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IPN-93-150

U.S. Nuclear Regulatory Commission
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Subject: **Indian Point 3 Nuclear Power Plant**
Docket No. 50-286
Exemption Request Concerning Separation
of Instrument Sensing Lines Inside Containment

References: (1) NYPA Letter from J. P. Bayne; to Steven A. Varga; dated July 1, 1982; subject: "10 CFR 50, Appendix R, Section III.G Fire Protection Requirements".

(2) NYPA Letter from J. P. Bayne; to Harold R. Denton; dated November 22, 1982; subject: "Indian Point 3 Nuclear Power Plant, Docket No. 50-286, Appendix R".

The Authority has initiated a programmatic review of Indian Point 3's Fire Protection Program and Appendix R compliance strategy. During this review, the Authority identified that the safe shutdown instrument sensing lines, which are located inside containment, do not meet the separation requirements of Appendix R, Section III.G.2. Therefore, redundant sensing lines may potentially experience fire-induced damage. Upon further investigation, the Authority determined this potential is minimal, presenting virtually no risk to public health and safety. This submittal requests an exemption from the requirements of 10 CFR 50, Appendix R, Section III.G.2 for the wide range steam generator water level and pressurizer level sensing lines inside containment. Associated transmitters and cable are protected in accordance with the requirements of Appendix R, Section III.G.2.f.

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The attachment to this submittal provides the detailed technical justification supporting this exemption request. In July 1993, the safe shutdown instrument sensing lines were walked down to verify compliance with the separation and fire protection requirements of 10 CFR 50, Appendix R, Section III.G.2. The walkdown revealed that these separation requirements were not applied to the routing of the sensing lines, with the least physical separation being in the instrument racks. However, the Authority's analysis of the sensing lines installation, the combustible loads inside containment, and the physical configuration of the lines demonstrates that simultaneous damage to redundant safe shutdown instrumentation sensing lines is not credible.

Physical modification of the facility to achieve literal compliance with Section III.G of 10 CFR 50, Appendix R would require many design changes, for example: rerouting portions of the sensing lines, installing additional fire barriers, and the installation of additional fire suppression and detection. Given the location of the sensing lines, the implementation of these modifications would entail extensive scaffolding, as well as engineering and financial resources. In addition, since this modification was not anticipated in the current outage scope, the detailed development and implementation of such a design change could significantly delay restart from the current outage, resulting in lost revenue.

No new commitments are being made by this letter.

Based on the attached justification, the Authority requests exemption from the requirements of 10 CFR 50, Appendix R, Section III.G.2, for the wide range steam generator water level and pressurizer level sensing lines inside the containment building. Because these changes are needed prior to startup from the current outage, the Authority requests that this submittal be reviewed and approved by the end of January 1994. If you have any questions, please contact Mr. P. Kokolakis.

Very truly yours,

Ralph E. Beedle

Attachment

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REQUEST FOR EXEMPTION FROM 10 CFR 50 APPENDIX R

INDIAN POINT 3 NUCLEAR POWER PLANT

NEW YORK POWER AUTHORITY

November 30, 1993

ATTACHMENT TO IPN-93-150

EXECUTIVE SUMMARY

The Authority has initiated a programmatic review of Indian Point 3's Fire Protection Program, including the Appendix R analysis for Indian Point 3 (Reference 1). During the course of this review, it could not be confirmed if safe-shutdown instrumentation sensing lines inside containment were evaluated against the requirements of Section III.G.2 of 10 CFR 50 Appendix R prior to the 1993 walkdown. This section of Appendix R addresses measures to be taken to ensure one train of redundant safe shutdown equipment remains free of fire damage. It was not clear whether redundant trains of safe shutdown equipment, i.e., the instrumentation sensing lines, could potentially experience simultaneous fire induced damage, resulting in erroneous plant status indications.

In an attempt to better understand the potential fire hazard that these lines may experience and the associated nuclear safety consequences, the safe shutdown instrumentation sensing lines were walked down in July 1993. These walkdowns were predicated on the conservative assumption the separation criteria stipulated in Section III.G.2 of Appendix R are applicable to instrument sensing lines. The walkdowns revealed the wide range steam generator (SG) and pressurizer level instrument sensing lines do not fully comply with a conservative interpretation of Section III.G.2 of Appendix R. The Authority believes the low combustible loadings, combined with the lines' physical configurations and installation characteristics, ensure at least one train of safe shutdown instrumentation would remain capable of performing its intended function during and after the postulated fire (i.e., remain free of fire damage).

In the improbable event that erroneous indications are generated, they would be temporary. Erroneous signals would not initiate until the fluid inside the lines is heated by the fire and would terminate after the fire was extinguished. The lines would not experience fire damage.

The Authority believes the capability to safely shutdown the unit would not be jeopardized in the highly improbable event that a fire results in erroneous wide range SG and pressurizer level indication. A fire inside containment would not necessitate control room evacuation (i.e., alternate shutdown), so the Operations staff would have access to numerous and diverse plant status indications. In addition, plant operating procedures advise personnel that a fire may cause anomalous equipment behavior. In this instance, the anomalous behavior would be of extremely short duration, due to the low combustible loadings inside containment and the temporary nature of the induced error. Finally, the Authority believes the abnormal conditions which might result from a containment fire are bounded by those of the worst case Loss of Coolant Accident (LOCA).

Consequently, the Authority believes a fire inside Indian Point 3's containment will not result in damage to safe shutdown instrumentation or jeopardize the ability to achieve and maintain hot shutdown conditions, as required by Section III.G.2 of 10 CFR 50, Appendix R. However, the lack of an approved exemption request was questioned by NRC personnel during Inspection 93-24.

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. The proposed modifications would involve wrapping or rerouting the sensing lines, entailing an extensive amount of scaffolding. In addition, since this work was not included

in the current outage scope, it is conceivable the proposed modifications could delay restart from the current outage, resulting in lost revenue. Consequently, the Authority requests an exemption from the requirements of 10 CFR 50, Appendix R, Section III.G.2 for the Indian Point 3 instrument sensing lines inside containment.

1. INTRODUCTION

During the Authority's review of Indian Point 3's Fire Protection Program, it was identified that the wide range steam generator water level and pressurizer level sensing lines within containment do not comply with the requirements of 10 CFR 50, Appendix R, Section III.G.2. Specifically, in some areas, the lines are not separated by a horizontal distance of 20 feet, nor are they separated by a radiant energy shield. In addition, fire detection and suppression in the area is limited. The purpose of this submittal is to request an exemption from these requirements since both the fire and nuclear safety hazard associated with the current sensing line configuration presents negligible risk to the public health and safety.

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.2 for the wide range SG water level and pressurizer level sensing lines within the Indian Point 3 Nuclear Power Plant containment structure. The specific fire area and fire zones where this exemption request is applicable, as well as the detailed technical justification supporting the request, are provided below.

2.1 Fire Areas/Fire Zones Affected

CNT-1/70A Reactor Coolant Pump Area
CNT-1/86A Refueling Floor Area
CNT-1/77A Outer Annulus

2.2 Technical Justification

The technical justification supporting this exemption request has been divided into the following sections; Fire Area Description and Compliance Strategy, Sensing Line Separation Evaluation, Fire Protection Features, Fire Hazard, and Operating Conservatisms.

2.2.1 Fire Area Description and Compliance Strategy

The containment building has been designated as Fire Area CNT-1. Located within this fire area are the sensing lines and instrumentation associated with three Reactor Coolant System (RCS) indications provided to the operator during a fire. Specifically, these indications are:

(1) wide-range RCS pressure

(2) pressurizer level

(3) wide-range steam generator level

Consistent with the compliance strategy outlined in Indian Point 3's Appendix R analysis, the redundant transmitters and cabling associated with each of these indications are physically separated. Compliance with Section III.G.2 had been achieved through the use of physical separation and radiant energy shields. However, as previously indicated, the Appendix R analysis did not specifically include an evaluation of the separation of the instrument sensing lines. Consequently, based upon the walkdowns performed in July 1993, the following separation evaluation of the sensing lines associated with the three indications is provided.

2.2.2 Sensing Line Separation Evaluation

The following discussion provides an overview of the physical configuration and characteristics of the installation of the sensing lines associated with the wide range RCS pressure, wide range SG level, and pressurizer level. Although the wide range RCS pressure sensing lines are in compliance with the requirements of 10 CFR 50, Appendix R, the discussion regarding their configuration in Section 2.2.2.1 is provided for completeness.

2.2.2.1 Wide Range RCS Pressure

Redundant wide-range RCS pressure transmitters are located at approximately opposite sides of the containment on elevation 46 ft. The sensing lines associated with these transmitters traverse different courses and are routed to different locations on the RCS piping. The lines are separated by a distance of 20 feet or more or are protected with fire wrap or radiant energy shields. As such, it is not credible to postulate exposing redundant sensing lines to a single postulated fire. Based upon the above, the Authority concludes the wide-range RCS pressure sensing lines are in compliance with Section III.G.2 of 10 CFR 50 Appendix R.

2.2.2.2 Wide Range Steam Generator Water Level

For much of their course, the steam generator wide range level sensing lines are well separated from redundant safe shutdown equipment, cables, and sensing lines. However, at containment elevation 48', the redundant lines are routed within 20 feet of each other.

From this location, they continue to vertically traverse a wall, until they ultimately enter their respective transmitters. The transmitters are located in a common instrument rack, 20 feet above the floor, in an open access way. Just prior to entering the transmitters, the sensing lines are separated by a distance of approximately 2 feet.

Transient combustibles are the only credible fire hazard in the vicinity of the instrument rack . As such, a radiant energy shield was installed on the front of the rack, protecting one channel of steam generator wide range level instrumentation from a floor based transient combustible fire.

Consequently, while the fire hazard in the vicinity of the wide range SG water level sensing lines is minimal, full compliance with the requirements of Section III.G.2 of 10 CFR 50, Appendix R has not been achieved.

2.2.2.3 Pressurizer Level

The three pressurizer level sensing lines, which are equally spaced and separated by about 8 feet, are routed from their initiation point on containment elevation 117', down the outside of the concrete structure surrounding the pressurizer. They eventually penetrate the floor at elevation 95'. The sensing line route from elevation 117' to the point where they penetrate the 95' elevation is essentially devoid of combustibles. Upon penetrating the floor, they are routed down the inside of the crane wall to the elevation of their respective low level sensing lines. At this point, each reference leg is paired with its variable leg. The redundant lines then run in opposite directions along the inside of the crane wall, until they penetrate the wall at approximately the 65' elevation. Their route is terminated upon entering a common instrument rack.

It is significant to note the area the sensing lines traverse below elevation 95' has multiple ventilation paths connecting it to large open spaces. The predominant ventilation paths are the ceiling gratings over each RCP. These gratings are large enough to allow removal of an RCP. The RCPs are approximately 15 feet from the sensing lines.

The thermal effects of a reactor coolant pump fire relative to the heatup of the sensing lines are mitigated by the grating located directly over each pump. This grating is larger than the horizontal cross-section of the reactor coolant pump. The ceiling above this fire zone also includes large openings to accommodate two steam generators and the pressurizer. These ceiling openings, combined with several large floor level access ways, would provide sufficient natural ventilation to remove the majority of the heat of combustion from any reactor coolant pump oil fire.

While the pressurizer level sensing lines are exposed to a minimal fire hazard, they are not in full compliance with the requirements of Section III.G.2 of 10 CFR 50, Appendix R.

2.3 Fire Protection Features

The sensing line separation evaluation provided above addresses the physical separation of the sensing lines. While this evaluation demonstrates the wide range SG water level

and pressurizer level sensing lines do not comply with the requirements of Appendix R, Sections III.G.2 (d) and (f), the Authority believes the existing fire protection features of Indian Point 3's containment provides defense-in-depth protection against fire hazards that exist or might be introduced. The following information describes the various aspects of this defense-in-depth philosophy. Specifically, information is presented regarding the combustible loadings in each of the affected fire zones, as well as the available suppression and detection systems and Indian Point 3's use of fire retardant cables.

2.3.1 Combustible Loadings

Minimal combustible loadings, which consist primarily of cable and RCP oil contained in collection systems in accordance with 10 CFR 50, Appendix R, Section III.O, exist throughout containment. The following combustible loads have been identified as being in the general vicinity of redundant safe shutdown instrumentation sensing lines.

Elevation 95', Fire Zone 86A, which the pressurizer level sensing lines traverse, currently has a combustible loading presenting a fire severity of less than 1 minute (6.833 million BTU). Except for a few cables, this area is essentially devoid of combustibles.

Elevation 48', Fire Zone 70A includes a combustible loading presenting a fire severity of 6 minutes (27.186 million BTU). The combustibles consist of cable insulation and lube oil in the RCP lube oil system.

Elevation 46', Fire Zone 77A includes a combustible loading presenting a fire severity of 22 minutes (28.077 million BTU). The combustibles consist of cable insulation.

2.3.2 Suppression and Detection

Section III.G.2 (e) of Appendix R allows the use of fire detection and automatic suppression systems as a means of fire protection. While the areas in question do not have automatic suppression, hand held suppression devices are accessible and detection is installed in critical areas. Although these suppression and detection devices do not meet the requirements of Appendix R, they do afford protection for the equipment in the areas.

Specifically, the following suppression and detection mechanisms exist in the areas the safety related sensing lines traverse. Fire Zones 70A and 71A, which cover the area above elevation 68', have four photoelectric smoke detectors, one mounted above each reactor coolant pump. Fire suppression at this elevation in containment includes nine CO_2 extinguishers and three water hose stations. The pressurizer sensing lines are routed through Fire Zone 70A. The pressurizer and wide range SG sensing lines also pass through Fire Zones 70A and 77A, which extend below elevation 95'. Four water hose stations are located throughout Fire Zones 70A and 71A at the 46' elevation. In addition, three photoelectric smoke detectors are located in the penetration area of the 46' elevation along with five CO_2 extinguishers. Fire Zone 77A can be reached by the water hose station in an adjacent fire zone.

2.3.3 Fire Retardant Cable

Power cables are in relatively close proximity to the pressurizer level sensing lines. Nevertheless, for the following reasons (Reference 2), the Power Authority believes the power cables present a minimal fire hazard to the sensing lines.

To ensure cables with the maximum amount of fire retardant characteristics were utilized at the Indian Point Nuclear Station, the following flame tests were performed:

a) Standard vertical flame test in accordance with ASTM D-470-59T or IEEE 383.

b) Five-minute vertical flame test where the tip of the flue inner cone (1750°F) of the flame was applied to the cable with a Fisher Burner No. 3-920.

c) Consolidated Edison Bon-Fire test, which tested bundles of three and six cables that were three-feet long. The bundles were exposed to an oil flame from a 12-inch diameter pail, such that the cables were horizontally above the pail and the lowest cable was 3 inches above the top of the pail. The oil level for the tests were 2-3/4 inches below the rim of the pail. The flame was applied to the cable for five minutes and the time that the cable continued to flame after the bonfire was extinguished was noted.

The results of the bonfire tests indicated none of the cables tested had insulation[1] or jacket burn-lengths exceeding 20 inches. The Authority maintains these tests are conclusive in revealing how the cable would react in actual fire conditions. Consequently, the Authority believes the cables do not pose a significant fire hazard.

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."

The NRC goes on to refer to the Consolidated Edison Bon-Fire test and concludes:

> "The results of these tests indicate that a postulated fire commensurate with the transient fire hazard would not cause flame propagation along the cables to a significant degree."

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[1]PVC insulated cable with a closely woven glass braid and overall covering of lapped mylar tape and closely woven asbestos braid saturated with a flame and moisture resistant finish.

The only credible source of ignition for these cables is an electrical fault at the pressurizer heaters or within these cables. However, the cables are protected from an electrical fault by redundant fuses sized to limit fault currents and preclude the cables from heating to the point of damage. Consequently, the Authority believes these cables present a minimal fire hazard to the pressurizer level sensing lines.

2.4 Fire Hazard

The fire hazard inside containment should be considered from two perspectives, local effect and global effect. As the following discussion demonstrates, both the local and global effects of a fire inside containment are minimal.

2.4.1 Local Fire Effect

The Authority believes a localized fire inside containment would have minimal consequence on plant equipment and nuclear safety. In order to influence the subject indications, the fire would have to be isolated to the immediate area around the reference leg sensing lines. Level indications are based on the differential pressure between the reference and variable legs. If the fire was of relatively short duration and/or applied to both the reference and variable legs, there would be no change in differential pressure between the legs.

As discussed in Section 2.3, Fire Protection Features, the Authority believes the magnitude and intensity of any fire in the vicinity of the sensing lines would be minimal. Not only do minimal combustible loadings exist inside of containment, but the fire hazards associated with the two most significant combustible loads that do exist, RCP oil and cables, are contained in relatively small areas. The RCP oil is contained in Appendix R, Section III.O collection systems and flame tests have shown fire is not expected to propagate along a cable to any significant degree. In addition, administrative controls virtually eliminate transient combustibles in the area.

Consequently, the Authority believes the relatively small magnitude and intensity of a local containment fire, combined with the fact all safe shutdown equipment and associated cable in containment (except the wide range SG level and pressurizer level sensing lines) are protected from the effects of a fire. As such, the operators would remain in the control room, where diverse plant status indicators are available.

It should be noted, a fire in the vicinity of either set of sensing lines would not result in the loss of T(hot) or T(cold). Hence, the operator would maintain the capability to determine the existence of adequate core cooling.

Enclosure 1 of Generic Letter 86-10, "Implementation of Fire Protection Requirements", states a structure, system or component is free of fire damage if it is capable of performing its intended function during and after the postulated fire, as needed. Based upon the above discussion, the Authority believes any fire related erroneous sensing line indications would be temporary and of short duration. Error would not be introduced until

the lines were heated above the reactor coolant system temperature and would terminate after the fire was extinguished. Due to the low fire loadings in the area, and the lack of transient combustibles, a postulated fire would in all probability burn itself out before erroneous indications are generated. Since the worst case scenario would be elevated temperatures introducing error into the sensing loops, and the lines would not be damaged, the sensing lines would not experience fire damage as defined in Generic Letter 86-10.

2.4.2 Global Fire Effect

The Authority has considered how the effects of a global fire inside containment would manifest themselves with regards to erroneous sensing line indications. Since the Indian Point 3 containment is virtually air tight during normal operation, a large containment fire would result in increased containment temperature and pressure. If the elevated temperature were high enough and sustained for a sufficiently long period of time, erroneous indications could theoretically be generated.

The Indian Point 3 containment is designed to withstand a temperature of 271 degrees F at 47 psig subsequent to a double-ended pump suction rupture, which is the most limiting Loss-of-Coolant Accident (LOCA). In order to ensure these design limits are not exceeded, numerous systems exist for removing energy from within the containment, including: the component cooling water system, the service water system, the recirculation system (which is backed up by the residual heat removal system), containment fan coolers, and containment spray system, and recirculation spray. The Emergency Operating Procedures (EOPs) provide the Operations staff guidance on how to effectively utilize these systems to control containment temperature and pressures during emergency conditions. As elaborated upon in Section 2.5.2, the EOPs incorporate conservatisms to account for instrument error which may be experienced during the maximum LOCA conditions.

Table 14.3-29 of the Indian Point 3 UFSAR provides the energy balance for a double ended pump suction LOCA with minimal safety injection. This table indicates at 24.75 seconds into the LOCA scenario 319.62 million BTU are released into the containment from the break flow. At nearly 9 minutes into the scenario (484.40 seconds) the break flow has released 529.21 million BTU into containment.

In comparison, the fire hazards inside containment present a far less significant energy (heat) source. The RCP oil collection system contains approximately 400 gallons with a fire loading of approximately 58.100 million BTU. The Indian Point 3 Fire Hazards Analysis (FHA) lists the entire combustible loading inside containment as 515.220 million BTU. The FHA also lists the fire severity inside containment as 13 minutes.

Consequently, the worst case LOCA would emit more energy into containment and be of longer duration than if everything inside containment burned. Nevertheless, the design features of the unit and the operator action delineated in the EOPs not only account for instrument error, but ensure design limits are not violated and safe shutdown capability

is not compromised. Since the operators would use the same EOPs and plant emergency design features during a fire of sufficient magnitude to result in a reactor trip or safety injection as during the worst case LOCA, the Authority concludes a containment fire is bounded by a double ended pump suction LOCA .

2.5 Operating Conservatisms

In the highly unlikely event a fire occurs in the vicinity of either the wide range SG level or pressurizer level sensing lines, resulting in erroneous indications, numerous operating conservatisms currently exist which would ensure the safe shutdown of the unit. These conservatisms have been incorporated into the Emergency Operating Procedures (EOPs), the Off Normal Operating Procedures (ONOPs), and routine operating procedures. The following discussion elaborates upon these conservatisms.

2.5.1 Incorporation of Instrumentation Error into the EOPs

Elevated containment temperatures are known to induce error in instrumentation indications. Based upon the comparison of BTUs released into containment during the worst case LOCA and during a containment fire presented in Section 2.4.2, the indication error induced by a credible containment fire is bounded by the post-LOCA maximum induced error. The maximum LOCA induced error has been addressed in the Emergency Operating Procedures (EOPs), as they address the overall error introduced into the indication. The instrument transmitters are more sensitive to elevated temperatures than the sensing lines.

In the highly unlikely event the operators receive erroneous indications while the unit is at power, they are trained to trip the reactor and enter the appropriate EOP. The EOPs provide the Operations staff guidance on how to determine plant status during emergency scenarios which may result in erroneous indications or spurious equipment operation, as well as appropriate responsive actions. As such, the Authority believes the error that may be introduced by the sensing lines is adequately addressed by existing procedures.

2.5.2 Cautions in the Plant Fire ONOP

Through training and the cautions provided in the ONOPs, the Operations staff is aware a fire may result in abnormal equipment behavior. The ONOP addressing a plant fire states the following as a possible indication of a plant fire:

> "Anomalous behavior of controls, instrumentation and equipment."

As such, the Operations staff may suspect a fire as the cause of the erroneous indication.

2.5.3 Operation of the Containment Recirculation Fan Cooler Units

Indian Point 3's containment has five recirculation fan cooler units, each designed to recirculate 64,500 cubic feet of air per minute. During normal operation, at least 4 of the 5 units are normally operating.

The procedure governing system operation states:

> "To prevent premature exhaustion of the charcoal filter bed, a fan cooler unit should not be run with flow through the charcoal filter unless it is required as part of surveillance testing."

Consequently, it is probable the smoke detectors in the vicinity of the RCPs would detect the smoke generated by a postulated fire, resulting in an alarm annunciating in the control room. For the purposes of this discussion, if only three fan cooler units were operating at the time of the fire, the containment free volume (2,610,000 cubic feet) would be recirculated 4.45 times per hour. Since the filters would not be on, any smoke generated by the fire would not be filtered out.

3. HARDSHIP TO THE AUTHORITY

Physical modification of the facility to achieve literal compliance with Section III.G of 10 CFR 50, Appendix R would require many design changes, for example: rerouting portions of the sensing lines, installing additional fire barriers, and the installation of additional fire suppression and detection. Given the location of the sensing lines, the implementation of these modifications would entail extensive scaffolding, as well as engineering and financial resources. In addition, since this work was not included in the original outage scope , it is conceivable that the proposed modifications could significantly delay restart from the current outage, resulting in lost revenue.

4. 10 CFR 50.12 CRITERIA

Based on the above evaluation, an exemption is requested for Fire Area CNT-1 from the requirements of 10 CFR 50, Appendix R, Section III.G.2 for the SG wide range level and pressurizer level sensing lines located within the fire area. 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, an exemption was granted to the Power Authority's James A. FitzPatrick Nuclear Plant on September 10, 1992. The exemption will not present an undue risk to the public health and safety since a negligible fire hazard exists inside Indian Point 3's containment. Separation of safe shutdown equipment 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: (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) as follows:

a) The fixed combustible loading in containment is insignificant. The largest combustible load, RCP oil, is contained in a collection system in accordance with 10 CFR 50, Appendix R, Section III.O, further reducing the fire hazard presented by the minimal combustible loading in the area.

b) Automatic smoke detectors are installed above each of the RCPs.

c) Personnel access to the containment is restricted during power operation. As such, the potential for transient combustible materials to accumulate in the containment is very low. The containment is inspected by Operations personnel prior to plant startup.

d) The inherent fire retardant properties of the power cables used in containment minimizes the propagation of fire, as acknowledged by the NRC in their February 2, 1984 evaluation sent to J. P. Bayne.

e) The location of redundant sensing lines are remote from fixed combustibles that exist inside containment.

f) The effects of a fire inside containment are bounded by the worst case LOCA.

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

a) Implementing the modifications to bring the sensing lines into literal compliance with the requirements of Appendix R would result in unwarranted expenditures of engineering and financial resources. These modifications would entail rerouting portions of the sensing lines, installing additional fire barriers, and the installation of additional fire suppression and detection. Given the location of the sensing lines, the implementation of these modifications would entail extensive scaffolding, as well as engineering and financial resources. In addition, since this work was not included in the original outage scope, it is conceivable that the proposed modifications could significantly delay restart from the current outage, resulting in lost revenue.

ATTACHMENT TO IPN-93-150

References

(1) NYPA Letter IPN-82-49, "10 CFR 50, Appendix R, Section III.G Fire Protection Requirements", dated July 1, 1982.

(2) Letter from J. P. Bayne; to Harold R. Denton; dated November 22, 1982; subject: "Indian Point 3 Nuclear Power Plant, Docket No. 50-286, Appendix R", Appendix B.

(3) Letter from J. C. Brons to S. A. Varga; dated September 19, 1985; subject: "Information to Support the Evaluation of IP-3 to 10 CFR 50.48 and Appendix R to 10 CFR 50".

(4) NRC Letter from Darrell G. Eisenhut; to J. P. Bayne; dated February 2, 1984; subject: "Exemptions from the Requirements of 10 CFR 50, Appendix R, for the Indian Point Nuclear Generating Plant, Unit No. 3 (IP-3)".

(5) Indian Point 3 Standard Operating Procedure, "Containment Recirculation Fan Cooler Unit Operations, SOP-CB-10, Rev. 8."

(6) Indian Point 3 Off Normal Operating Procedure, "Plant Fire, ONOP-FP-1, Rev. 6."

(7) Indian Point 3 Emergency Operating Procedures, latest revision.

(8) Indian Point 3 Fire Hazards Analysis.