William J. Cahill, Jr.
Vice President

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May 5, 1980

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

Mr. A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Schwencer:

Enclosed please find the additional information you requested, in your letter of April 4, 1980, in order to continue your review of the control room habitability (item B.2 of Appendix A of the February 11, 1980 Confirmatory Order).

Very truly yours,

William J. Cahill, Jr.
Vice President

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INFORMATION NEEDED TO REVIEW CONTROL ROOM HABITABILITY
INDIAN POINT 2

1. Control Room Mode of Operation

Response
Radiological accident isolation

a) Pressurization

Response
See Table 3

b) Filter recirculation

Response
See Figure 1 (Drawing No. 9321-F-4050-3)

c) Chlorine or toxic gas

Response
None on site

2. Control Room Characteristics

Response
a) Combined air volume for the IP2/1 central control room is 103,400 cu ft.

b) Control room ventilation system schematic with normal and emergency air flow rates. See Figure 1 (Drawing No. 9321-F-4050-3).

c) Infiltration leakage rate

Response
See Table 3

d) HEPA and charcoal filter efficiencies.

Response
Control Room charcoal filters meet and exceed the requirements of the Regulatory Guide 1.52 Rev. 2 concerning charcoal filters.

The control room recirculation charcoal filters, which were replaced during the last refueling outage, were tested prior to installation and found to have a methyl iodide efficiency greater than 99%. The HEPA filters were tested by means of dioctyl phthalate (DOP) aerosol and found to have an efficiency greater than 99.6%.

e) Closest distance between containment building and air intake.

Response
170 ft. (315 ft. to stack effluent)

f) Layout of control room and air intakes.

Response
See Figure 2 (Drawing No. 138003-1), Figure 3 (Drawing No. 9321-F-4017-6), Figure 4 (138643-6)

Containment Building

Response
See Figure 5 (Drawing No. 9321-F-3013-27)

Stacks and vents

Response
See Figure 6 (Drawing No. 138009-1), Figure 7 (Drawing No. 9321-F-1319-4)

Chlorine storage facility

Response
We do not use gaseous chlorine at the site

g) Control room shielding including radiation streaming from penetrations, doors, ducts, stairways, etc.

Response
See Figure 8, Figure 9 (Drawing No. A214523-3), Figure 10 (Drawing No. A214524-1)

The ceiling over the Unit-1 part of the shared control room is poured concrete of 8" thickness. There are three HVAC penetrations for rectangular ducts of dimensions 26" x 13", 40" x 16", and 20" x 24".

The roof over the Unit-2 section consists of several layers of roofing and insulating materials. Additional shielding is provided by a slab of 1/2" steel armor plate installed for security reasons. There are two round roof-drain penetrations and a cluster of five conduits and pipe sleeves in a cricket of 1'-9" x 1'-5" overall dimensions.

The North wall is covered by several layers of material, of which the most important is a slab of 1/2" steel armor. There are no penetrations at control-room elevation.

The East wall of the Unit-1 part is formed by partitions which wall off two small rooms and a corridor. The exterior wall is a sandwich of insulation and sheet metal. There are no penetrations at control-room elevation.

The West wall of the Unit-1 part abuts the Unit-1 turbine-generator building, and the West wall of the Unit-2 part abuts the Unit-2 turbine building. The walls are formed by a series of partitions which form several small rooms. There is no West exterior wall belonging to the control rooms proper.

The South wall belongs to the Unit-1 part. It abuts the superheater building.

h) Automatic isolation capability damper closing time, damper leakage and area.

Response
Damper closing time and area. See Table 3 for damper leakage.

	Damper	Area (ft2)	Time to close (sec)
IP-1	D1 & D2	24.75	3
	D4	8.75	4
IP-2	A	2.35	3
	B	1	3
	E	1.5	3

All dampers, except E, are outside (to the environment) dampers. Damper E is inside the building at 72' el above control room.

i) Availability of chlorine detectors (local or remote)

Response
No chlorine detectors since there is no chlorine gas stored on site.

j) Availability of self-contained breathing apparatus.

Response
Eight (8) sets of self-contained breathing apparatus in Central Control Room with ten (10) extra bottles, of 1/2 hour each, to replace expended bottles of the sets.

k) Bottled air supply

Response
Forty two (42) bottles containing 250 cu.ft. at 2000 psig each. Used for filling self-contained apparatus referred to in 2J above.

l) Emergency food and water supply

Response
None

m) Control room personnel capacity-normal and emergency

Response
Normal - An average of three to five persons under normal conditions

Emergency - Minimum of four persons on a continuous basis. In addition, an average of two additional persons on a part-time basis.

3. On site storage of hazardous chemicals

Response
See Table 1

4. Offsite manufacturing, storage or transportation facilities of hazardous chemicals

1) Manufacturing - none within five miles

2) Storage - Liquid propane gas (LPG) is stored two miles from Indian Point in two containers of 8500 gallons each

3) Transportation - See Table 2

Table 1

CHEMICAL	QUANTITY	QUANTITY PER CONTAINER	DISTANCE* FROM CONTROL ROOM AIR INTAKE (Feet)
Carbon dioxide	64,000 SCFM Stored as Liquid	64,000 SCFM	550
Hydrogen	23,300 cu ft at 1500 PSI	1,165 cu ft at 1500 PSI	550
	23,300 cu ft at 1500 PSI	1,165 cu ft at 1500 PSI	400
Ammonia Hydroxide	55 gal	55 gal	400
Formalehyde	2250 gal	450 gal	525
Cyclohexylamine	55 gal	55 gal	400
Hydrazine	220 gal	55 gal	400
Sodium Hydroxide	500 gal	500 gal	1000
	4200 gal	4200 gal	1000
	10,000 gal	5,000 gal	700
Sulfric Acid	500 gal	500 gal	450
	10,000 gal	5,000 gal	700

*Shortest Vapor Path

Table 2

CHEMICAL	DISTANCE FROM CONTROL ROOM (miles)	TRANSPORTATION METHOD	QUANTITY	QUANTITY PER CONTAINER	FRFQUENCY OF TRANSPORT
Chlorine	.5 to 5	Rail	2000 tons/yr	Rail Tanker car	Unknown
Hydrogen Chloride	.5 to 5	Rail	500 tons/yr	Rail Tanker Car	Unknown
L.P.G./Propane	.5 to 5 .5 to 5	Truck Rail	2 million gal/yr 3 million gal/yr	Various Rail Tanker Car	Unknown Unknown
Sulfuric Acid	.5 to 5	Rail	9000 tons/yr	Rail Tanker Car	Unknown
Hydrogen Fluoride	.5 to 5	Rail	300 tons/yr	Rail Tanker Car	Unknown
Sulfuric Trioxide	.5 to 5	Rail	300 tons/yr	Rail Tanker car	Unknown
Nitric Acid	.5 to 5	Rail	625 tons/yr	Rail Tanker Car	Unknown
Natural gas	.25 to 5	Pipe line	Unknown	N/A	Continuous

Table 3

TEST MODE	DAMPERS	DAMPER LEAKAGE RATE (cfm)	CONTROL ROOM LEAKAGE (cfm)	CONTROL ROOM PRESSURE (in. H_2O GAUGE)
IP1 in recirc IP2 in recirc	IP1 D1 & D2 D4 IP2 A & B E	44 8 0 -(2)	112(1)	.075
IP1 OFF IP2 in recirc	IP1 D1 & D2 D4 IP2 A & B E	0 0 0 -(2)	23.5(1)	0
IP1 OFF IP2 on outside air filtered	IP1 D1 & D2 D4 IP2 A & B E	0 0 0 -(2)	39.6(1)	0
IP1 in recirc IP2 on outside air filtered	IP1 D1 & D 2 D4 IP2 A & B E	45.4 0 0(3) -(2)	66(1)	.075

(1) All leakage from 72' el above Control Room where the fans, ductwork, and air conditioning units are located.

(2) Damper E is located at 72' el above Control Room. Leakage through this Damper included in the corresponding "Control Room Leakage" value.

(3) Damper B is open. Leakage across A is zero.