John D. O'Toole
Vice President

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4 Irving Place, New York, NY 10003
Telephone (212) 460-2533

January 31, 1985

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

Mr. Darrell G. Eisenhut, Director
Division of Licensing
Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Eisenhut:

Your letter of October 16, 1984 approved certain exemptions from 10 CFR 50, Appendix R and required that we conduct a field test/walkdown of the associated emergency lighting installation at Indian Point Unit No. 2 (IP-2), and report the results to you. We have installed the emergency lighting units in fulfillment of our commitments contained in our submittals of July 13, 1983 and September 9, 1983, on the assumption that approval of the lighting exemptions requested in those submittals would be forthcoming. The responses to your October 16, 1984 requests are contained in the Attachments to this letter. Attachment 1 contains a description of the emergency lighting installations. Attachment 2 contains the methodology used to determine adequacy during the test/walkdown. Attachment 3 contains the results of the test/walkdown.

If there are any questions on this matter, do not hesitate to call us.

Very truly yours,

John D. O'Toole

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

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ATTACHMENT 1

Indian Point Unit No. 2
Emergency Lighting Installation Summary

Attachment 1

Emergency Lighting Installation Summary

The provisions of 10 CFR 50, Appendix R, require installation of fixed emergency lighting units with an 8-hour capacity for all locations where actions must be taken to effect safe shutdown, as well as access and egress routes for these locations.

Our July 13, 1983 submittal included an exemption request to exclude emergency lighting from the IP-1 Superheater Building, the Screenwell and Intake Structure areas and the CST and RWST areas. Further reviews have determined that lighting units qualified for environmental conditions inside containment or in the piping penetration area are not commercially available. Accordingly, we requested an additional exemption in our July 13, 1983 submittal to rely on hand held lighting units for containment. Installation of emergency lighting units in the piping penetration area will require that the batteries be located out of piping penetration area, for lighting fixtures in the area.

Several battery powered lighting units were installed at Indian Point 2 (IP-2) in response to Item 3.1.8 from the NRC's Safety Evaluation Report of January 31, 1979. This attachment describes our Alternate Safe Shutdown System (ASSS) evaluation of IP-2 that identified the required additional emergency lighting units to satisfy Appendix R. The checklist we employed in our review is as follows:

1) Review responses to NRC action items from our January 10, 1983 submittal to identify components requiring local manual operation, and instrumentation requiring observation, to satisfy Appendix R shutdown functions;

2) Review system flow diagrams to determine specific components requiring local manual operation for systems required for safe shutdown;

3) Review of composite piping drawings and instrument drawings to identify specific locations of critical components identified in (1) and (2) above;

4) Verify the specific location of components through plant walkdowns;

5) Determine required access routes to critical components through walkdowns and discussions with plant operations personnel;

6) Review existing lighting unit locations through plant walkdowns to determine adequacy of coverage for local manual operations and for access;

7) Determine minimum set of additional required lighting units for local manual operations and for access; and

8) Mark up drawings to specify locations of required additional units, or relocation of existing units.

Table 1-1 defines the safety functions of the ASSS addressed in various responses to NRC action items, as discussed in the January 10, 1983 report. Table 1-2 provides an evaluation of access routes. Table 1-3 provides a listing of the emergency lighting units installed in IP-2 for the ASSS.

Table 1-1

EMERGENCY LIGHTING EVALUATION-SAFETY FUNCTIONS

1) Establish Natural Circulation - Station Blackout Conditions

2) Alternate Safe Shutdown System Operation,

   a) Operate a Transfer Switch,
   b) Operate a Circuit Breaker,
   c) Read Switch/Breaker/Valve Designations, and
   d) Read Gauges/Instrumentation

3) Accomplish Safe Shutdown - Normal IP2 Power Supplies Available - CCR Not Available,

4) Identify, Prevent, and/or Correct Spurious Valve Operations That Affect SSS Operations, and

5) Prevent or Terminate Breach of High Pressure/Low Pressure Valve Interfaces

Table 1-2

EMERGENCY LIGHTING EVALUATION - ACCESS ROUTES

#1. CCR to PAB - Exit Control Room to Corridor in Superheater Building to IP1/IP2 passageway - up stairway to PAB 80' el.

Route #1 Covers
- o CCR to PAB 80' el.
- o CCR to PAB 98' el.
- o CCR to Fan House
- o CCR to Diesel Generator Building
- o CCR to Yard Area (for RWST and CST)

#2. CCR to Service Water - Exit Control Room to corridor in Superheater Building. Enter Stairwell #3 down to 15' el., across IP2 Turbine Building to door adjacent to de-icing pumps (west side of building) - exit to yard area.

Route #2 Covers
- o CCR to IP2 Switchgear Room (el. 15')
- o CCR to IP2 Cable Spreading Room (el. 33')

#3. CCR to AFP Building - Exit Control Room to Corridor in Superheater Building. Enter IP2 Turbine Building 53' el. Traverse Turbine Building to stairwell in NE corner. Down stairwell to 15' el. - exit to transformer yard - enter AFP Building directly at 18' el.

#4. CCR to Containment - Access Route #1 to Fan House. Enter Containment Airlock area from Fan House.

#5. CCR to Piping Penetration Area - Access Route #1 to Fan House - across Fan House to stairwell adjacent to Containment between Column Lines 3,4, and 5. Down stairwell to Mezzanine through door to stairwell into Pipe Pen.

#6. CCR to RHR Pump Room (PAB 35' el. and 15' el.) - Access Route #1 to PAB 80' el. Down NW stairwell to 59' el., 42' el. to 15' el.

#7. CCR to ARV Stations - Route #3 to ABFP. Up stairwell to 43' el. Lighting units for access routes (assumes corridor in Superheater Building is acceptable).

Table 1-3

Emergency Lighting Installation

Light	Location	Area to be Illuminated
EL-1*	Central Control Room (CCR) North Side Column B-4.10	CCR Access Routes
EL-2*	Central Control Room South Side Column B-4.10	CCR Access Routes
El-3	33' El. Control Bldg. Stairwell #3	Access Routes: CCR to Switchgear, CCR to CSR, CCR to Screenwell
El-4*	33' El. Control Bldg. Cable Spreading Room (CSR) Entry (Inside)	Access Route: CCR to rear of CSR
EL-5*	33' El. Control Bldg. 22 Battery Room Outer West Wall	RPS Switchgear
EL-6	15' El. Control Bldg. Stairwell #3	Access Routes: CCR to Switchgear, CCR to Screenwell
EL-7	15' El Turbine Bldg. Loading Well East Side	Access Route: CCR to Screenwell
EL-8	15' El. Control Bldg. Access to 480V Switchgear Rm	Access Route: CCR to Switchgear
EL-9*	15' El. Control Bldg. 480V Switchgear Rm. East Side	480V Switchgear Breakers for Room Ventilation
EL-10*	15' El. Control Bldg. 480V Switchgear Rm East Side	480V Switchgear Breakers for Room Ventilation
EL-11	15' El. Turbine Bldg. Loading Well West Side	Access Route: CCR to Screenwell
EL-12	15' El. Screenwell House South End - on Column	Access Route: CCR to Screenwell Roof

Table 1-3 (Continued)

Emergency Lighting Installation

Light	Location	Area to be Illuminated
EL-13	15' El Screenwell House North End - on Column	Access Route: CCR to Screenwell Roof
EL-14	15' El. Screenwell House North West Corner - above door to stairwell	Access Route: CCR to Screenwell Roof
EL-15	15' El. Screenwell House at base of North West stairwell	Access Route: CCR to Screenwell Roof
EL-16	Roof of Screenwell House Battery in stairwell	Switchgear for Service Water Pumps (12 RW3)
EL-17*	18'-6" El. Aux. Blr. Fd. Bldg. On North Wall in Pump Room	Steam Supply Valve (PCV-1139); Transfer Switch EDG5; Flow Control Valves; Pump Suction and Discharge Pressure
EL-18*	18'-6" El. Aux. Blr. Fd. Bldg. On South Wall in Pump Room	Steam Supply Valve (PCV-1139); Transfer Switch EDG5; Flow Control Valves; Pump Suction and Discharge Pressure
EL-19*	18'-6" El. Aux. Blr. Fd. Bldg. Over West Door	Access Routes: CCR to AFP Room, CCR to ARV Stations
EL-20	44' 6" El. Aux. Blr. Fd. Bldg. Behind Column B8-21.2	Atmos Relief Valve Station
EL-21*	44' 6" El. Aux. Blr. Fd. Bldg. North East Corner on Wall	Atmos. Relief Valve Station
EL-22*	68' El. Aux. Blr. Fd. Bldg. At the Stairwell	Access Routes: CCR to AFP Room, CCR to ARV Stations
EL-23*	53' El. Aux. Blr. Fd. Bldg. At Exit to Turbine Bldg.	Access Routes: CCR to AFP Room, CCR to ARV Stations
EL-24	36' El. Turbine Bldg. North East Stairwell	Access Routes: CCR to AFP Room, CCR to ARV Stations

Table 1-3 (Continued)

Emergency Lighting Installation

Light	Location	Area to be Illuminated
EL-25	53' El. Turbine Bldg. East Wall at L.P. Turbine 22	Access Routes: CCR to AFP Room, CCR to ARV Stations
EL-26	53' El. Turbine Bldg. East Wall at Generator	Access Routes: CCR to APF Room, CCR to ARV Stations
EL-27	72' Emergency Diesel Gen. Bldg. On Wall Facing Switchgear	EDG Control Panel
EL-28*	53' El. PAB In Hallway - Nuclear Side of HP1	Access Route : CCR to PAB
EL-29*	PAB Entry Stairs - Midway	Access Route: CCR to PAB
EL-30*	PAB Entry Stairs - Near 80' El. Door	Access Route: CCR to PAB
EL-31*	80' El. PAB On Column D3 by Sample Panel	Transfer Switch EDG1 (RHR Pump Feed)
EL-32	80' El. PAB Northwall of Corridor - West End	Transfer Switch EDC4 (Charging Pump 23 Feed)
EL-33*	60' El. PAB South Wall of corridor near Waste Condensate Tanks	Transfer Switch EDF9 (CCW Pump Feed)
EL-34	80' El PAB North Wall of corridor - east end	Transfer Switch EDC3 (RHR Pump Feed)
EL-35*	80' PAB East Wall - Column C-8	Access Route: 80' El. PAB to 98' El. PAB
EL-36*	68' El. PAB Near C.S. Pumps	Access Route: 68' El. PAB to Pipe Pen
EL-37*	98' El. PAB East Wall - Column C9-8	MCC 26 A&B, Stairwell to 80' El. PAB
EL-38	98' El. PAB West of MCC's - Column C9-6	MCC 26 A&B
EL-39	98' El. PAB North Wall of corridor, outside VCT Cell	Charging Suction Valve (112C), DG Building Vent Fans

Table 1-3 (Continued)

Emergency Lighting Installation

Light	Location	Area to be Illuminated
EL-40*	80' El. PAB On West Wall near Fan Room entrance	Access Route: PAB to Fan House
EL-41	80' El. PAB Entry Corridor to Fan House	Access Route: PAB to Fan House
EL-42	90' El. Fan House H_2 Recombiner Platform	LI-5001-1, LI-5002-1, LI-3101-1, PI-3105-1
EL-43	80' El. PAB Entryway To VC	Access Route: PAB to VC
EL-44	67' 6" El. Mezzanine- In Stairwell Up	Access Route: PAB to Pipe Pen
EL-45	67' 6" El. Mezzanine at Stairwell Up Entrance	FI-625 (CCW to RCPs)
EL-47*	67' 6" El. Pipe Pen, Top of stairs to Pipe Pen	Access Route: PAB to Pipe Pen
EL-48	3 Beam Unit On Catwalk in Pipe Pen - East End, Battery on 67' 6" Mezzanine	Valves 769, 789, 797, 625 (CCW to RCPs)
EL-49	In Pipe Pen 53' El - Middle, Battery on 67' 6" Mezzanine	Valves 201 and 202
EL-50	In Pipe Pen 53' El. - West End At Elect. Pent. Area Battery in Elect. Pent. Area	Valve 744
EL-51*	53 El. - Access to Elect. Pent. Area	Access Route: Pipe Pen to Pent. Area - Grating
EL-52*	68' El. PAB Near Stairs from CSPs to Pipe Pen - Past Hi-Rad Gate	Access Route: 68' El. PAB to Pipe Pen
EL-53*	64' El. PAB Stairwell Platform - Near SI Pumps	Access Route: PAB to RHR

Table 1-3 (Continued)

Emergency Lighting Installation

Light	Location	Area to be Illuminated
EL-54*	42' El. PAB Stairwell Platform - East Wall	Access Route: PAB to RHR
EL-55*	15' El. PAB Stairwell Platform - Near RHR Pumps	Access Route: PAB to RHR
EL-56	80' El.PAB Charging Pump Cell No. 22	Valve 288 (Charging Suction from RWST), FI-637 (CCW Flow to Charging Pumps)

Note:

* These emergency lights were installed per item 3.1.8 of January 31, 1979 Safety Evaluation Report. Some of these lights may have been relocated from their original positions as part of the Appendix R work in 1984.

ATTACHMENT 2

Indian Point Unit No. 2
Emergency Lighting Test/Walkdown Methodology

Attachment 2

Emergency Lighting Test/Walkdown Methodology

Subsequent to completion of the emergency lighting installations a review of the lighting and the Alternate Safe Shutdown System (ASSS) was conducted to be purpose of identifying the normal plant lighting circuits to be de-energized, operator tasks to be accomplished during the test/walkdown and to prepare test procedures. The purpose of this test and overall methodology is to determine the adequacy of emergency lighting at IP-2 such that the lighting provides a sufficient level of illumination to allow any needed operations of ASSS equipment and to assure that access and egress paths to such equipment have adequate illumination to allow plant operators to traverse these paths. Although we did not specify an illumination value to be achieved in the design of the emergency lighting at IP-2, we did check the illumination levels with a light meter during the test in an effort to ascertain the adequacy of the lighting criterion of 0.05 ft-c, discussed in Enclosure 3 of our September 9, 1983 submittal in support of the Yard Area exemption, to be used as a target value throughout the ASSS. We found that criterion to be in general, sufficient at IP-2 and in some cases lighting levels below 0.05 ft-c were acceptable for conducting ASSS emergency operations.

ATTACHMENT 3

Indian Point Unit No. 2
Emergency Lighting Test/Walkdown Results

Attachment 3

Emergency Lighting Test/Walkdown Results

The test was organized in four parts as follows:

1) Auxiliary Feedwater Pump Building.
2) Primary Auxiliary Building (PAB).
3) Emergency Diesel Generator Control Panel.
4) Conventional Plant.

In all but a few cases during the test the lighting was adequate to allow operation of ASSS equipment and for access and egress to such equipment. Based on the judgement of the test personnel, additional lighting was found to be necessary in the PAB. Table 3-1 specifies the areas requiring additional emergency lighting installations. We expect to complete these installations by June 30, 1985. Testing of these emergency lights will be done subsequent to their installation. Additionally, during the test, certain emergency lighting did not function properly. These emergency lights, shown in Table 3-2, are currently being reviewed as part of routine maintenance activities and will be repaired and re-tested by the end of February, 1985. If it is determined that the lighting design is incorrect and additional installation or relocation is required, that work will be completed by June 30, 1985 and re-testing will be done subsequent to that installation or relocation work.

Table 3-1

Areas Requiring Additional Emergency Lighting Installations

	Location	Action to be Accomplished
1.	98' Elevation PAB by MCC 26A & MCC 26B	Operate Breaker for Valve 3100 (MWR* #17940)
2.	98' Elevation PAB by MCC 26A & MCC 26B	Operate Breaker for Valve 3101. (MWR #17940)
3.	Charging Pump Cells	Read FI-637 CCW to Charging Pumps. Operate Valve 288 (Suction from RWST) (MWR #17941)

Note:

* MWR = Maintenance Work Request

Table 3-2

Emergency Lighting Under Evaluation or Requiring Repairs

	Location	Action to be Accomplished
1.	80' Elevation, Fan House (EL-43)	Walk to 80' Airlock. (MWR* #17942)
2.	90' Elevation, Fan House Above the Recombiner (EL-42)	Read the following indications: 21 S/G Level, 22 S/G Level, Pressurizer Level, Pressurizer Pressure (MWR #17943)
3.	80" Elevation, PAB to Pipe Pen (EL-44)	Walkdown stairway 72' to Mezzanine (MWR #17944)
4.	53' Elevation, Turbine Hall East Side Column 14 (EL.25)	Walk from CCR to North East Stairwell. (MWR #17516)
5.	53' Elevation, Turbine Hall East Side Column 17 (EL-26)	Walk from CCR to North East Stairwell. (MWR #17516)
6.	15' Elevation. 480 volt Switchgear (above Deluge Valves) (EL-8)	Walk Past Deluge Valves. (MWR #16220)
7.	15' Elevation, Dock (On Light Pole) (EL-13)	Walk from Deicing Pumps to Unit 1 Screenwell Room Substation 12RW3. (MWR #17517)

Note:

* MWR= Maintenance Work Request