YARD	0	0	
TBL-5	57A MAIN STEAM AND FEEDWATER VALVE AREA	CEILING	Y		YARD	0	0	
TBL-5	57A MAIN STEAM AND FEEDWATER VALVE AREA	EAST		CNT-1	75A	105	2	
				CNT-1	76A	41	2	
				ETN-4	73A	62	2	
				CNT-1	81A	0	2	
TBL-5	57A MAIN STEAM AND FEEDWATER VALVE AREA	SOUTH	Y	ETN-4	73A	62	2	
					YARD	0	2	
TBL-5	57A MAIN STEAM AND FEEDWATER VALVE AREA	WEST	Y		YARD	0	0	
TBL-5	54A MAIN BOILER FEEDWATER REGULATOR AREA	EAST	Y		YARD	0	0	
TBL-5	54A MAIN BOILER FEEDWATER REGULATOR AREA	FLOOR	Y		YARD	0	0	
TBL-5	54A MAIN BOILER FEEDWATER REGULATOR AREA	NORTH	Y		YARD	0	0	
					554	0	0	
TBL-5	54A MAIN BOILER FEEDWATER	SOUTH	Y	AFW-6	23	6	1	SEE TABLE 2-2

Fire area.	Fire Description....	Fire zone...	External Adjacent....	Adjacent Adjacent.....	Minimum.
Zone		Boundary	Wall	Fire area	Fire zone
				Fire Area	Fire severity
				Zone	(minutes)
					Rating
					Required
					(hr)

REGULATOR AREA

TBL-5	53A	FEEDWATER BYPASS REGULATOR PLATFORM	CEILING	Y	YARD	0	0
TBL-5	53A	FEEDWATER BYPASS REGULATOR PLATFORM	EAST	Y	YARD	0	0
TBL-5	53A	FEEDWATER BYPASS REGULATOR PLATFORM	NORTH	Y	YARD	0	0
TBL-5	53A	FEEDWATER BYPASS REGULATOR PLATFORM	SOUTH	Y	YARD	0	0
TBL-5	53A	FEEDWATER BYPASS REGULATOR PLATFORM	WEST	Y	YARD	0	0
TBL-5	16	TURBINE OIL RESERVOIR AREA	FLOOR	Y	YARD	0	0
TBL-5	16	TURBINE OIL RESERVOIR AREA	NORTH	Y	YARD	0	0
TBL-5	17	TURBINE OIL RESERVOIR AREA	EAST			0	0
TBL-5	17	TURBINE OIL RESERVOIR AREA	FLOOR	Y	YARD	0	0
TBL-5	18	TURBINE LUBE OIL COND. AREA	FLOOR	Y	YARD	0	0
TBL-5	19	STATION AIR COMPRESSOR AREA	FLOOR	Y	YARD	0	0
TBL-5	19	STATION AIR COMPRESSOR AREA	WEST	Y	YARD	0	0
TBL-5	20	BOILER FEED	FLOOR	Y	YARD	0	0

NEW YORK POWER AUTHORITY - INDIAN POINT 3 NUCLEAR POWER PLANT
TABLE 2-2 FIRE AREA BOUNDARY CHARACTERISTICS 15:24:01 15 AUG 1985 PAGE 20

Fire area. Zone	Fire Description.... Zone	Fire zone... Boundary	External Adjacent.... Wall	Adjacent Fire area	Adjacent Fire Area Zone	Adjacent..... Fire zone Fire severity (minutes)	Minimum. Boundary Rating Required (hr)	Remarks.....
TBL-5	19 STATION AIR COMPRESSOR AREA	WEST	Y		YARD	0	0	
TBL-5	20 BOILER FEED PUMP LUBE OIL RESERVOIR	FLOOR	Y		YARD	0	0	
TBL-5	21 HYDROGEN SEAL OIL RESERVOIR	FLOOR	Y		YARD	0	0	
TBL-5	37A GROUND FLOOR	EAST		CTL-3 CTL-3	14 33A 64A 66A	34 0 0 0	3 3 3 3	
TBL-5	37A GROUND FLOOR	FLOOR	Y		YARD	0	0	
TBL-5	37A GROUND FLOOR	SOUTH	Y			0	0	
TBL-5	38A GROUND FLOOR	FLOOR	Y		YARD	0	0	
TBL-5	38A GROUND FLOOR	SOUTH	Y			0	0	
TBL-5	38A GROUND FLOOR	WEST	Y		YARD	0	0	
TBL-5	39A GROUND FLOOR	FLOOR	Y		YARD	0	0	
TBL-5	39A GROUND FLOOR	WEST	Y		YARD	0	0	
TBL-5	40A GROUND FLOOR	EAST	Y		64A YARD	0 0	0 0	
TBL-5	40A GROUND FLOOR	FLOOR	Y		YARD	0	0	
TBL-5	41A GROUND FLOOR	FLOOR	Y		YARD	0	0	
TBL-5	41A GROUND FLOOR	NORTH	Y		YARD	0	0	
TBL-5	41A GROUND FLOOR	WEST	Y		YARD	0	0	
TBL-5	42A GROUND FLOOR	EAST	Y		YARD	0	0	
TBL-5	42A GROUND FLOOR	FLOOR	Y		YARD	0	0	
TBL-5	42A GROUND FLOOR	NORTH	Y		YARD	0	0	
TBL-5	43A MEZZANINE FLOOR	EAST		CTL-3	11	143	3	SEE TABLE 2-2 NOTE 4

Fire area.	Fire Description....	Fire zone...	External Adjacent....	Adjacent	Fire area	Fire Area	Fire zone	Fire severity	Minimum.
Zone		Boundary	Wall			Zone		(minutes)	Boundary Rating Required (hr)
TBL-5	44A MEZZANINE FLOOR WEST		Y			YARD		0	0
TBL-5	45A MEZZANINE FLOOR CEILING		Y			YARD		0	0
TBL-5	45A MEZZANINE FLOOR WEST		Y			YARD		0	0
TBL-5	46A MEZZANINE FLOOR EAST		Y			64A		0	0
						YARD		0	0
						66A		0	0
TBL-5	47A MEZZANINE FLOOR EAST		Y			YARD		0	0
TBL-5	47A MEZZANINE FLOOR NORTH		Y			YARD		0	0
TBL-5	47A MEZZANINE FLOOR WEST		Y			YARD		0	0
TBL-5	48A LOADING WELL CEILING		Y			YARD		0	0
TBL-5	48A LOADING WELL NORTH		Y			YARD		0	0
TBL-5	48A LOADING WELL WEST		Y			YARD		0	0
TBL-5	49A TURBINE FLOOR CEILING		Y			YARD		0	0
TBL-5	49A TURBINE FLOOR EAST		Y	CTL-3		15		0	3
						YARD		0	3
TBL-5	49A TURBINE FLOOR SOUTH		Y					0	0
TBL-5	49A TURBINE FLOOR WEST		Y			YARD		0	0
TBL-5	50A TURBINE FLOOR CEILING		Y			YARD		0	0
TBL-5	50A TURBINE FLOOR EAST		Y			YARD		0	0
TBL-5	50A TURBINE FLOOR WEST		Y			YARD		0	0
TBL-5	51A TURBINE FLOOR CEILING		Y			YARD		0	0
TBL-5	51A TURBINE FLOOR EAST		Y			YARD		0	0
TBL-5	51A TURBINE FLOOR NORTH		Y			YARD		0	0
TBL-5	51A TURBINE FLOOR WEST		Y			YARD		0	0

TABLE 2-2 NOTES

1. Adjacent fire zone boundaries that are identified as the Yard may be either partially or fully exposed to the exterior of the building.
2. The floor of a fire zone boundary that is identified as the Yard is defined as exposed to the ground with no lower elevations.
3. Minimum fire rating is based on the combustible loading for the fire zones that are immediately adjacent to the fire area boundary and represent the worst case of combustible fuel loading in the fire area. The minimum fire rating considers the fire severity for future modifications and is rounded off to the next highest fire resistive rating. The fire resistive rating is defined in Section 2.2.6.
4. Fire area boundaries with reference to this note include unrated penetrations which have been evaluated and found acceptable in accordance with NRC Generic Letter 85-01.

NEW YORK POWER AUTHORITY - INDIAN POINT NUCLEAR POWER PLANT UNIT 3
TABLE 2-4 FIRE AREA/ZONE CHARACTERISTICS 14:58:06 07 AUG 1985 PAGE 1

Fire area	Fire zone	Description....	Building....	Elevation	Detector	Detector remarks	Extinguishing... System	Extinguishing.. Remarks
552	C.S. TANK	C.S. TANK	70-0					
553	C.S. TANK	C.S. TANK	70-0					
554	C.S.T. PIPING	C.S.T. PIPING	67-8					
56A	DE-ICING PIT	DE-ICING PIT	2-0					
222	BACK-UP SERVICE WATER PUMP	DISCHARGE CANAL	8-6					
90A	SPENT FUEL POOL EQUIPMENT AREA	FUEL STORAGE	41-0				CO2 MANUAL EXTINGUISHER HOSE LINE	
91A	NEW AND SPENT FUEL STORAGE	FUEL STORAGE	55-0				CO2 MANUAL EXTINGUISHER HOSE LINE	
22	SCREEN WELL AREA	INTAKE	15-0				HYDRANT HOSE STATION	
55A	SCREEN WELL AREA	INTAKE	15-0				CO2 MANUAL EXTINGUISHER HYDRANT HOSE STATION	
106A	REFUELING WATER STORAGE TANK	REFUELING WATER STORAGE	54-0					
YARD	YARD	SITE	0-0					
64A	MAIN TRANSFORMER NO. 31	TRANSFORMER YARD	18-0		THERMAL		AUTOMATIC DELUGE	FULL AREA SUPPRESSION
							HYDRANT HOSE STATION	
65A	MAIN TRANSFORMER NO. 32	TRANSFORMER YARD	18-0		THERMAL		AUTOMATIC DELUGE	FULL AREA SUPPRESSION
							HYDRANT HOSE STATION	
66A	UNIT AUXILIARY TRANSFORMER	TRANSFORMER YARD	18-0		THERMAL		AUTOMATIC DELUGE	FULL AREA SUPPRESSION
							HYDRANT HOSE STATION	

NEW YORK POWER AUTHORITY - INDIAN POINT NUCLEAR POWER PLANT UNIT 3
 TABLE 2-4 FIRE AREA/ZONE CHARACTERISTICS 14:58:07 07 AUG 1985 PAGE 2

Fire area	Fire zone	Description....	Building....	Elevation	Detector	Detector remarks	Extinguishing... System	Extinguishing.. Remarks
	67A	STATION AUXILIARY TRANSFORMER	TRANSFORMER YARD	18-0	THERMAL		AUTOMATIC DELUGE HYDRANT HOSE STATION	FULL AREA SUPPRESSION
	94A	WASTE HOLDUP TANK AREA	WASTE HOLDUP TANK PIT	33-0				
	95A	WASTE HOLDUP TANK AREA	WASTE HOLDUP TANK PIT	33-0				
	96A	WASTE HOLDUP TANK PIT	WASTE HOLDUP TANK PIT	33-0				
	97A	WASTE HOLDUP TANK AREA	WASTE HOLDUP TANK PIT	33-0			CO2 MANUAL EXTINGUISHER HOSE LINE	
	98A	WASTE HOLDUP FEED PUMP AREA	WASTE HOLDUP TANK PIT	33-0				
	105A	PRIMARY WATER STORAGE TANK	WASTE HOLDUP TANK PIT	54-0				
AFW-6	23	AUXILIARY BOILER FEED PUMP ROOM	AUX BOILER FEED WATER	18-6	SMOKE	FULL AREA DETECTION	CO2 MANUAL EXTINGUISHER HOSE LINE SPRINKLER	FULL AREA SUPPRESSION
CNT-1	70A	RCP AREA	CONTAINMENT	46-0	SMOKE		CO2 MANUAL EXTINGUISHER HOSE LINE	
CNT-1	71A	RCP AREA	CONTAINMENT	46-0	SMOKE		CO2 MANUAL EXTINGUISHER HOSE LINE	
CNT-1	72A	OUTER ANNULUS	CONTAINMENT	46-0				
CNT-1	75A	OUTER ANNULUS	CONTAINMENT	46-0	SMOKE		CO2 MANUAL EXTINGUISHER HOSE LINE	
CNT-1	76A	OUTER ANNULUS	CONTAINMENT	46-0				
CNT-1	77A	OUTER ANNULUS	CONTAINMENT	46-0	SMOKE		CO2 MANUAL EXTINGUISHER HOSE LINE	

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TABLE 2-4 FIRE AREA/ZONE CHARACTERISTICS 14:58:09 07 AUG 1985 PAGE 3

Fire area	Fire zone	Description....	Building....	Elevation	Detector	Detector remarks	Extinguishing... System	Extinguishing.. Remarks
CNT-1	78A	RECIRCULATION PUMPS AND RHR HEAT EXCHANGER	CONTAINMENT	46-0				
CNT-1	80A	CONTAINMENT FAN COOLER AREA	CONTAINMENT	68-0			CO2 MANUAL EXTINGUISHER HOSE LINE SPRINKLER	
CNT-1	81A	CONTAINMENT FAN COOLER AREA	CONTAINMENT	68-0			CO2 MANUAL EXTINGUISHER HOSE LINE SPRINKLER	
CNT-1	82A	CONTAINMENT FAN COOLER AREA	CONTAINMENT	68-0			CO2 MANUAL EXTINGUISHER HOSE LINE SPRINKLER	
CNT-1	83A	CONTAINMENT FAN COOLER AREA	CONTAINMENT	68-0			CO2 MANUAL EXTINGUISHER HOSE LINE SPRINKLER	
CNT-1	84A	CONTAINMENT FAN COOLER AREA	CONTAINMENT	68-0			CO2 MANUAL EXTINGUISHER HOSE LINE SPRINKLER	
CNT-1	85A	INCORE DETECTOR DRIVE AREA	CONTAINMENT	68-0			CO2 MANUAL EXTINGUISHER HOSE LINE	
CNT-1	87A	OUTER ANNULUS	CONTAINMENT	68-0			CO2 MANUAL EXTINGUISHER HOSE LINE	
CNT-1	86A	REFUELING FLOOR AREA	CONTAINMENT	95-0		SMOKE	CO2 MANUAL EXTINGUISHER HOSE LINE	
CTL-3	14	SWITCHGEAR ROOM	CONTROL	15-0		IONIZATI FULL AREA ON DETECTION THERMAL	CO2 AUTO-SUPPRESSION CO2 MANUAL EXTINGUISHER HOSE LINE	FULL AREA SUPPRESSION
CTL-3	33A	DELUGE VALVE ROOM	CONTROL	15-0				
CTL-3	35A	AIR	CONTROL	15-0			CO2 MANUAL	

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TABLE 2-4 FIRE AREA/ZONE CHARACTERISTICS 14:58:10 07 AUG 1985 PAGE 4

Fire area	Fire zone	Description....	Building....	Elevation	Detector	Detector remarks	Extinguishing... System	Extinguishing.. Remarks
		CONDITIONING ROOM					EXTINGUISHER	
							HOSE LINE SPRINKLER	
CTL-3	34A	FAN ROOM	CONTROL	27-0			HOSE LINE	
CTL-3	11	CABLE SPREADING ROOM	CONTROL	33-0	HEAT SMOKE	FULL AREA DETECTION	CO2 AUTO-SUPPRESSION CO2 MANUAL EXTINGUISHER HOSE LINE	FULL AREA SUPPRESSION
CTL-3	12	BATTERY ROOM 31	CONTROL	33-0	ULTRA-VI OLET	FULL AREA DETECTION	CO2 MANUAL EXTINGUISHER	
CTL-3	13	BATTERY ROOM 32	CONTROL	33-0	ULTRA-VI OLET	FULL AREA DETECTION	CO2 MANUAL EXTINGUISHER	
CTL-3	15	CONTROL ROOM	CONTROL	53-0	IONIZATI ON		150 LB WHEELED HALON CO2 MANUAL EXTINGUISHER HOSE LINE	
CTL-3	10	DG NO. 31 ROOM	DIESEL	15-0	HEAT ULTRA-VI OLET	FULL AREA DETECTION	CO2 AUTO-SUPPRESSION HANDHELD CHEMICAL HOSE LINE SPRINKLER	FULL AREA SUPPRESSION
CTL-3	101A	DIESEL GENERATOR ROOM NO. 32	DIESEL	15-0	HEAT	FULL AREA DETECTION	CO2 AUTO-SUPPRESSION HANDHELD CHEMICAL HOSE LINE SPRINKLER	FULL AREA SUPPRESSION
CTL-3	102A	DIESEL GENERATOR ROOM NO. 33	DIESEL	15-0	HEAT	FULL AREA DETECTION	CO2 AUTO-SUPPRESSION HANDHELD CHEMICAL HOSE LINE SPRINKLER	FULL AREA SUPPRESSION
CTL-3	36A	SUMP AND PUMP ROOM	DIESEL	15-0			HANDHELD CO2	

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TABLE 2-4 FIRE AREA/ZONE CHARACTERISTICS 14:58:11 07 AUG 1985 PAGE 5

Fire area	Fire zone	Description....	Building....	Elevation	Detector	Detector remarks	Extinguishing... System	Extinguishing.. Remarks
ETN-4	7A	ELECTRICAL TUNNEL (LOWER)	TUNNEL	33-0	HEAT SMOKE	FULL AREA DETECTION	AUTOMATIC CABLE TRAY SPRINKLERS CO2 MANUAL EXTINGUISHER SPRINKLER	SUPPRESSION IS PROVIDED FOR CABLE TRAYS
ETN-4	74A	ELECTRICAL PENETRATION AREA (LOWER)	TUNNEL	34-0	IONIZATI ON THERMAL	FULL AREA DETECTION	AUTOMATIC CABLE TRAY SPRINKLERS CO2 MANUAL EXTINGUISHER	SUPPRESSION IS PROVIDED FOR CABLE TRAYS
ETN-4	60A	ELECTRICAL TUNNEL (UPPER)	TUNNEL	43-0	HEAT SMOKE	FULL AREA DETECTION	AUTOMATIC CABLE TRAY SPRINKLERS CO2 MANUAL EXTINGUISHER SPRINKLER	SUPPRESSION IS PROVIDED FOR CABLE TRAYS
ETN-4	73A	ELECTRICAL PENETRATION AREA (UPPER)	TUNNEL	46-0	IONIZATI ON THERMAL	FULL AREA DETECTION	AUTOMATIC CABLE TRAY SPRINKLERS CO2 MANUAL EXTINGUISHER SPRINKLER	SUPPRESSION IS PROVIDED FOR CABLE TRAYS
PAB-2	10A	VALVE CORRIDOR	AUXILIARY	15-0			CO2 MANUAL EXTINGUISHER HOSE LINE	
PAB-2	11A	SUMP TANK AND PUMP ROOM	AUXILIARY	15-0				
PAB-2	12A	CORRIDOR PAB ELEV. 15-0	AUXILIARY	15-0	SMOKE	PARTIAL AREA DETECTION	CO2 MANUAL EXTINGUISHER HOSE LINE	
PAB-2	13A	LARGE GAS DECAY TANK ROOM	AUXILIARY	15-0				
PAB-2	14A	CORRIDOR PAB ELEV 15-0	AUXILIARY	15-0	IONIZATI ON	FULL AREA DETECTION		
PAB-2	15A	SPENT RESIN STORAGE TANK ROOM	AUXILIARY	15-0			CO2 MANUAL EXTINGUISHER HOSE LINE	
PAB-2	16A	CHEMICAL DRAIN TANK ROOM	AUXILIARY	15-0			CO2 MANUAL EXTINGUISHER	

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TABLE 2-4 FIRE AREA/ZONE CHARACTERISTICS 14:58:12 07 AUG 1985 PAGE 6

Fire area	Fire zone	Description....	Building....	Elevation	Detector	Detector remarks	Extinguishing... System	Extinguishing.. Remarks
							HOSE LINE	
PAB-2	3	RHR PUMP ROOM 31	AUXILIARY	15-0	SMOKE	FULL AREA DETECTION	CO2 MANUAL EXTINGUISHER HOSE LINE	
PAB-2	4	RHR PUMP ROOM 32	AUXILIARY	15-0	SMOKE	FULL AREA DETECTION	CO2 MANUAL EXTINGUISHER HOSE LINE	
PAB-2	69A	PIPING AND VALVE ROOM	AUXILIARY	15-0	SMOKE	FULL AREA DETECTION		
PAB-2	8A	EMPTY ROOM	AUXILIARY	15-0			CO2 MANUAL EXTINGUISHER HOSE LINE	
PAB-2	9A	RHR FUTURE PUMP ROOM	AUXILIARY	15-0	SMOKE	FULL AREA DETECTION	CO2 MANUAL EXTINGUISHER HOSE LINE	
PAB-2	5A	PIPING TUNNEL	AUXILIARY	32-6				
PAB-2	4A	CORRIDOR	AUXILIARY	34-0			CO2 MANUAL EXTINGUISHER HOSE LINE	
PAB-2	68A	ION EXCHANGE COLUMN ROOM	AUXILIARY	34-0				
PAB-2	6A	VALVE ROOM	AUXILIARY	34-0				
PAB-2	9	SAFETY INJECTION PUMP ROOM	AUXILIARY	34-0			CO2 MANUAL EXTINGUISHER	
							HOSE LINE	
PAB-2	2	CONTAINMENT SPRAY PUMP ROOM	AUXILIARY	34-0,41-0	SMOKE	FULL AREA DETECTION	CO2 MANUAL EXTINGUISHER HOSE LINE	
PAB-2	3A	PIPING TUNNEL	AUXILIARY	34-0,41-0	SMOKE		CO2 MANUAL EXTINGUISHER HOSE LINE	
PAB-2	1	CCW PUMP ROOM	AUXILIARY	41-0	SMOKE	FULL AREA DETECTION	CO2 MANUAL EXTINGUISHER HOSE LINE	
PAB-2	1A	FLASH EVAPORATOR ROOM	AUXILIARY	41-0			CO2 MANUAL EXTINGUISHER	

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TABLE 2-4 FIRE AREA/ZONE CHARACTERISTICS 14:58:13 07 AUG 1985 PAGE 7

Fire area	Fire zone	Description....	Building....	Elevation	Detector	Detector remarks	Extinguishing... System	Extinguishing.. Remarks
							HOSE LINE	
PAB-2	2A	PRIMARY MAKEUP WATER PUMP ROOM	AUXILIARY	41-0	SMOKE	PARTIAL AREA DETECTION	CO2 MANUAL EXTINGUISHER HOSE LINE	
PAB-2	58A	PIPING TUNNEL	AUXILIARY	41-0	SMOKE	PARTIAL AREA DETECTION	HOSE LINE	
PAB-2	17A	CORRIDOR	AUXILIARY	55-0	SMOKE	PARTIAL AREA DETECTION (DETECTION IS NOT PROVIDED IN AREA OF AIR RECEIVERS ONLY)	CO2 MANUAL EXTINGUISHER	
							HOSE LINE	
PAB-2	18A	WASTE GAS COMPRESSOR ROOM	AUXILIARY	55-0			HOSE LINE	
PAB-2	19A	WASTE EVAPORATOR ROOM	AUXILIARY	55-0			CO2 MANUAL EXTINGUISHER HOSE LINE	
PAB-2	20A	SAMPLING ROOM	AUXILIARY	55-0				
PAB-2	21A	WASTE STORAGE AND DRUMMING AREA	AUXILIARY	55-0	IONIZATI ON	FULL AREA DETECTION		
PAB-2	5	CHARGING PUMP ROOM 31	AUXILIARY	55-0	SMOKE	FULL AREA DETECTION	CO2 MANUAL EXTINGUISHER HOSE LINE	
PAB-2	6	CHARGING PUMP ROOM 32	AUXILIARY	55-0	SMOKE	FULL AREA DETECTION	CO2 MANUAL EXTINGUISHER HOSE LINE	
PAB-2	63A	WASTE CONDENSATE TANK ROOM	AUXILIARY	55-0				
PAB-2	7	CHARGING PUMP ROOM 33	AUXILIARY	55-0	SMOKE	FULL AREA DETECTION	CO2 MANUAL EXTINGUISHER HOSE LINE	
PAB-2	8	BORIC ACID TANK AREA	AUXILIARY	55-0	SMOKE	FULL AREA DETECTION	CO2 MANUAL EXTINGUISHER HOSE LINE	
PAB-2	22A	BORIC ACID	AUXILIARY	73-0				

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TABLE 2-4 FIRE AREA/ZONE CHARACTERISTICS 14:58:14 07 AUG 1985 PAGE 8

Fire area	Fire zone	Description....	Building....	Elevation	Detector	Detector remarks	Extinguishing... System	Extinguishing.. Remarks
		EVAPORATOR ROOM 32						
PAB-2	23A	ENTRY FOR ZONES AUXILIARY 22A AND 24A		73-0				
PAB-2	24A	BORIC ACID AUXILIARY EVAPORATOR ROOM 31		73-0				
PAB-2	25A	SEAL WATER HEAT AUXILIARY EXCHANGER ROOM		73-0				
PAB-2	26A	REACTOR COOLANT AUXILIARY FILTER		73-0				
PAB-2	27A	CORRIDOR PAB AUXILIARY ELEV. 73-0		73-0			CO2 MANUAL EXTINGUISHER HOSE LINE	
PAB-2	28A	VALVE CORRIDOR AUXILIARY		73-0				
PAB-2	29A	VOLUME CONTROL AUXILIARY TANK ROOM		73-0				
PAB-2	30A	VALVE CORRIDOR AUXILIARY		73-0			CO2 MANUAL EXTINGUISHER HOSE LINE	
PAB-2	31A	CONCENTRATE AUXILIARY HOLDING TANK ROOM		73-0			CO2 MANUAL EXTINGUISHER HOSE LINE	
PAB-2	32A	NON-REGENERATIV AUXILIARY E HEAT EXCHANGER ROOM		73-0			CO2 MANUAL EXTINGUISHER HOSE LINE	
PAB-2	89A	STORAGE AREA AUXILIARY		73-0				
PAB-2	61A	PIPING TRENCH FAN HOUSE		32-6				
PAB-2	622	BORON INJECTION FAN HOUSE TANK		32-6				
PAB-2	79A	STEAM GENERATOR FAN HOUSE BLOWDOWN TANK		32-6				
PAB-2	62A	PIPING TRENCH FAN HOUSE		35-0				

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TABLE 2-4 FIRE AREA/ZONE CHARACTERISTICS 14:58:15 07 AUG 1985 PAGE 9

Fire area	Fire zone	Description....	Building....	Elevation	Detector	Detector remarks	Extinguishing... System	Extinguishing.. Remarks
PAB-2	59A	PIPING PENETRATION AREA	FAN HOUSE	41-0	SMOKE	FULL AREA DETECTION	CO2 MANUAL EXTINGUISHER HOSE LINE	
PAB-2	88A	PAB FSB AND CONTAINMENT VENTILATION SYSTEMS AREA	FAN HOUSE	72-0				
TBL-5	52A	CHEMICAL ADDITION AREA	AUX BOILER FEED WATER	32-6			CO2 MANUAL EXTINGUISHER HOSE LINE	
TBL-5	57A	MAIN STEAM AND FEEDWATER VALVE AREA	AUX BOILER FEED WATER	43-0			CO2 MANUAL EXTINGUISHER HOSE LINE	
TBL-5	54A	MAIN BOILER FEEDWATER REGULATOR AREA	M.S. & B.F. PIPE ENC.	11-6			HOSE LINE	
TBL-5	53A	FEEDWATER BYPASS REGULATOR PLATFORM	M.S. & B.F. PIPE ENC.	32-6			HOSE LINE	
TBL-5	119	SERVICE WATER VALVE PIT	TURBINE	15-0				
TBL-5	16	TURBINE OIL RESERVOIR AREA	TURBINE	15-0	HEAT	FULL AREA DETECTION	AUTO-FOAM DELUGE HOSE LINE	FULL AREA SUPPRESSION
TBL-5	17	TURBINE OIL RESERVOIR AREA	TURBINE	15-0	HEAT	FULL AREA DETECTION	AUTO-FOAM DELUGE CO2 MANUAL EXTINGUISHER HOSE LINE	FULL AREA SUPPRESSION
TBL-5	18	TURBINE LUBE OIL COND. AREA	TURBINE	15-0	HEAT	FULL AREA DETECTION	AUTO-FOAM DELUGE CO2 MANUAL EXTINGUISHER HOSE LINE	FULL AREA SUPPRESSION
TBL-5	19	STATION AIR COMPRESSOR AREA	TURBINE	15-0			MANUAL-FOAM SPRINKLERS	FULL AREA SUPPRESSION
TBL-5	20	BOILER FEED	TURBINE	15-0	THERMAL	FULL AREA	AUTO-FOAM DELUGE	FULL AREA

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TABLE 2-4 FIRE AREA/ZONE CHARACTERISTICS 14:58:17 07 AUG 1985 PAGE 10

Fire area	Fire zone	Description....	Building....	Elevation	Detector	Detector remarks	Extinguishing... System	Extinguishing.. Remarks
		PUMP LUBE OIL RESERVOIR				DETECTION		SUPPRESSION
							CO2 MANUAL EXTINGUISHER HOSE LINE	
TBL-5	21	HYDROGEN SEAL OIL RESERVOIR	TURBINE	15-0	THERMAL	FULL AREA DETECTION	AUTO-FOAM DELUGE	FULL AREA SUPPRESSION
							CO2 MANUAL EXTINGUISHER HOSE LINE SPRINKLER	
TBL-5	37A	GROUND FLOOR	TURBINE	15-0			CO2 MANUAL EXTINGUISHER HOSE LINE SPRINKLER	FULL AREA SUPPRESSION
TBL-5	38A	GROUND FLOOR	TURBINE	15-0			CO2 MANUAL EXTINGUISHER HOSE LINE SPRINKLER	PARTIAL AREA SUPPRESSION
TBL-5	39A	GROUND FLOOR	TURBINE	15-0			CO2 MANUAL EXTINGUISHER HOSE LINE SPRINKLER	FULL AREA SUPPRESSION
TBL-5	40A	GROUND FLOOR	TURBINE	15-0			CO2 MANUAL EXTINGUISHER HOSE LINE SPRINKLER	FULL AREA SUPPRESSION
TBL-5	41A	GROUND FLOOR	TURBINE	15-0			CO2 MANUAL EXTINGUISHER HOSE LINE SPRINKLER	FULL AREA SUPPRESSION
TBL-5	42A	GROUND FLOOR	TURBINE	15-0			CO2 MANUAL EXTINGUISHER HOSE LINE SPRINKLER	FULL AREA SUPPRESSION
TBL-5	43A	MEZZANINE FLOOR	TURBINE	36-9			CO2 MANUAL EXTINGUISHER HOSE LINE SPRINKLER	FULL AREA SUPPRESSION
TBL-5	44A	MEZZANINE FLOOR	TURBINE	36-9			CO2 MANUAL EXTINGUISHER HOSE LINE	

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 TABLE 2-4 FIRE AREA/ZONE CHARACTERISTICS 14:58:18 07 AUG 1985 PAGE 11

Fire area	Fire zone	Description....	Building....	Elevation	Detector	Detector remarks	Extinguishing... System	Extinguishing.. Remarks
TBL-5	45A	MEZZANINE FLOOR	TURBINE	36-9				
TBL-5	46A	MEZZANINE FLOOR	TURBINE	36-9			CO2 MANUAL EXTINGUISHER HOSE LINE SPRINKLER	FULL AREA SUPPRESSION
TBL-5	47A	MEZZANINE FLOOR	TURBINE	36-9			CO2 MANUAL EXTINGUISHER HOSE LINE SPRINKLER	FULL AREA SUPPRESSION
TBL-5	48A	LOADING WELL	TURBINE	36-9				
TBL-5	49A	TURBINE FLOOR	TURBINE	53-0				
TBL-5	50A	TURBINE FLOOR	TURBINE	53-0				
TBL-5	51A	TURBINE FLOOR	TURBINE	53-0				

5. PROPOSED FIRE PROTECTION AND SAFE SHUTDOWN SYSTEMS MODIFICATIONS

5.1 Introduction

Certain fire protection and safe shutdown systems modifications have been identified as a result of this 10 CFR 50 Appendix R reanalysis utilizing a revised safe shutdown model and updated fire hazards analysis. These fire protection and plant equipment modifications provide enhancements to structures, systems and components important to safe shutdown in order to fully comply with the objective of Appendix R, ensuring that one train necessary to achieve and maintain hot shutdown remains free of fire damage.

This section describes the plant modifications proposed for IP3 to achieve compliance with the requirements of Appendix R Sections III.G.2 and III.G.3. In general, the proposed modifications could be divided into two categories, fire protection and alternative safe shutdown modifications. The fire protection modifications will be implemented to meet the criteria set forth in Section III.G.2 of Appendix R. The alternative safe shutdown modifications involve the enhancement of the existing alternative shutdown capability to achieve verbatim compliance with the requirements of Appendix R Section III.G.3.

This report section identifies, by fire area, the respective fire protection and safe shutdown systems modifications that are proposed at IP3. Sections 3 and 6 review these modifications in support of the safe shutdown system scenario and fire hazards analysis, respectively.

5.2 Containment Building - Fire Area CNT-1

The Appendix R fire hazards analysis performed for the Containment Building, Fire Area CNT-1, identified several deviation points. This fire area will comply with Section III.G.2(f) of Appendix R at the completion of the installation of noncombustible radiant energy shields between redundant systems. A description of the required modifications is contained in the following subsection.

5.2.1 Fire Protection Modifications

Noncombustible fire barriers that act as radiant energy shields will be provided for the following instrument channels:

- (1) From wide range RCS pressure transmitter PT-402 to electrical penetration H23
- (2) For the instrument cables for wide range RCS temperature elements TE413A and TE413B at the penetration area
- (3) For wide range SG level transmitter LT-417D and associated instrument cable at instrument rack 21, and for the instrument cable at the electrical penetration area
- (4) For transmitter LT-459 and associated instrument cable at instrument rack 19, and for the instrument cable at the electrical penetration area
- (5) To protect source range N31 instrument cable from the related preamp box to penetration H20

With the installation of the above noncombustible fire barriers, suitable protection of instrumentation required for safe shutdown of the plant will be achieved.

5.3 Primary Auxiliary Building - Fire Area PAB-2

The Appendix R fire hazards analysis performed for the Primary Auxiliary Building, Fire Area PAB-2, has identified deviation points that require modifications to compensate for the requirements of Section III.G.2(b). These modifications are addressed by the elevations in this fire area where safe shutdown equipment is located. These modifications are reviewed in the Section 6 exemption request and are described below.

5.3.1 Fire Protection Modifications

15 ft Elevation

- (1) Automatic detection will be extended into Fire Zone 69A, which is located between the RHR pumps, and into the common corridor and fixed storage area in Fire Zone 14A.
- (2) The partial wall barriers between the RHR pumps will be sealed to provide at least a one-hour fire rating to prevent direct fire propagation between pumps. This will provide an additional basis for the exemption requested in paragraph 6.4.1(1) of this report.
- (3) Any open electrical conduits leading into the Electrical Cable Tunnels (Fire Area ETN-4) will be sealed to the appropriate rating of the barrier that they penetrate, as delineated in Table 2-2.

41 ft Elevation

- (1) Automatic detection will be extended to cover the fixed storage area and common corridor in Fire Zone 58A. One additional detector will be added to the west of CCW pump 33.

- (2) A partial height noncombustible barrier will be constructed to protect CCW pump 33 against radiant fire energy and postulated fires. This will provide an additional basis for the exemption requested in paragraph 6.4.1(2) of this report.
- (3) A full barrier in the form of a noncombustible wrap will be provided for the normal power feed to CCW pump 33 from the ceiling level to the height of the partial barrier. This will provide an additional basis for the exemption requested in paragraph 6.4.1(4) of this report.
- (4) Any open electrical conduits leading into the Electrical Cable Tunnels (Fire Area ETN-4) will be sealed to the appropriate rating of the barrier that they penetrate, as delineated in Table 2-2.

55 ft Elevation

Automatic detection will be extended to cover the adjacent Fire Zone 17A outside the cubicles for charging pumps 31, 32 and 33. Automatic detection will also be added to Fire Zone 21A, the Drum Storage Area. This will provide an additional basis for the exemption requested in paragraph 6.4.1(3) of this report.

5.3.2 Safe Shutdown Systems Modifications

The proposed IP3 safe shutdown systems modifications in Fire Area PAB-2 consist of installing Reactor Coolant System pressure and source range indication at Control Station PL6 on the 55-ft elevation of the Primary Auxiliary Building. The proposed modifications will provide the capability for isolation of PT-402 at the electrical penetration area. Readout capability of PT-402 will also be provided at Control Panel PT2 located in the ABFW Pump Room.

5.4 Electrical Cable Tunnels - Fire Area ETN-4

The Appendix R fire hazards analysis performed for the Electrical Cable Tunnels, Fire Area ETN-4, identified one deviation point that requires a modification in order to comply with the exemption application configuration detailed in Section 6 of this submittal. The modification will allow compliance with Section III.G.2(c) for the specified configuration. There are also deviations on the boundary fire barriers that are addressed in the following modifications:

5.4.1 Fire Protection Modifications

- (1) A one-hour-rated fire barrier will be provided for one channel of safe shutdown instrumentation at the Upper Penetration Area from the Containment wall to the entrance of the Lower Tunnel.
- (2) The boundary fire barriers between Fire Area ETN-4 and Fire Area PAB-2 have unsealed conduit that will be sealed with a fire retardant material that is equivalent to the required rating of the fire barrier, as delineated in Table 2-2.
- (3) Doors 210 and 211, located between the Electrical Cable Tunnels and PAB, will be replaced by three-hour-rated doors.
- (4) The door between the Electrical Cable Tunnels and the Cable Spreading Room will be modified, as necessary, to close upon the initiation of a fire in the Cable Tunnels.

5.4.2 Safe Shutdown Systems Modifications

The proposed IP3 safe shutdown systems modifications in Fire Area ETN-4 consist of the installation of switching capability for wide range Reactor Coolant System instruments TE-413A, TE-413B and PT-402, to provide indication at local control

stations. This will provide alternative indication of hot and cold leg temperatures for loop 31 at Control Panel PT2, located in the ABFW Pump Room, along with RCS pressure indication both at PT2 and Control Station PL6, located in the PAB.

Furthermore, the necessary wiring modifications to the KH4 cabinet will be implemented to remove the alternative capability for reading LT-447D indication from the local control station. Steam generator level instrument channel LT-417D will be installed into the KH4 cabinet panel to provide the appropriate alternate steam generator level indications for a postulated fire in the Control Building or Cable Tunnel entrance. Level instrument cables LT-447D and LT-462 will be rerouted into JD tray at the penetration area so that protection of this Channel IV tray would ensure the availability of the corresponding readings in the Control Room for the postulated fire in the Upper Penetration Area. Level transmitters LT-447D and LT-462 provide indications of steam generator 34 and pressurizer levels, respectively, at local stations.

5.5 Auxiliary Boiler Feedwater Pump Room - Fire Area AFW-6

The Appendix R fire hazards analysis performed for the Auxiliary Boiler Feedwater Pump Room, Fire Area AFW-6, identified deviations that require modifications to address the requirements of Section III.G.2(b), specifically, automatic suppression. These are detailed in an exemption request for intervening combustibles in Section 6 of this report.

5.5.1 Fire Protection Modifications

An automatic suppression system in the form of an automatic sprinkler system will be installed throughout Fire Area AFW-6. This system will be installed in accordance with NFPA-13 guidelines and design criteria to protect against the existing hazards (intervening combustibles) that are present in the area or that may be introduced into the area. This will provide an additional basis for the exemption requested in paragraph 6.3.1 of this report.

5.5.2 Safe Shutdown Systems Modifications

(1) Redundant Local Steam Generator Gauges at the Steam Generator ASD Stations

New SG wide range (mechanical) pressure gauges will be installed at elevation 43 ft in Fire Zone 57A of the Auxiliary Boiler Feedwater Building near the existing local SG atmospheric steam dump (ASD) control stations. These gauges will be used to monitor secondary steam pressure.

(2) Independent Backup Nitrogen Supply to Steam Generator ASDs

The existing nitrogen backup capability common to the AFW air-operated valves, AFW turbine-driven pump speed control, and SG ASDs will be modified such that nitrogen bottles and respective piping will be installed independent from this fire area near the respective SG ASD control stations.

(3) Hot and Cold Leg Temperatures

Indication of the establishment of natural circulation in loop 31 at PT2 will be provided. The hot leg temperature reading in conjunction with the RCS pressure determines the necessary subcooling margin.

(4) Reactor Coolant System Pressure

Isolation capability will be provided at the electrical penetration area to allow readout of pressure transmitter PT-402 in the ABFW Pump Room (on Control Panel PT2) and at Control Station PL6 located at the 55 ft elevation of the PAB.

5.6 Control Building - Fire Area CTL-3; Primary Auxiliary Building - Fire Zone 17A; Electrical Cable Tunnels - Fire Zones 7A/60A

NYPA will expand its existing alternative shutdown capability that meets Section III.G.3 to concur with the performance goals of Section III.L of Appendix R to 10 CFR 50. This subsection describes the proposed alternative shutdown modifications to achieve compliance in the fire area and fire zones of concern. The IP3 alternative shutdown capability necessary to achieve compliance with performance goals of Section III.L is described in Section 3 of this report.

5.6.1 Safe Shutdown Modifications

The safe shutdown systems modifications proposed for alternative shutdown in this submittal are directed to enhance the on-site emergency power distribution system and safe shutdown monitoring capability for a fire disabling normal indications in the Control Room.

On-Site Alternative Power System

The existing normal AC Emergency Power System at IP3 consists of three diesel generators, four buses housed within two switchgears, associated motor control centers, power and control cables, and respective distribution panels. For an unmitigated fire in the Switchgear Room where the redundant switchgears are located, availability of the normal emergency on-site power in the absence of off-site power is jeopardized. Therefore, IP3 has proposed to install a new emergency diesel generator to supply

power through the existing alternative power cables to selected safe shutdown components. The new diesel generator will be totally self-contained and will not require the availability of existing safe shutdown support systems such as service water jacket cooling and fuel oil transfer. The new diesel generator will feed the 480V bus 312 through the 6.9kV On-Site Power Distribution System.

Alternative power is then transferred through the 480V MCC-312A to the following safe shutdown components:

- (1) Service water pump 38
- (2) Component cooling water pump 32
- (3) Charging pump 31 or 32
- (4) Alternative shutdown instrumentation

The alternative power cables provide motive power to the above safe shutdown components, independent from the existing normal Emergency Power System. Alternative power for safe shutdown instrumentation is supplied from MCC-312A to an existing isolation switch located in the penetration area of the Upper Cable Tunnel, through a stepdown transformer and a voltage regulator located in the Turbine Building. The same configuration will be used for the new alternative shutdown channels (cold and hot leg temperatures, RCS pressure and neutron flux monitor) by installing a new instrument isolation cabinet at the electrical penetration area.

The proposed alternative Emergency Power System will ensure the availability of safe shutdown power for an unmitigated fire disabling the normal Emergency Power Distribution System.

The proposed alternative Emergency Power Distribution System modification will be used in the case of a fire in any one of the following fire areas or fire zones:

- (1) Control Building - Fire Area CTL-3
- (2) Primary Auxiliary Building - Fire Area PAB-2 (Fire Zone 17A) at the motor control centers
- (3) Electrical Cable Tunnels - Fire Area ETN-4 (Fire Zones 60A/7A) entranceway

These are reviewed in Section 6 of this report, which identifies exemption requests for specific configurations and takes credit for the presence of the proposed alternative Emergency Power System.

Alternative Shutdown Instrumentation

The existing instrumentation system at IP3 provides indication of the essential primary and secondary parameters in the Control Room. The existing alternative shutdown instrumentation at IP3 consists of remote indication of the required plant parameters at local control stations located in the ABFW Pump Room and the PAB.

As described previously, the proposed modification to the existing alternative power system would ensure the availability of alternative power for alternative shutdown instrumentation. This will be accomplished by supplying alternative power to the

instrument isolation cabinets, located in the penetration area of the Upper Electrical Cable Tunnel, through a stepdown transformer and voltage regulator located in the Turbine Building.

In order to achieve compliance with the minimum instrumentation required for safe shutdown, NYPA proposes to upgrade the existing capability of remote indication of essential plant parameters. Installation of the following new instrumentation indications is proposed:

- (1) RCS pressure - providing indication of the primary pressure in the PAB (Control Station PL6) and ABFW Pump Room (Control Panel PT2).
- (2) Source range monitor - providing reactivity indication in the PAB (Control Station PL6).
- (3) Hot and cold leg temperatures - providing indication of the establishment of natural circulation in loop 31 at PT2. The hot leg temperature reading in conjunction with the RCS pressure determines the subcooling margin.

The above proposed modifications in conjunction with the existing capability at IP3 ensure the achievement of safe shutdown for a fire in any one of the fire zones of the Control Building or the entrance to the Cable Tunnels.

Local Control of MDAFW Pump 33

The proposed modification will provide local isolation and control of switchgear breaker 52/AF3 at bus 6A to facilitate remote operation of MDAFW pump 33. This method of control from the Switchgear Room will be used in the absence of Control Room control.

ATTACHMENT 2
IPN-85-47

PROPOSED EXEMPTIONS FROM SECTION III.G.2
OF APPENDIX R TO 10 CFR 50

A. CABLE TUNNELS
FIRE AREA ETN-4

B. YARD AREA

A. Electrical Tunnels: Fire Area ETN-4 Exemption Request

Pursuant to 10 CFR 50.12, an exemption is requested from the requirements of Section III.G.2.a of Appendix R to 10 CFR 50 for the floor/ceiling assembly separating the upper and lower electrical penetration areas, where a stairway penetrates the credited fire barrier, in Fire Area ETN-4.

Fire Area ETN-4 consists of two electrical tunnels separated by an 18 inch thick concrete barrier that is a controlled barrier. In general, redundant cables are in separate tunnels. The electrical tunnels contain power, control and instrumentation cables for Appendix R safe shutdown equipment located in the Primary Auxiliary Building and Auxiliary Boiler Building. The upper tunnel contains power cables for two of three component cooling water pumps, one residual heat removal pump, two of three charging pumps, one motor-driven auxiliary feedwater pump, and control cables for atmospheric relief valves. The lower tunnel contains power cables for one component cooling water pump, two residual heat removal pumps, one auxiliary feedwater pump, one of three charging pumps, and control cables for atmospheric relief valves.

Compliance with Appendix R is achieved through a combination of design features and exemption requests.

The fire area barriers are constructed of reinforced concrete and are exterior fire barriers or adjacent fire area barriers. The adjacent fire area barriers between the Containment Building (Fire Area CNT-1), Primary Auxiliary Building (Fire Area PAB-2), Control Building (Fire Area CTL-3), and Turbine Building (TBL-5) are protected fire barriers. The barrier between the two tunnels is a controlled barrier and the exterior walls are fire area barriers. All barriers are rated as delineated on Table 2-2 of the Reference (1) report.

Full area detection consisting of smoke and heat detectors and a closed head, pre-action sprinkler system exists in the electrical tunnels and penetration areas. While the suppression system was designed for cable tray protection, the system effectively provides full hazard coverage due to the size of the area, orientation of the sprinklers and spray pattern of the sprinkler heads.

Generally, redundant safe shutdown cabling (instrumentation, power and control) is located in separate tunnels and compliance with Section III.G.2.a of Appendix R is achieved within ETN-4. The adequacy of this barrier is discussed in the BTP 9.5-1, Appendix A NRC Safety Evaluation Report dated March 6, 1979. At the entrance to Fire Area ETN-4 from the Control Building (Fire Area CTL-3), the floor/ceiling assembly separating the tunnels is penetrated by a stairway. See Figure 1A.

Regarding the redundant safe shutdown related power and control cabling located at the entrance to the tunnels, the Staff has granted an exemption from the requirements of Section III.G.2.b of Appendix R for 20 feet of separation with no intervening combustibles. Reference (7) provides the Staff's Safety Evaluation of this configuration. The exemption included acceptance of the cables installed in the cable tunnels such that they would not need to be considered as an intervening combustible.

Compliance with Section III.G.2.c of Appendix R is achieved in this area for one train of safe shutdown instrumentation. The instrumentation is protected in a one hour barrier to a point 20 feet beyond the point where the floor/ceiling assembly separates redundant channels. The one hour barrier in conjunction with the detection and suppression systems and the cable combustibility characteristics recognized in the Reference (7) exemption ensure the availability of one train of safe shutdown instrumentation for a fire which is postulated at the entrance to the Cable Tunnels. In addition, an alternate capability exists approximately eighty feet away from the postulated fire location. The distance to the alternate capability further ensures the availability of the necessary complement of instrumentation to achieve safe shutdown.

The Cable Tunnels terminate at the Containment Building, some 165 feet from the Control Building, at the electrical penetration areas. The upper and lower penetration areas are separated by a floor/ceiling assembly which complies with Section III.G.2.a of Appendix R with the exception of a second stairway which penetrates the barrier at the penetration area. See Figure 1B.

Redundant safe shutdown instrumentation cabling exits the Containment in the upper penetration area. One train is protected in the upper penetration area by a one-hour barrier until it enters the lower electrical tunnel through the floor/ceiling assembly. As such, for a fire in the upper electrical penetration area, compliance with Appendix R, Section III.G.2.c is achieved. The requested exemption outlined above pertains to the scenario where a fire is postulated in the lower penetration area, disabling one train of safe shutdown instrumentation and credit is taken for the floor/ceiling assembly to protect the redundant instrumentation in the upper penetration area. The existence of the stairway penetrating the floor/ceiling, however, necessitates an exemption from the literal interpretation of the rule requirements. The exemption is justified based on existing plant design features which provide equivalent protection to that which would be afforded by literal compliance with Appendix R in this area.

As discussed above, a stairway penetrates the floor/ceiling assembly in the electrical penetration area of the electrical tunnels. See Figure 1B. The floor/ceiling assembly provides protection for the safe shutdown instrumentation routed in the upper electrical penetration area and tunnel from the effects of a fire in the lower electrical penetration area. Additional protection from the effects of a fire in the lower penetration area is provided by a 1/8 inch thick plate steel wall which surrounds the stairway opening in the upper electrical penetration area. This wall is unrated, however, credit for protection from the products of combustion

generated in a fire on the lower elevation is reasonable. The metal wall extends from the floor to just below the ceiling of the upper electrical penetration area. Openings at the ceiling are provided for conduits which traverse the space. No intervening combustibles are present which would provide a pathway for fire propagation from inside the metal enclosure into the upper electrical penetration area.

Sprinklers (6 heads) are located in the area under the stairs in the lower penetration area which would provide a level of protection from smoke and hot gases traveling up the stair enclosure.

The upper penetration area is a large volume area with a seventeen (17) foot ceiling and floor area of 1350 square feet. The large volume would effectively dilute any products of combustion which enter the area via the partially enclosed stairway.

The fire hazard in the lower electrical penetration area is small (39 minute fire duration) and a fire would be rapidly detected by the installed smoke detection system. The automatic sprinkler system would effectively suppress any fire of the size needed to produce combustion products capable of affecting the upper penetration area.

An automatic cable tray suppression and full area detection system is installed in both the lower and the upper penetration area of the electrical tunnels. The upper penetration area system is available to react in the event a lower penetration fire occurs which could impact the upper elevation. The installed sprinkler system is designed such that sprinkler heads are located approximately every ten feet along the cable trays in which the safe shutdown instrumentation cable is routed. The system was designed in accordance with NFPA-15 to provide full coverage of the tray area. The sprinkler system is a dry pipe pre-action design. The deluge valve is opened by the installed heat detection system which actuates at a temperature of 165°F. The individual sprinkler heads activate at 175°F.

The cable installed at IP-3 has superior fire resistance characteristics as described in Reference (1), Section 2. Damage to the cables is not expected to occur at temperatures which will activate the fire suppression system in the cable tunnels.

In addition, provisions for emergency smoke ejectors are installed in the roof hatchway which provide for 45000 cfm of ventilation in the upper penetration area to further mitigate the effects of any products of combustion in this area.

Based on the design features discussed above, the Authority concludes that an exemption from Section III.G.2.a of Appendix R for the stairway penetrating the floor of the upper penetration area will provide equivalent protection to that afforded by literal compliance with the rule.

B. Yard Area - Service Water Pumps Exemption Request

Pursuant to 10 CFR 50.12, an exemption is requested for the yard area from the requirements of Section III.G.2.b of Appendix R to 10 CFR 50 specifying detection and automatic suppression be installed in a fire area containing redundant safe shutdown equipment.

The Yard Area at Indian Point 3 contains the normal Service Water Pumps (SWP's) as well as the redundant, Backup Service Water Pumps (BSWP's). The relative location of each group of pumps is illustrated in the attached Figure 2. The SWP's are designated as safe shutdown equipment in Reference (1) since they provide cooling to the emergency diesel generators and Component Cooling Water (CCW) System. The immediate operation of the service water system is not required for the shutdown of the plant since the alternate diesel generator can be utilized in lieu of the emergency diesels. The alternate diesel does not require Service Water cooling. The thermal capacity of the CCW system provides an adequate heat sink for the heat loads which it services for safe shutdown. A complete description of the Service Water System is provided in Reference (1).

The normal SWP's are separated from the BSWP's by a distance in excess of 100 feet. There are negligible fixed intervening combustibles between the two groups of pumps. Since the pumps are located in the yard area, the large open area would disperse radiant energy and combustion products from any fire postulated in either pump area. Four fire hydrants and three hose houses are located in the vicinity of the pumps to facilitate manual fire suppression activities. (See Figure 2 for approximate locations).

Periodic surveillance of the yard area is performed by the security force which will provide appropriate fire detection awareness.

Based on the physical configuration of the redundant SWP groups, the lack of any appreciable quantities of combustibles between the pumps, the manual detection and suppression capability in the area, and the large distance between pump groups, compliance with the requirements of Section III.G.2.b of Appendix R for detection and automatic suppression systems would not appreciably enhance the existing fire protection in the yard area in the vicinity of the SWP's.

FIGURE 1A

UPPER ELECTRICAL TUNNEL Elev. 43'-0" Fire Area ETN-4

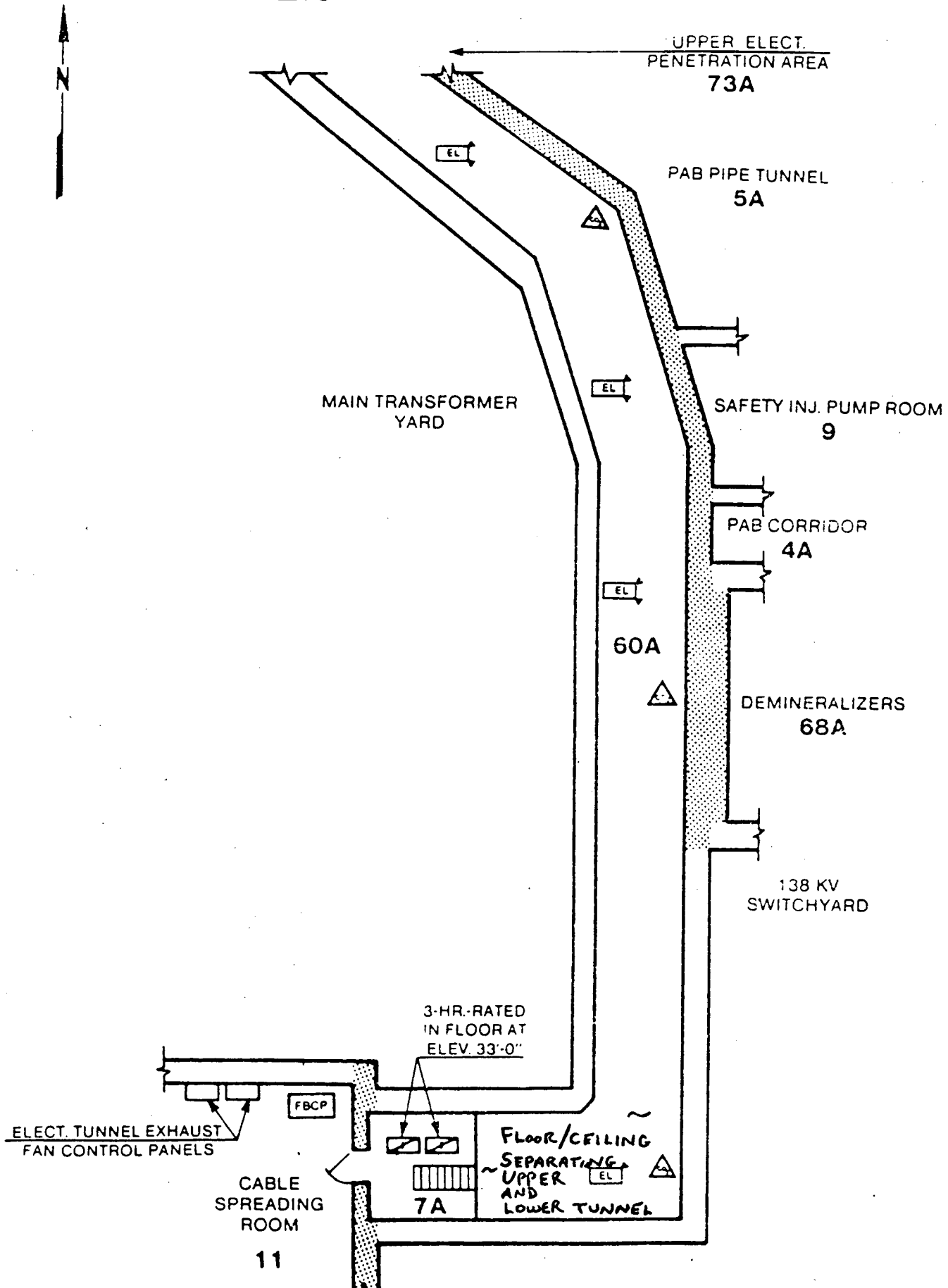
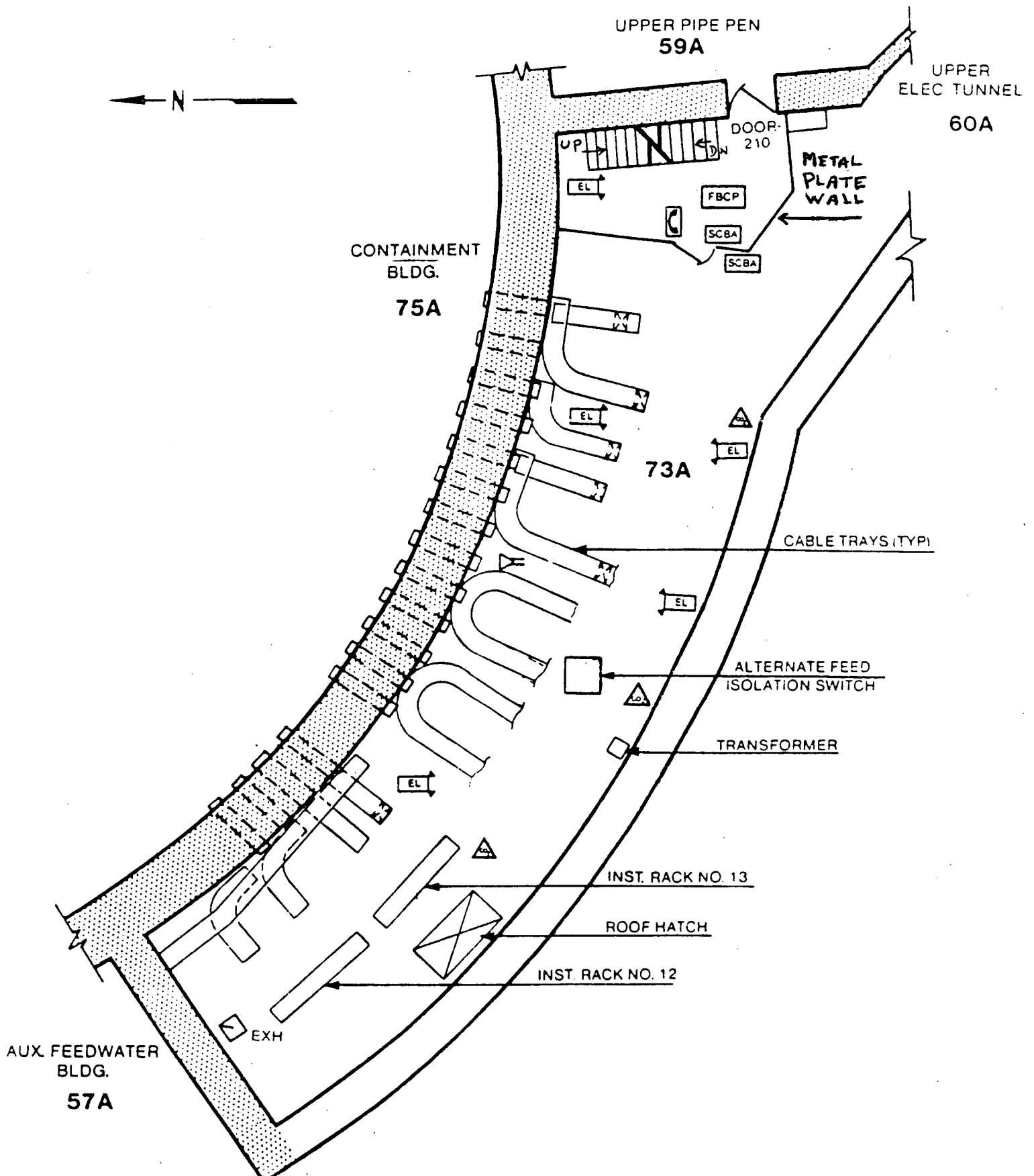





FIGURE 1B

UPPER ELECTRICAL PENETRATION AREA
Elev. 46'-0" Fire Area ETN-4



OVERALL SITE PLAN - EXTERIOR YARD



-  — PROTECTED AREA
 — HOSE HOUSES
 — HYDRANTS

ATTACHMENT 3
IPN-85-47

ADDITIONAL INFORMATION SUPPORTING
EXEMPTION FROM SECTION III.G.2
OF APPENDIX R TO 10 CFR 50
FOR CHARGING PUMPS AND DISCUSSION
OF SAFE SHUTDOWN EQUIPMENT SEPARATION
ON THE 34' AND 55' ELEVATIONS OF THE PAB

NEW YORK POWER AUTHORITY
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286

Clarification of Exemption Request
Primary Auxiliary Building, 55' Elevation Charging Pumps

The Authority, in Reference (1), requested an exemption from the requirement in Section III.G.2 for full area automatic suppression on the 55' elevation of the Primary Auxiliary Building (PAB) in the vicinity of the charging pumps.

The three redundant charging pumps are located in separate cubicles with walls constructed of 2 feet of reinforced concrete. See the attached figure for a layout of the three pumps. The walls separating the pump cubicles provide an effective fire barrier for the negligible fire loading which exists in each cubicle (there is no fixed, exposed combustible loading in each of the pump cubicles). The expected transient fire loading in each cubicle is 25000 BTU/ft.² with an equivalent fire severity of 19 minutes.

There is an entrance to each charging pump cubicle as illustrated in the attached figure. The entrance to pump nos. 31 and 32, however, is protected by a combination of a full height concrete wall and a partial height metal wall with a door as indicated on the figure. In a similar fashion, the entrance to pump 33 is protected by a partial height metal wall and door. The metal walls extend to approximately 8 feet from the floor. Above the metal walls extending to the ceiling is a metal grating provided for ventilation of the pump cubicles. The full height concrete wall outside fire zones 5 and 6 is approximately 10 feet wide.

The concrete wall and partial height metal walls provide protection for the pumps and their cables from the effects of an exposure fire postulated in the corridor outside the pump cubicles. The high ceilings and large open volume of this floor elevation of the PAB will dilute the accumulation of any combustion products in the vicinity of the pumps. Any products of combustion postulated to enter the pump cubicles would be further diluted by the air volume (approximately 4300 ft.³) in the cubicle. The height of the pump cubicles is approximately 16 feet. Furthermore, the pump cables are located near the floor as they exit the embedded conduit to the pumps. Smoke and hot gases entering the cubicles at the ceiling level are not expected to effect the pump power cables. An automatic ionization detection system is installed throughout this floor elevation with the exception of the waste evaporator, waste gas compressor rooms (fire zones 19A and 18A) and the air receiver tank area. This system would provide prompt detection of a fire in the area. The openness of the area provides for good manual fire fighting access. Hose stations exist at both ends of the PAB on this elevation and several fire extinguishers are located throughout the area. This elevation of the PAB contains a limited amount of insitu combustibles.

The cables for the three charging pumps are routed in conduit embedded in concrete on this elevation of the PAB until they enter the pump cubicles. See page 6-33 of Reference (1) for a complete

description of the cable routes. Similarly, an alternate power feed is embedded in the floor until it enters fire zone 6 at the transfer switch. As such, a fire in the corridor area outside the pump cubicles is not expected to effect either the normal or alternate power feeds to the pumps. Furthermore, a fire in any one of the pump cubicles is not expected to effect the normal power feeds to the two redundant pumps. A fire in zone 6 may disable the alternate power feed to pumps 31 and 32 as well as the normal feed to pump 32, however the normal feeds to pumps 31 and 33 would be available to affect safe shutdown.

A fire postulated in Charging Pump 32 cubicle, Fire Zone 6, may delay the manual alignment of valve 112B which supplies water to the charging pump suction from the RWST. In this event, the reactor coolant pump seals would be cooled through the thermal barriers with cooling provided by the CCW system. Makeup water to the suction of Charging Pumps 31 and 33 could be provided from either the Volume Control Tank through valve 112C or from the Boric Acid Storage Tanks through MOV-333 using the Boric Acid Transfer Pumps. The Boric Acid Transfer pumps can be supplied power from the emergency diesel generators through manual breaker alignments. An alternate flow path from the Boric Acid Storage Tanks to the Charging pump suction exists via valves FCV-110A and stop valve 293.

While these alternate water supplies exist to supplement the RWST, the Authority does not credit them in the safe shutdown analysis for IP-3. Reactor coolant makeup will not be needed until cooldown is initiated to accommodate the shrink of the reactor coolant. Immediately after reactor trip, the reactor coolant level will be adequate to ensure core cooling and natural circulation. Potential leakage paths from the reactor coolant system have been identified and actions have been prescribed in the safe shutdown procedure to isolate these potential leakage paths. Level indication for the Volume Control Tank and the BAST's is available in the Control Room for the fire scenario postulated in Charging Pump 32 cubicle.

The PAB is a controlled area and the charging pump cubicles are designated radiation areas. As such, access to these areas is limited. Accumulation of transient combustibles is not expected to occur. As previously noted, there are negligible fixed combustibles in both the pump cubicles and the corridor area outside the cubicle entrances.

This information is provided to clarify the configuration of the charging pumps on the 55 ft. elevation of the PAB, as described in Section 6 of Reference (1). Based on the information docketed in Reference (1), as clarified herein, the Authority considers the exemption from the requirement of Section III.G.2 of Appendix R for full area automatic suppression justified.

Separation of Safe Shutdown Cables and
Equipment on the 34' Elevation and 55' Elevation
(MCC Area) of the Primary Auxiliary Building

A review of the safe shutdown cables and equipment located on the 34 foot and 55 foot (MCC Area) elevations of the Primary Auxiliary Building (PAB) has been performed. The results of this review are summarized herein.

A complete description of Fire Area PAB-2 is provided in Sections 2.4.2 and 6.4 of the Reference (1) report. There are no hot shutdown related components located on the 34' elevation of the PAB, however, hot shutdown component cabling is routed on this elevation of the PAB. These cable routes have been evaluated and compliance with Appendix R Section III.G.2 or III.G.3 currently exists.

The 34' elevation of the PAB is comprised of fire zones 4A, 5A, 6A, 9, 13A, 61A, 62A, 68A, 79A and 662. Access to this elevation of the PAB is via a stairway from the 55' elevation or by ladders from the 41' elevation. This elevation of the PAB has a floor area of approximately 6900 ft.². The combustible loading on this elevation is light with an equivalent fire severity of 1 minute or less for each zone.

The hot shutdown related cabling on the 34' elevation of the PAB is comprised of power feeds for Component Cooling Water Pump 31 and Charging Pump 31. These cables are routed in fire zone 4A which is the corridor outside the safety injection pump room.

The safe shutdown and alternate shutdown cable routes and equipment locations in the PAB are illustrated in Figures 6-4 through 6-7 of the Reference (1) report.

Redundant cabling providing power to Charging Pump 33 is embedded in conduit for its entire route from the lower cable tunnel to the pump cubicle on the 55' elevation of the PAB.

The redundant CCW Pumps (Nos. 32 and 33) power cables are not exposed on this elevation of the PAB, however, they are exposed on the 15' elevation. An alternate power supply is provided to CCW Pump 32. This cable is embedded in conduit, from the lower Cable Tunnel, in the floor of the 34' elevation of the PAB. This power cable exits the embedded conduit at the ceiling level (52' elevation) on the 41' elevation of the PAB west of the CCW Pumps. At this point, the alternate CCW Pump power cable is separated from normal CCW Pump power feeds on the 34' elevation by concrete barriers consisting of walls and floor/ceiling assemblies.

The existing normal and alternate power feeds for the Charging and CCW Pumps, respectively, are routed through the PAB in a manner which ensures conformance with Appendix R Section III.G.

Table 1 summarizes the location, by PAB elevation, of exposed normal and alternate power feeds to the CCW and Charging pumps.

A fire postulated at the motor control centers on the 55' elevation of the PAB could affect the operability of the normal onsite power supplies by disabling the diesel cell ventilation equipment. The MCC's in this area also control the motive power to various safe shutdown related valves. Remote operation of the safe shutdown related valves controlled through these MCC's is not credited in the Appendix R evaluation of IP-3. Any necessary valve manipulations can be performed at the valve manually. The Authority has reviewed the locations of the valves for which manual operation is credited. The fire loading in all zones where these manual valve operations are performed is light (6 minutes or less) which precludes fire damage of a nature that would impair the manual operation of the valve. These manual operations are described in Section 4 of the Reference (1) report. Figure 3.3.d of the Reference (1) report designates the safe shutdown equipment powered from the MCC's located on the 55' elevation of the PAB.

In the event of a debilitating fire in this area, safe shutdown could be achieved with the activation of the alternate onsite diesel generator and power supplies and operator action to ensure the safe shutdown related valves are in their appropriate positions. The operator actions necessary to achieve safe shutdown utilizing the alternate onsite power supply are described in Section 4 of Reference (1).

The alternate power feed to the Charging pumps is embedded in conduit for its entire run from the lower Cable Tunnel until it enters Fire Zone 6 in the Charging pump 32 cubicle. The alternate power feed to CCW pump 32 is only exposed on the 41' elevation of the PAB. As such, these cables will be unaffected by a fire at the MCC area.

The alternate power feed to the safe shutdown instrumentation, if needed, is routed outside the PAB. The safe shutdown instrumentation will receive power from the safety related batteries, as designed, upon loss of the normal A.C. power.

The specific configuration of the MCC's on the 55' elevation of the PAB and the fire protection features provided will limit the effects of any postulated fire scenario. The combustible loading in the MCC area is small translating to a 9 minute fire severity (12,760 BTU/ft²). Access for manual fire fighting is good with a hose station located at both the east and west ends of this elevation of the PAB. In addition, several fire extinguishers are located on this floor area. Smoke detectors have been installed in the floor area underneath the MCC cubicles as well as at the ceiling above the MCC's. Fire barriers have been installed in the floor area beneath the MCC cubicles to separate redundant safety related cables. The detectors will provide early warning of a fire in this area of the PAB and the barriers will provide a level of passive protection against the spread of fire. Furthermore, the availability of both CO₂ and water extinguishing agents to the fire brigade will provide a means of prompt fire suppression thereby limiting damage to safe shutdown equipment. Any equipment damage can be compensated for by manual action and through use of the alternate power supply.

TABLE 1

CCW and CHARGING PUMP POWER CABLE LOCATIONSEXPOSED PUMP CABLE

<u>FIRE ELEVATION</u>	<u>CCW</u>	<u>CHARGING</u>
15	32, 33	32
34	31	31
41	31, 32,* ALT 32	NONE
55 Zone 5	NONE	31
Zone 6		32
		Alt. 31
		Alt. 32
<u>Zone 7</u>		33

* #33 CCW pump and cable protected by
radiant shield and 1 hr. barrier

FIGURE 3

CHARGING PUMPS - PRIMARY AUXILIARY BLDG. Elev. 55'-0" Fire Area PAB-2

