



Ralph E. Beedle
Executive Vice President
Nuclear Generation

November 17, 1993
IPN-93-143

U.S. Nuclear Regulatory Commission
[REDACTED] Desk
Mail Station P1-137
Washington, DC 20555

Subject: **Indian Point 3 Nuclear Power Plant**
Docket No. 50-286
Request for Exemption from
Section III.G of Appendix R to 10 CFR 50

- References: (1) Licensee Event Report 93-031-00, dated
September 27, 1993.
- (2) "Exemptions from the Requirements of
10 CFR 50, Appendix R, for the Indian Point
Nuclear Generating Plant, Unit No. 3",
transmitted via NRC letter S. A. Varga to
J. P. Bayne dated July 22, 1983.

On September 27, 1993 the New York Power Authority submitted a Licensee Event Report (LER) (Reference 1) that described the "inadvertent" withdrawal of a needed exemption request from the requirements of 10 CFR 50, Appendix R. In that LER, the Authority committed to submit an exemption request to address the issue of operator access to the instrument isolation cabinets for a postulated fire at the entryway to the electrical tunnels. The exemption request is provided as Attachment I to this letter. Attachment II provides drawings that show the physical layout of the fire affected area.

Physical modification of the facility to achieve literal compliance with 10 CFR 50, Appendix R would involve relocation of the instrument isolation cabinets. This would involve a multitude of safety related circuits, resulting in a major capital expenditure and a significant delay in restart. However, the modification would not result in an increase in the level of protection afforded the general public.

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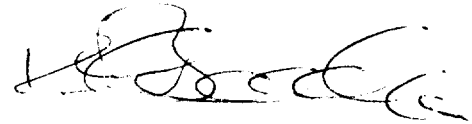
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11,

No new commitments are being made by this letter.

Because this exemption is needed prior to startup from the current outage, the Authority respectfully requests that this submittal be reviewed and approved by mid-January 1994. If you have any questions, please contact Mr. P. Kokolakis.

Very truly yours,

A handwritten signature in black ink, appearing to read 'R. Beedle', with a stylized flourish at the end.

Ralph E. Beedle

Attachment

cc: U.S. Nuclear Regulatory Commission
Region 1
475 Allendale Road
King of Prussia, PA 19496

Mr. Nicola F. Conicella, Project Manager
Project Directorate I-1
Division of Reactor Projects I/II
U.S. Nuclear Regulatory Commission
Mail Stop 14B2
Washington, DC 20555

Resident Inspector's Office
Indian Point Unit 3
U.S. Nuclear Regulatory Commission
P.O. Box 337
Buchanan, NY 10511

ATTACHMENT I TO IPN-93-143
REQUEST FOR EXEMPTION FROM 10 CFR 50 APPENDIX R

INDIAN POINT 3 NUCLEAR POWER PLANT
NEW YORK POWER AUTHORITY
NOVEMBER 17, 1993

ATTACHMENT I TO IPN-93-143

EXECUTIVE SUMMARY

The Authority has initiated a programmatic review of Indian Point 3's Fire Protection Program, including verification of Indian Point 3's compliance with 10 CFR 50, Appendix R. As part of this review, the Authority determined that the fire barrier wraps installed at the entryway to the electrical tunnels had mistakenly been credited with achieving compliance with 10 CFR 50 Appendix R, Section III.G.2.b for a postulated fire at that location. (Reference 1)

Section III.G.2 of 10 CFR 50, Appendix R requires that one of the redundant trains of systems necessary to achieve and maintain hot shutdown conditions is maintained free from fire damage. Acceptable means of satisfying this requirement are given, such as:

- a. Separation of cables and equipment and associated non-safety circuits of redundant trains by a 3-hour fire barrier
- b. Separation of cables and equipment of redundant trains by a horizontal distance of more than 20 feet with fire detectors and automatic fire suppression installed in the fire area; or
- c. Enclosure of cable and equipment of one redundant train in a 1-hour fire barrier, with fire detectors and automatic fire suppression system installed in the fire area

However, the fire protection features in the entryway to the electrical tunnels do not satisfy any of these criteria. A fire in this area may affect the power and control cables of equipment essential to achieve both hot and cold shutdown. The subject wrap does not protect these power and control cables. Consequently, it does not bring Indian Point 3 into compliance with the requirements of III.G.2, as the Authority had originally believed.

Since an extensive fire barrier network would have to be installed in the entryway to the electrical tunnels to achieve compliance with Section III.G.2 of Appendix R, the Indian Point 3 Appendix R analysis treats this area as an alternate shutdown area, as defined in Section III.G.3. This is consistent with the NRC's September 9, 1988 SER, which acknowledges a fire in the entryway of the electrical tunnels is an alternate shutdown fire and the isolation cabinets are part of the alternate shutdown capability. Section III.G.3 of Appendix R requires that if safe shutdown equipment in a given area is not provided the level of fire protection specified in Section III.G.2, alternative or dedicated shutdown capability shall be provided. This alternate safe shutdown capability must be independent of the subject area.

At Indian Point 3, in order to establish alternate safe shutdown capability, an operator must take action at the instrument isolation cabinets. While these cabinets are in the fire affected area, they are approximately 165 feet from the location of the alternate shutdown fire (i.e., the entryway to the cable tunnel). As such, the operator would not be in the immediate vicinity of the fire.

While Indian Point 3 has an approved exemption addressing the installation of alternate shutdown equipment in the fire affected area, it does not have an exemption allowing operator action in the fire affected area. Therefore, the entryway to the electrical tunnels at Indian Point 3 is currently

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not in compliance with the requirements of Section III.G.2 or Section III.G.3 of 10 CFR 50, Appendix R, nor are the nonconformances addressed by an approved exemption.

The implementation of physical modifications to the facility to achieve literal compliance with 10 CFR, Appendix R, Section III.G would result in unwarranted expenditures of engineering and financial resources with no increase in the level of protection afforded the general public. The proposed modifications would involve relocation of the instrument isolation cabinets out of fire area ETN-4. Such modifications, if possible, would be extremely expensive, as they would involve a multitude of safety related circuits. In addition, since this work was not anticipated in the current outage scope, restart would be significantly delayed, resulting in lost revenue.

Consequently, the Authority is requesting an exemption from the requirements of Section III.G.3 of 10 CFR 50, Appendix R to permit operator access to the electrical cable tunnels to establish alternate safe shutdown capability.

1. Introduction

The Authority has begun a comprehensive fire protection improvement program. One aspect of the program involves verification of 10 CFR 50, Appendix R compliance. One of the tasks associated with the verification process is the detailed review of fire barrier wrap installations credited for achieving compliance with 10 CFR 50, Appendix R, Section III.G, "Fire protection of safe shutdown capability". In the course of reviewing the bases for the fire barrier wraps installed at the entryway to the electrical tunnels, the Authority determined the wrap installation had mistakenly been credited with achieving compliance with these requirements. In order to correct this error, the Authority is requesting an exemption from the requirements of Section III.G.3 of 10 CFR 50, Appendix R.

2. Exemption Requested

In accordance with the provisions of 10 CFR 50.12(a), the New York Power Authority requests an exemption from the requirements of 10 CFR 50 Appendix R, Section III.G.3. This regulation requires that alternate or dedicated shutdown capability and its associated circuits shall be independent of the fire affected area. Indian Point 3 has an approved exemption request addressing the existence of both alternate and safe shutdown components, mostly cables, in the same fire area, ETN-4. However, it does not have an approved exemption to allow operator action in the fire affected area. Specifically, an exemption is needed to allow an operator to enter Fire Area ETN-4 at the penetration area and reconfigure the instrument loops at the instrument isolation cabinets located in the upper electrical penetration area to provide indication at the alternate safe shutdown panels located in other areas of the plant.

2.1 Fire Areas/Fire Zones Affected

Fire Area ETN-4, which consists of the following fire zones:

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Lower Electrical Penetration Area (Fire Zone 74A)
Upper Electrical Penetration Area (Fire Zone 73A)
Lower Electrical Cable Tunnel (Fire Zone 7A)
Upper Electrical Cable Tunnel (Fire Zone 60A)

2.2 Technical Justification

The technical justification supporting this exemption request has been divided into the following sections: Fire Area Description, Fire Protection Features, Fire Resistant Cables, Cable Routing, Alternate Safe Shutdown Capability, Insights from the Indian Point Probabilistic Safety Study, and Effects of Smoke.

2.2.1 Fire Area Description

Fire Area ETN-4 is adjacent to Fire Areas CNT-1 (Containment Building), PAB-2 (Primary Auxiliary Building), PAB-2 (Primary Auxiliary Building-Fan House), and CTL-3 (Control Building). It consists of the upper and lower electrical penetration area, and the upper and lower electrical tunnels, as depicted in the drawings in Attachment II. The upper and lower electrical tunnels are separated by a floor/ceiling assembly. Two stairways penetrate the floor/ceiling penetration; one at the entrance to Fire Area ETN-4 from the Control Building and another at the penetration area from the Primary Auxiliary Building (PAB). In general, redundant cables are in separate tunnels. 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. A detailed description of the upper electrical penetration area, lower electrical cable tunnel, and upper electrical cable tunnel is provided below.

2.2.1.1 Upper Electrical Penetration Area

The upper electrical penetration area is enclosed on three sides by concrete walls. The fourth side is open to an adjoining plant area identified as a separate fire zone. The roof is made of concrete and built up roofing.

Safe shutdown components located within the area include:

- * power and control cables for auxiliary feed pump No. 33;
- * instrumentation cables for steam generator pressure and level, pressurizer pressure and level, RCS pressure and temperature

The fire hazard in the area consists of the potential accumulation of transient combustible materials, estimated to potentially equal a fire load of 56 BTU's/sq. ft.

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2.2.1.2 Lower Electrical Cable Tunnel

The lower electrical cable tunnel is completely enclosed on two sides by concrete walls. The other two sides are open to adjoining plant locations as separate fire zones. The floor and ceiling are concrete.

Safe shutdown components located within the area include power and control cables for the following systems:

- * charging pump No. 32;
- * RHR pump No. 31;
- * aux. feed pump No. 31;
- * component cooling pump No. 32:

The area also contains cabling for safe shutdown instrumentation (e.g., steam generator pressure and level, pressurizer pressure and level, RCS pressure and temperature) for channels 3 and 4.

The fire hazard in the area consists of the potential accumulation of transient combustible materials, estimated to potentially equal a fire load of 25 BTU's/sq. ft.

2.2.1.3 Upper Electrical Cable Tunnel

The upper electrical cable tunnel is bounded by concrete walls, floor and ceiling 1 to 2 feet thick. The lower cable tunnel is open to the upper tunnel, which is identified as a separate fire zone.

Safe shutdown components located within the area include power and control cables for the following systems:

- * charging pumps 31 and 33;
- * component cooling pumps 31 and 33;
- * RHR pump 32
- * auxiliary feed pump 33;

The area also contains cables for shutdown related motor and solenoid operated valves and redundant instrumentation cabling.

The fire hazard in the area consists of the potential accumulation of transient combustible materials, estimated to potentially represent a fire load of 24 BTUs/sq. ft.

2.2.2 Fire Protection Features

The fire protection features of Fire Area ETN-4 provide defense-in-depth protection against those fire hazards that exist or may be introduced into the area. Fire Area ETN-4's

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barriers are a combination of exterior and adjacent fire area barriers constructed of reinforced concrete. 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.

A stairway penetrates the floor/ceiling assembly in the electrical penetration area of the electrical tunnels. The floor/ceiling assembly provides some fire protection from the effects of a fire and isolation between the safe shutdown instrumentation routed in the upper electrical penetration area and tunnel from that in the lower electrical penetration area. Additional protection from the effects of a fire which may potentially expose the safe shutdown instrumentation in the upper penetration area and tunnel, as well as the lower electrical tunnel, is provided by a 1/8 inch thick plate steel wall surrounding the stairway opening in the upper electrical penetration area. This wall is unrated, however, it affords some protection from the products of combustion, i.e., smoke and potentially toxic gases. The metal wall extends from the floor to just below the ceiling of the upper electrical penetration area. The wall has openings at the ceiling for traversing conduits. No intervening combustibles are present which would provide a pathway for fire propagation from inside the metal enclosure into the upper electrical penetration area. As mentioned in the "Introduction" section of this report, an exemption has been granted addressing the lack of complete independence between the alternate and safe shutdown instrumentation routed in fire area ETN-4. However, Indian Point 3 does not have an exemption allowing operator action in this area in the event of a fire in the electrical penetration area.

A section of a pre-action sprinkler system (6 heads) and associated thermal detectors are located in the area under the stairs in the lower penetration area, providing 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 or from the upper electrical tunnel.

Automatic fire detection is provided throughout Fire Area ETN-4. Ionization smoke detectors alarm in the Control Room upon detection of incipient fires. In addition, automatic thermal detectors are also present as part of the automatic suppression system, which act as a redundant detection alarm in the Control Room.

An automatic dry pipe pre-action sprinkler system provides coverage within all cable trays in the fire area. This system was designed to pre-alarm by thermal detector actuation prior to actuation of the sprinkler system.

In addition, as discussed below, the majority of cable installed at Indian Point 3 has superior fire resistant characteristics. Damage to the cables is not expected to occur at temperatures which will activate the fire suppression system in the cable tunnels.

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Based upon these fire protection features, the NRC granted an exemption for this fire area from the requirements of III.G.2 of 10 CFR 50, Appendix R .

2.2.3 Fire Resistant Cables

A large portion of the cable in Fire Area ETN-4 is of glass and asbestos braid construction, which does not support significant flame propagation, as substantiated by a series of bon fire tests referenced in the Authority's November 22, 1982 submittal.

The NRC agreed with this determination in its February 2, 1984 evaluation sent from D. G. Eisenhut to J. P. Bayne regarding, "Exemptions from the Requirements of 10 CFR 50 Appendix R for the Indian Point Nuclear Plant, Unit No. 3". The NRC states:

"Because of the glass and asbestos braid construction of the cables in these areas, fire is not expected to propagate along the cable to any significant degree."

While cables other than glass and asbestos braid are also located in Fire Area ETN-4, the NRC concluded in their February 2, 1984 SER that the fire hazard in this fire area was minor. The SER states:

"The fire hazard in these areas is small. If a fire should occur, the existing fire detection system would provide reasonable assurance of early fire awareness by the plant operations and fire brigade, who would extinguish the fire with manual fire fighting equipment. If the fire propagates rapidly and room temperatures rise significantly above ambient before the arrival of the fire brigade, the automatic fire suppression system is expected to operate and limit fire damage. During the time interval between the advent of fire and the arrival of the plant fire brigade or the activation of the fire suppression system, the distance between shutdown systems, which varies between 12 feet and more than 40 feet, provides reasonable assurance that at least one shutdown division or the alternate shutdown capability cabling will remain free of fire damage."

2.2.4 Cable Routing

Generally, within Fire Area ETN-4, redundant safe shutdown cables (instrumentation, power and control) are located in separate tunnels, achieving compliance with Section III.G.2.a of Appendix R. 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.

The Cable Tunnels terminate at the Containment Building, approximately 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 (i.e., redundant trains of hot shutdown equipment are separated by a 3-hour barrier), with the exception of a second stairway penetrating the barrier at the penetration area.

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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. For a fire in the upper electrical penetration area, compliance with Appendix R, Section III.G.2.c (i.e., enclosure of cable and equipment and associated circuits by a fire barrier having a 1-hour rating) is achieved.

2.2.5 Alternate Safe Shutdown Capability

Safe shutdown is assured for a postulated entryway fire through use of the alternate safe shutdown system. Process monitoring information to support use of the alternate shutdown system is routed to the alternate safe shutdown locations through instrument isolation cabinets located in the upper electrical penetration area. These cabinets provide the operators with the ability to interrupt the normal signal paths routed to the central control room and reconfigure the instrument loops to provide instrument loop indication at the alternate safe shutdown panels located outside of the control room. The instrument loops can not be remotely reconfigured, necessitating operator action in the fire affected area.

The fire hazard incurred by the operator during this action is minimal for several reasons. In the event that a fire occurred in this area, it is probable that the fire would be extinguished before the fire damage became so extensive as to necessitate alternate safe shutdown capability. In this regard, the NRC stated the following in its February 2, 1984 SER:

"The fire hazard in these areas is small. If a fire should occur, the existing fire detection system would provide reasonable assurance of early fire awareness by the plant operators and fire brigade, who would extinguish the fire with manual fire fighting equipment. If the fire propagates rapidly and room temperatures rise significantly above ambient before the arrival of the fire brigade, the automatic fire suppression system is expected to operate and limit fire damage. During the time interval between the advent of fire and the arrival of the plant fire brigade or the activation of the fire suppression system, the distance between shutdown systems, which varies between 12 feet and more than 40 feet, provides reasonable assurance that at least one shutdown division or the alternate shutdown capability cabling will remain free of fire damage."

Other considerations which help render the risk to the operator entering the area to be minimal are as follows. The distance from the fire to the cabinets is approximately 165 feet. While the operator is in the fire affected area, he/she is not in the immediate vicinity of the fire. In addition, the operator would not be in the affected area for more than a few minutes. Finally, the operator would access the cable tunnels and the cabinets via the Primary Auxiliary Building (PAB), avoiding the vicinity of the fire.

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2.2.6 Insights from the Indian Point Probabilistic Safety Study

As part of the Indian Point Probabilistic Safety Study's (IPPSS) evaluation of fire induced core melt frequency, the IPPSS evaluated how a fire would propagate in the entryway of the cable tunnel. In addition, it quantified the amount of combustible material which would have to burn in the cable tunnel, unimpeded by manual or automatic fire suppression, in order to damage redundant circuits. The IPPSS provides insight into the phenomena which would cause damage to redundant circuits, necessitating the use of alternate safe shutdown capability and operator action in the electrical penetration of the upper electrical tunnel.

The IPPSS evaluated three cable tunnel fire propagation patterns. The first two involve a fire initiating and propagating in a tray on either the left or right side of the entryway. The IPPSS concludes, "The fire will probably not spread to the trays on the other side due to the low heat release rate of cable insulation fires and the approximately inverse relationship of the radiated thermal heat fluxes with the square of the distance to those trays".

The third fire propagation pattern, which is more likely to impact both left and right cable trays simultaneously, involves a fire initiating in the aisle between the trays. The IPPSS evaluation of this propagation pattern considered two postulated exposure fires; a one foot diameter oil fueled fire in the middle of the aisle between the cable trays and a two foot diameter fire, also in the middle of the aisle. The evaluation concluded that in order for the cables in both sets of trays to burn, 6.3 gallons of fuel would have to burn for approximately 71 minutes, unimpeded by fire suppression, for the one foot diameter case. The two foot diameter case, approximately 4.2 gallons of fuel would have to burn unimpeded for twelve minutes before both sets of cable trays would ignite.

The IPPSS notes that similar sized fires fueled by materials other than oil would have to burn for significantly longer before the cables would reach the self ignition temperature of 825 degrees Kelvin. However, the longer the fire burns, the more likely it is to be extinguished, or diminished, either by automatic suppression or manual fire fighting actions. While moving the oil fire closer to either cable tray stack would decrease the time it takes for the cables in that stack to reach the ignition temperature, the increased distance from the opposite side would increase the time the fire would have to burn unimpeded to ignite the cables on the opposite side of the aisle.

2.2.7 Effects of Smoke

NUREG/CR-2934 (SAND82-2929), "Review and Evaluation of the Indian Point Probabilistic Safety Study" addresses postulated fires at Indian Point 3, including the potential for the formation of a hot gas layer as a possible vehicle for initiation of secondary fires. The Authority believes that the conclusion reached by this analysis helps put the risk of smoke incurred by the operator into perspective.

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The fire analysis in the SANDIA report uses a term $Q(tv)$, which is defined as the conditional probability or frequency of fire propagation due to thermal plumes. In assessing the potential for thermal plume-induced failure, the SANDIA report concludes the following:

"We believe, however, the value for $Q(tv)$ does not reflect this extraordinary individual cable tray fire suppression system installed in the Unit 3 electrical tunnel. With this suppression system, $Q(tv)$ may be able to be reduced by another order of magnitude..."

Recognizing the IPPSS analyses did not specifically consider smoke as a potential deterrent to operator action, the Authority is having an analysis performed regarding the effects of smoke on operator action. The Authority expects the results of that analysis will support this exemption request.

3. HARDSHIP TO THE AUTHORITY

The implementation of physical modifications to the facility to achieve literal compliance with 10 CFR 50, Appendix R, Section III.G would result in unwarranted expenditures of engineering and financial resources with no increase in the level of protection afforded the general public. The physical modifications would involve relocation of the instrument isolation cabinets out of fire area ETN-4 or the construction of fire barriers to make the upper penetration area a separate fire area. Such modifications, if possible, would be extremely expensive, as they would involve a multitude of safety related circuits. In addition, since this work was not anticipated in the current outage scope, restart could be significantly delayed, resulting in lost revenue.

4. 10 CFR 50.12 Criteria

Based on the above evaluation, an exemption is requested for Fire Area ETN-4 from the requirement of 10 CFR 50, Appendix R, Section III.G.3 to allow operator action in the fire affected area in the event of a fire in the entrance to the electrical cable tunnel. This request satisfies the criteria outlined in 10 CFR 50.12 (a)(1) for granting an exemption because (a) the exemption is authorized by law, (b) it will not present an undue risk to public health and safety, and (c) it is consistent with the common defense and security.

The NRC is authorized by law to grant this exemption, as evidenced by the granting of numerous exemptions to selective requirements of Appendix R for Indian Point 3 and other plants in the past. Specifically, the NRC granted an exemption to Indian Point 3 from the requirements of Section III.G.3 on February 2, 1984 to allow both alternate and normal safe shutdown equipment to be in the fire affected zone. Granting this exemption will not present an undue risk to the public health and safety since safe shutdown can be achieved. Alternate safe shutdown capability is not considered in the common defense and security of the nation, so this exemption will not adversely affect the common defense and security.

10 CFR 50.12(a)(2) states that the Commission will not consider granting an exemption request unless special circumstances are present. Special circumstances are present whenever:

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(i) Application of the regulation in the particular circumstances conflicts with other rules or requirements of the Commission; (ii) Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule; or (iii) Compliance would result in undue hardship or other costs that are significantly in excess of those when the regulation was adopted or that are significantly in excess of those incurred by others similarly situated; or (iv) The exemption would result in benefit to the public health and safety that compensates for any decrease in safety that may result from the grant of the exemption; or (v) The exemption would provide only temporary relief from the applicable regulation and the licensee or applicant has made good faith efforts to comply with the regulation; or (vi) There is present any other material circumstances not considered when the regulation was adopted for which it would be in the public interest to grant an exemption.

This exemption request satisfies criteria 10 CFR 50.12 (a)(2)(ii) and (iii), as follows:

- a. The capability exists to interrupt the normal signal paths routed to the central control room and to reconfigure the instrument loops to provide indication at the alternate safe shutdown panels.
- b. The fire hazard posed to the operators entering the fire area while establishing the alternate power supply using the above mentioned cabinets is minimal for the following reasons:
 - i. While the operator is in the fire affected area, he/she is not in the immediate vicinity of the fire.
 - ii. The operator is not in the fire affected area for more than a few minutes.
 - iii. The fire detection system provides reasonable assurance of early fire awareness, resulting in the fire brigade possibly extinguishing the fire manually before alternate shutdown capability is necessitated.
 - iv. A fire in the subject area would be quickly detected and extinguished by the existing fire suppression and detection system in the area.
 - v. The operator would access the cable tunnels and the cabinets via the Primary Auxiliary Building, independent of the fire location.
- c. Compliance would necessitate extensive physical modifications, at extreme expense to the Authority, with no increase in the level of protection afforded the general public. These modifications would involve relocation of the instrument isolation cabinets out of fire area ETN-4. Since these modifications, which would involve a multitude of safety related circuits, were not anticipated in the current outage scope, restart could be significantly delayed, resulting in lost revenue.

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References

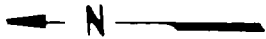
- (1) Licensee Event Report 93-031-00, dated September 27, 1993.
- (2) "Exemptions from the Requirements of 10 CFR 50, Appendix R, for the Indian Point Nuclear Generating Plant, Unit No. 3", transmitted via NRC letter S. A. Varga to J. P. Bayne dated July 22, 1983.
- (3) NYPA letter IPN-83-80, "Appendix R Fire Protection Review", dated September 26, 1983.
- (4) "Draft Safety Evaluation Report on Appendix R, III.G.2 Exemption Requests for the Indian Point Nuclear Generating Plant, Unit No.3", transmitted via NRC letter S. A. Varga to J. P. Bayne dated July 22, 1983.
- (5) NYPA letter IPN-82-75, "Appendix R", dated November 22, 1982.
- (6) "Appendix R, Sections III.G.s and III.L, Final Safety Evaluation (SE) for the Indian Point Nuclear Generating Plant, Unit No. 3", transmitted via NRC letter S. A. Varga to J. P. Bayne dated April 16, 1984.
- (7) NYPA letter IPN-84-32, "Appendix R Fire Protection Program", dated August 16, 1984.
- (8) NYPA letter IPN-85-47, "Information to Support the Evaluation of IP-3 to 10 CFR 50.48 and Appendix R to 10 CFR 50", dated September 19, 1985.
- (9) NYPA letter IPN-86-13, "Electrical Tunnel Cable Fire Wrap", dated March 11, 1986.
- (10) NRC Safety Evaluation Dispositioning (a total of seven) Exemption Requests from the Technical Requirements of Sections III.G and III.J of Appendix R to 10 CFR 50, transmitted via NRC letter S. A. Varga to J. C. Brons dated January 7, 1987.
- (11) NYPA letter IPN-82-49, "10 CFR 50, Appendix R, Section III.G Fire Protection Requirements", dated July 1, 1982.
- (12) NUREG/CR-2934, SAND82-2929, "Review and Evaluation of the Indian Point Probabilistic Safety Study".
- (13) NYPA document, "The Indian Point Probabilistic Safety Study".

ATTACHMENT II TO IPN-93-143
DRAWINGS DEPICTING LAYOUT OF FIRE AFFECTED AREA

INDIAN POINT 3 NUCLEAR POWER PLANT
NEW YORK POWER AUTHORITY
NOVEMBER 17, 1993

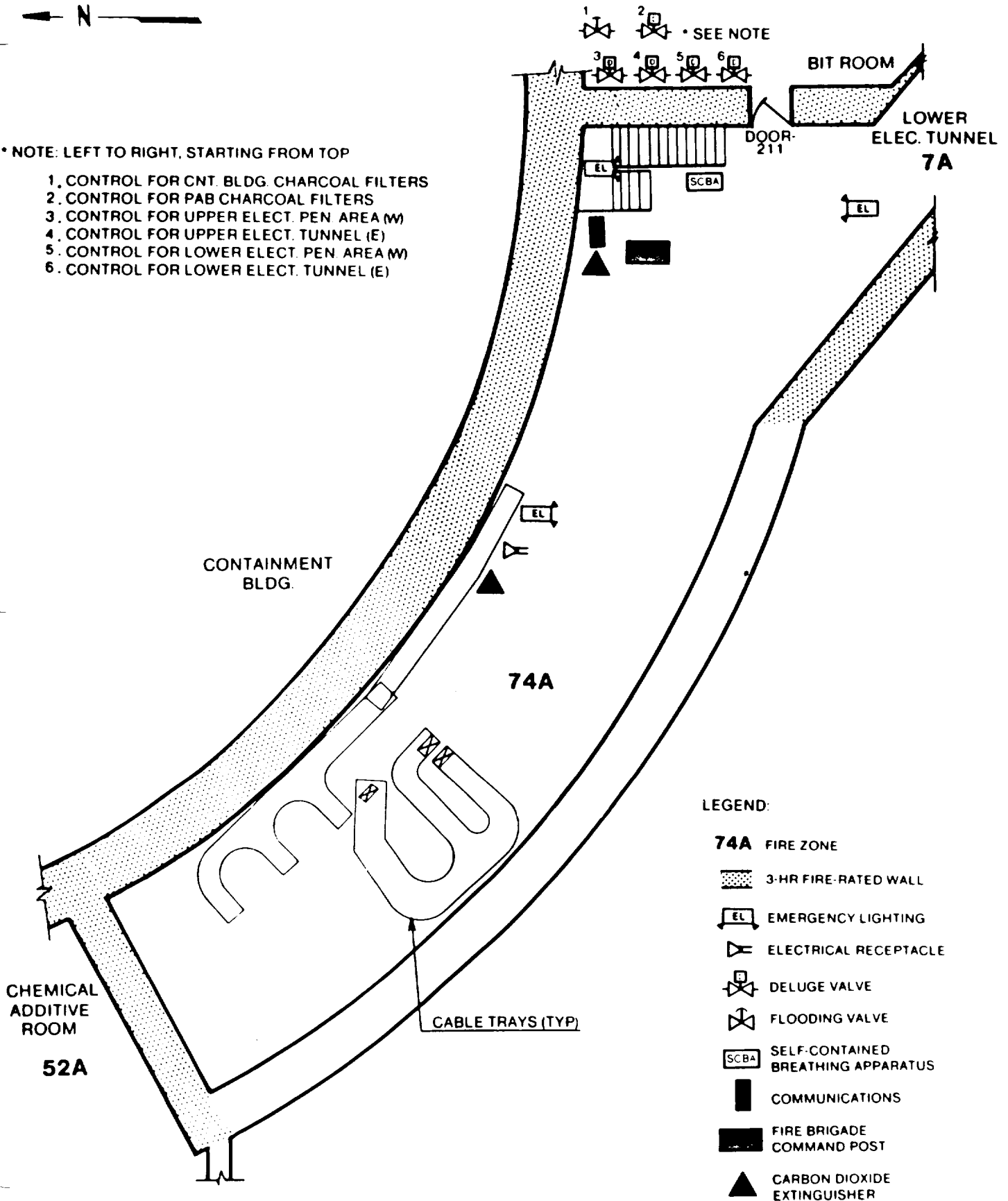
LOWER ELECTRICAL PENETRATION AREA

Elev. 34'-0" Fire Area ETN-4



* NOTE: LEFT TO RIGHT, STARTING FROM TOP

1. CONTROL FOR CNT. BLDG. CHARCOAL FILTERS
2. CONTROL FOR PAB CHARCOAL FILTERS
3. CONTROL FOR UPPER ELECT. PEN. AREA (M)
4. CONTROL FOR UPPER ELECT. TUNNEL (E)
5. CONTROL FOR LOWER ELECT. PEN. AREA (M)
6. CONTROL FOR LOWER ELECT. TUNNEL (E)



LEGEND:

74A FIRE ZONE

3-HR FIRE-RATED WALL

EMERGENCY LIGHTING

ELECTRICAL RECEPTACLE

DELUGE VALVE

FLOODING VALVE

SELF-CONTAINED BREATHING APPARATUS

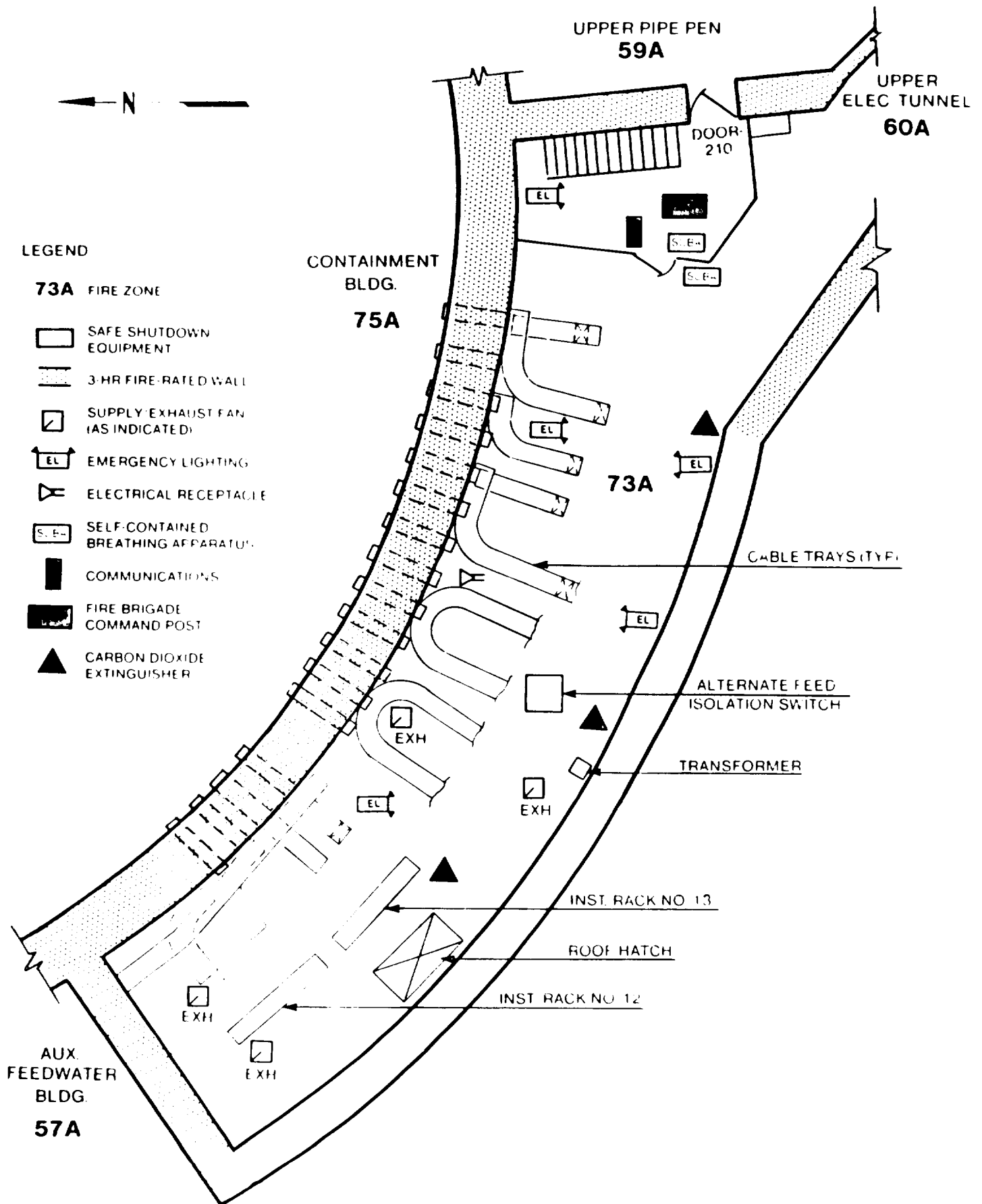
COMMUNICATIONS

FIRE BRIGADE COMMAND POST

CARBON DIOXIDE EXTINGUISHER

UPPER ELECTRICAL PENETRATION AREA

Elev. 46'-0" Fire Area ETN-4



UPPER ELECTRICAL TUNNEL

Elev. 43'-0" Fire Area ETN-4

