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September 11, 1985

Re: Indian Point Unit No. 2  
Docket No. 50-247

Director of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

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

Dear Mr. Varga,

The Attachments to this letter provide clarification of certain 10 CFR 50, Appendix R configurations and additional information regarding Indian Point Unit 2 (IP-2) fire protection features, emergency lighting and the Alternate Safe Shutdown System (ASSS). These items were identified during our continuing review of NRC Generic Letter 85-01 and in preparation for the upcoming special Appendix R inspection.

Attachment 1 contains clarification of the following:

- a) Table 2.1-1 of our January 10, 1983 submittal concerning the diesel generator building (zone 10) suppression system,
- b) Revised Table 2.6-1 of our July 13, 1983 submittal concerning spurious operation of valves,
- c) Post-fire re-entry in the electrical and pipe tunnel (zone 1A) and auxiliary feed pump room (zone 23), included in the basis of the exemptions in our January 10, 1983 submittal, and
- d) Installation of non-combustible partial separation barriers in the component cooling water and auxiliary feed pump rooms per our September 9, 1983 submittal.

Attachment 2 contains a commitment to enhance the ASSS instrumentation by providing wide range pressurizer pressure indication.

Attachment 3 contains a commitment to install additional emergency lighting to enhance the ASSS and addresses the use of hand held lighting for Gas Turbines 2 & 3.

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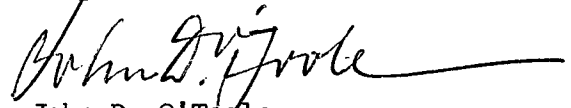
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On September 6, 1985, during a discussion with members of your staff concerning our pending HVAC exemption, we discussed some of the items contained in the above listed attachments. Additionally, during a recent review of the IP-2 fire protection program, we noted that Mr. Eisenhut's October 16, 1984 letter approving our exemptions did not explicitly address the basis for certain exemption requests contained in our January 10, 1983 and July 13, 1983 submittals. Since Mr. Eisenhut's October 16, 1984 letter did not raise open issues other than the plant modifications we committed to install, we assumed that the basis of each exemption as stated in the above-noted submittals was acceptable. However, during the September 6, 1985 discussion with your staff it became clear that explicit NRC concurrence with those bases was desirable. We therefore request your specific review on these matters.

We do not believe that the clarification and information contained in the attachments impact the conclusions reached in your August 22, 1983, March 30, 1984 or October 16, 1984 approval letters. However we suggest that your staff acknowledge that they are within the scope of the approved exemptions, or provide an acceptable Appendix R configuration. Accordingly, revisions or supplements to the existing NRC approvals may be necessary.

Should you or your staff have any questions on this submittal , please do not hesitate to call me.

Very truly yours,



John D. O'Toole  
Vice President

cc: Senior Resident Inspector  
U. S. Nuclear Regulatory Commission  
P. O. Box 38  
Buchanan, New York 10511

Mr. Richard W. Starostecki, Director  
Division of Project and Resident Programs  
U. S. Nuclear Regulatory Commission  
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Attachment 1

Clarification and Additional Information  
regarding Fire Protection Features, Emergency  
Lighting and Alternate Safe Shutdown System

a) Diesel Generator Building Suppression System

The diesel generator building (fire zone 10) contains the diesel generators, associated electric cables (power and control), local control panels and various support components such as service water piping, lube oil and jacket water coolers, day tanks and starting air system. The building is provided with an automatic wet pipe sprinkler system covering the diesel fuel day tanks and the diesel sump areas and fuel oil piping area. The sprinkler system adequately covers the potential hazard in the area although complete area-wide coverage for the fire zone is not provided. This was not explicit in Table 2.1-1 of our January 10, 1983 submittal. Consequently we did not request an exemption of Appendix R Section III.G.3 requirements as clarified by Generic Letter 83-33. Hence, Table 2.1-1 of our January 10, 1983 letter has been revised to explicitly indicate partial coverage for this area by including a footnote (see attached Table 2.1-1).

A fire hazards analysis performed for this fire zone indicates that fire detectors (temperature sensors) are provided throughout the building and CO<sub>2</sub> extinguishers are installed in the fire zone. The walls and ceilings of the building are made of metal sandwiched panels with the floor being concrete. One hour fireproofing is applied to the diesel generator building structural steel. A yard hydrant and a hose house are located adjacent to the building. The fire loading in the building is considered low (68,700 BTU/sq. ft). We therefore conclude that the partial fixed suppression system is adequate.

In addition alternate shutdown capability is provided for the diesel generator building by the Alternate Safe Shutdown System (ASSS) powered from IP-1. In fact, this fire zone is circumvented by the ASSS. The walkway between zone 10 and the IP-1/IP-2 passageway containing ASSS cabling has been provided with a 3 hour roll down fire door in accordance with our January 10, 1983 submittal. Based on our evaluation, we have determined that adequate fire protection measures are provided so that the plant can be safely shut down in case of a fire in the diesel generator building.

Following the guidance of Generic Letter 85-01, this letter documents our evaluation. We request that the NRC explicitly concur with the above assessment and issue appropriate revisions to the August 22, 1983 Safety Evaluation Report, or alternatively, advise us on the need to submit additional exemption requests.

b) Table 2.6-1 Spurious Operation of Alternate Safe Shutdown System Valves.

Revised Table 2.6-1 of our July 13, 1983 submittal provided the results of analysis for spurious operation of alternate safe shutdown system valves. Item 1 of the table erroneously listed the allowable time to correct position of certain auxiliary feedwater system valves (FCV 406A, FCV 406B, FCV 405A, FCV 405B, FCV 405C, FCV 405D) to be over 1 hour. In the text portion of the January 10, 1983 submittal on page 2-8, the response to action item 4 identified a Steam

Generator dry out time of approximately 35 minutes. Hence item 1 of Table 2.6-1 has been changed to reflect an allowable time of over 1/2 hour to be consistent with the text. (See attached revised Table 2.6-1)

c) Post Fire Reentry

1) Electrical & Pipe Tunnel Area (Fire Zone 1A)

Exemption request 4.2 contained in our January 10, 1983 & July 13, 1983 submittals indicated that pneumatic instrument lines for ASSS instrumentation (pressurizer pressure and level and steam generator level) are located in the fire zone 1A. In accordance with our September 9, 1983 submittal, we installed 1/2 hour fire wrap on these instrument lines to preserve their independence within zone 1A. The NRC Safety Evaluation Report dated October 16, 1984 found the fire protection measures provided in this area to be an acceptable equivalent of Appendix R Section III.G.

While unrelated, our January 10, 1983 and July 13, 1983 submittals also addressed the issue of manual access in this area for the purpose of maintaining reactor coolant pump seal cooling. However the manual access to the instrument line isolation valves which are also located in this area for post-fire operation of the system was not explicitly addressed.

In order to avoid future misinterpretation we consider that the following clarification should be documented and revisions to the SER, if necessary, be made. As discussed in our July 13, 1983 submittal,

- i) The worst fire in the area would be a small exposure fire, of duration much less than 1/2 hour.
- ii) The fire brigade response time is of the order of a few minutes. Considering fire fighting and mop up time, post fire access to the fire zone for the purpose of manual valve operation and the valve opening itself could be achieved within a matter of minutes.
- iii) As the ASSS operation will not require observing the pressurizer pressure and level and steam generator level during the initial phase of the shutdown, operation of this instrumentation within about 45 minutes of the fire is acceptable.
- iv) Because of the presence of smoke detectors and the limited extent of a potential fire in the zone (cables are predominantly either asbestos jacketed or IEEE 383 qualified), sufficient time will be available to access the manual valves on the pneumatic instrument lines after removal of the fire wrap, so that the valves can be opened to energize the Pressurizer pressure and level and steam generator level instruments within 45 minutes after the fire has started.

2) Auxiliary Boiler Feed Pump Room (Fire Zone 23)

The exemption request 4.12 contained in our January 10, 1983 submittal indicated that manual access to the zone will be required in the extremely unlikely event of a maintained hot short to all eight of the regulator control valves causing valve closure. The submittal provided the results of a quantitative thermal analysis and indicated that smoke detectors that alarm in the control room have been installed. Based on the limited quantity of combustibles available for an exposure fire, and the fact that the area could be accessed within 10 minutes from the control room, it is concluded that manual opening of the valves could be performed in 1/2 hour. In our September 9, 1983 letter we committed to install a non combustible partial separation barrier between Auxiliary Boiler Feed Pumps 21 & 23 and wrap conduits from the pump motor 23 down to floor level, in order to preserve their independence within this fire zone. The NRC's SER dated October 16, 1984 found that with the proposed modification, an acceptable level of fire protection equivalent to Section III.G would be achieved. However the SER did not address the post-fire manual access to the regulator valves included within the basis for exemption of Appendix R requirements for this zone. We believe that the issue of post fire manual access to the auxiliary feedwater control valves has been accepted as part of the basis of exemption 4.12 and therefore should be addressed in the SER to avoid future misinterpretation. Please revise the SER as necessary to clarify this item.

d) Partial Separation Barrier

Our letter dated September 9, 1983 committed to install a partial separation barrier between component cooling water (CCW) pumps 22 & 23 constructed of non-combustible material extending approximately 1 foot beyond the width and height of the pump motor assembly.

Similar non-combustible partial separation barriers between Auxiliary Boiler Feed pumps 21 and 23 and behind transfer switch EDF-9 were also committed to. As explained in the NRC's SER dated October 16, 1984, the purpose of the partial height barrier was to provide protection to the pump motor assembly from the radiant heat from a fire and thereby preserve the independence of this ASSS equipment. However, upon a review of the October 16, 1984 SER we found that the terms "non-combustible partial height barrier" and "partial height non-combustible fire barrier" have been used to address these barriers at IP-2. A clarification is deemed necessary since our installed non-combustible partial separation barrier is not truly a fire barrier. As the intent was to protect the pump motors from radiant heat, use of the term "fire barrier" could be open to future misinterpretation. We request that you revise the SER to reflect our commitment.

TABLE 2.I-I

(Continued)

FIRE DETECTION AND SUPPRESSION SYSTEMS  
IN ZONES WHERE AN ALTERNATE SHUTDOWN SYSTEM IS PROVIDED

<u>Zone</u>	<u>Description</u>	<u>Minimum Operable Fire Detection Instruments 1/</u>		<u>Suppression Systems and Hose Stations</u>	<u>Exemption Request</u>
		<u>Heat 2/</u>	<u>Smoke</u>		
10	Diesel generator building	11	N/A	Hose stations: o Yard hose-house nearby Water spray system 7/	None.
11	Cable spreading room (Control Building el. 33'-0")	N/A	7	Manual Halon system Hose station: o Stairwell at el. 33'-0"	None.
13A	Valve Room	N/A	1 5/	Hose station: o PAB Stairwell (el. 42') and PAB (el. 80')	4.7
14	Switchgear room (Control Building el. 15'-0")	N/A	7	Hose station: o Stairwell at el. 15'-0"	4.8
15	Control room (Control Building el. 53'-0")	N/A	4	Hose stations: o Stairwell at east end (el. 53'-0") o Stairwell at west end (el. 53'-0")	4.9
18A	Valve Room and Corridor	N/A	0	Hose station: o Hose stations at el. 68' and at el. 42' in stairwell	4.10

TABLE 2.1-I

(Continued)

FIRE DETECTION AND SUPPRESSION SYSTEMS  
IN ZONES WHERE AN ALTERNATE SHUTDOWN SYSTEM IS PROVIDED

<u>Zone</u>	<u>Description</u>	<u>Minimum Operable Fire Detection Instruments <sup>1/</sup></u>		<u>Suppression Systems and Hose Stations</u>	<u>Exemption Request</u>
		<u>Heat <sup>2/</sup></u>	<u>Smoke</u>		
32A	Electrical tunnel	38	3	Water spray system Hose station: o West end of PAB (el. 68'-0)" in Zone 1A	None.
74A	Electrical penetration area	N/A	3	Hose station: o Electrical and piping tunnel (el. 68') o Piping penetration area	4.13

- <sup>1/</sup> These are the minimum operable detection devices required by technical specifications (Amendment 64); greater than this number are normally operable.
- <sup>2/</sup> Temperature trip devices for actuation of suppression system.
- <sup>3/</sup> These zones are circumvented by the alternate shutdown system.
- <sup>4/</sup> Smoke detection capability will be added to this zone.
- <sup>5/</sup> Smoke detector in zone 9, which is open to the stairwell portion of zone 13A, and provides detection capability for fires that could threaten RHR cables in zone 13A.
- <sup>6/</sup> Fixed detection and suppression.
- <sup>7/</sup> Sprinkler system covers the diesel fuel day tanks, diesel sump areas and fuel oil piping areas.



**TABLE 2.6-1**  
**SPURIOUS OPERATION OF ALTERNATE**  
**SAFE SHUTDOWN SYSTEM VALVES**

<u>System</u>	<u>Valve</u>	<u>Effect of Closure</u>	<u>Indication Available to Operator</u>	<u>Allowable Time To Correct Position</u>	<u>Time Necessary To To Effect Change</u>
1. AFW: (a) auxiliary feedwater flow	FCV 406A FCV 406B FCV 405A FCV 405B FCV 405C FCV 405D	Loss of AFW to steam generator #21 from the alternate SSS AFW Pump #21 would result if FCV 406A were closed. Flow to S.G. #22 would be available through FCV 406B. If both FCV 406A and FCV 406B are closed due to hot shorts, makeup to S.G.'s #21, #22, #23 and #24 could be provided from the turbine driven AFW pump #22 through FCV 405A, 405B, 405C and 405D, respectively. If a fire were to cause all of these to close (requires six hot shorts that are not interrupted), the following indication and allowable time would be available:	Steam generator level indication available in the fan house, via fully mechanical means, as part of the alternate safe shutdown system. Operators can locally take control of the AFW regulator valves and open these manually in the AFW Pump Room (Zone 23).	Over 1/2 hour	Less than 10 minutes
	(b) AFW Suction	None <u>1/</u>	None	N/A	N/A
2. Service Water	None <u>2/</u>	N/A	N/A	N/A	N/A

1/ Normally aligned to 600,000 gal. CST ( 50 hrs. supply). Crossover to City Water supply can be made locally in AFW Pump Room.

2/ Valves are manual in flow path to diesel generators or CCW heat exchangers.

Attachment 2

Wide Range Pressurizer Pressure Indication

### Wide Range Pressurizer Pressure Indication

Our letter dated July 26, 1985 to Mr. Starostecki indicated that Con Edison would review the need for wide range pressurizer pressure indication as part of the Alternate Safe Shutdown System (ASSS) design by December, 1985.

Our review shows that use of the installed narrow range instrumentation to monitor pressurizer pressure (1700-2500 psig) may not be sufficient to achieve a controlled shutdown to the cold shutdown condition using the ASSS, and would necessitate repair to one normal wide range channel whose circuits may have been damaged by fire. While this repair activity would be on "cold shutdown" equipment as allowed by Appendix R, we feel that an available wide range channel would enhance controlled cooldown of IP-2. We will, therefore upgrade the ASSS pressurizer pressure indication to provide wide range coverage (0-3000 psig). This modification will be installed during the 1986 refueling outage.

Attachment 3

Gas Turbines and Additional Emergency Lights

### Gas Turbine

The gas turbine generators (GTs) No. 1, 2 and 3 are utilized as an alternate source of power supply to the Indian Point-2 (IP-2) Alternate Safe Shutdown System upon a loss of offsite power. The gas turbine generator No. 1 (GT-1) is located onsite. GT-2 and GT-3 are located at the Buchanan Substation adjacent to the site. The NRC safety evaluation report dated August 22, 1983 identified GT-1 as the onsite source of backup power supply to IP-2. In light of this, Con Edison has provided fixed battery pack emergency lighting for GT-1 and relies on hand held lighting for operation of GT-2 and GT-3 and access/egress to the Buchanan substation and GTs. Since GT-1 is the primary alternate source of ASSS power and GT-2 and 3 are backup to it, we have included all 3 gas turbines in our ASSS procedure. Fixed battery pack emergency lighting is not required for all 3 GT's since GT 2 and 3 only serve as backup to GT-1, and as such, reliance on hand-held lighting is acceptable. The August 22, 1983 SER should be revised accordingly to explicitly accept GT-2 and 3 as backup to GT-1. To be consistent, the pending SER on Emergency Lighting should specify acceptance of the use of hand-held lighting for GT-2 and 3 operations.

### Additional Emergency Lights

As a result of recent plant walkdowns of the ASSS we have decided to provide enhanced emergency lighting coverage in ASSS areas. Some of the ASSS operations, which we now feel would provide more flexibility during a controlled safe shutdown of IP-2 would benefit from lighting. For example, local control of charging pump speed enhances the ASSS but running the pump at full speed would still achieve safe shutdown. Based on similar considerations, additional emergency lighting coverage will be provided at the main steam isolation valves, mainsteam bypass valves, and valve CT-7.