William J. Cahill, Jr
Vice President

Consolidated Edison Company of New York, Inc.
4 Irving Place, New York, N Y 10003
Telephone (212) 460-3819

REGULATORY DOCKET FILE COPY

March 31, 1977
Re: Indian Point Unit No. 3
Docket No. 50-286

Director of Nuclear Reactor Regulation
ATTN: Mr. Robert W. Reid, Chief
Operating Reactors Branch # 4
Division of Operating Reactors
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Reid:

On September 20, 1976, we forwarded to you a partial response to your August 12, 1976 information request relating to the effects degraded grid voltage may have on plant operation. In addition, by letter dated December 17, 1976, we informed you that vendor data necessary to complete our response to your inquiry had not yet been received. At this time the following additional information is available.

Preliminary analyses using conservative bus loading data indicate that for anticipated contingency offsite system voltage variations, safety related bus voltages remain within standard manufacturers' tolerances (±10%). Further analysis is ongoing to verify operability of specific components at the trip setpoints of the plant's undervoltage relays (≈80%). The valve operator manufacturer is presently reviewing component identification data (serial and catalog numbers) to verify voltages at which valve operators will remain operative. Field surveys were conducted to obtain this input data for the approximately 75 valves identified for evaluation. It is anticipated that the results of this review will be available within the next 2 months. Identification data for motor control center contactors are not available at this time because the contactors are inaccessible while the plant is operating. It is planned to obtain this data during the scheduled Indian Point Unit No. 2 outage in April, 1977. The Indian Point Unit No. 2 data results should be applicable to Indian Point Unit No. 3 due to the design similarities of the two plants.

7709140258

Upon obtaining a schedule for manufacturer's review of the contactor data, a schedule for completion of our study will be prepared and forwarded to you. It is anticipated that we will be able to provide you with this schedule by early June, 1977.

Very truly yours,

William J. Cahill, Jr.
Vice President

copy to: Mr. George T. Berry
General Manager and Chief Engineer
Power Authority of the State of New York
10 Columbus Circle
New York, N.Y. 10019

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

F121

March 28, 1977

Dockets Nos. 50-247
and 50-286

Consolidated Edison Company
of New York, Inc.
ATTN: Mr. William J. Cahill, Jr.
Vice President
4 Irving Place
New York, New York 10003

Gentlemen:

RE: INDIAN POINT UNITS NOS. 2 AND 3

In our review of reports submitted by licensees concerning malfunctions of diesel generators, we find that in some cases the information available to the control room operator to indicate the operational status of the diesel generator may be imprecise and could lead to misinterpretation. This can be caused by the sharing of a single annunciator station by alarms that indicate conditions that render a diesel generator unable to respond to an automatic emergency start signal and alarms that only indicate a warning of abnormal, but not disabling, conditions. Another cause can be the use of wording on an annunicator window that does not specifically say that a diesel generator is inoperable (i.e., unable at the time to respond to an automatic emergency start signal) when in fact it is inoperable for that purpose.

We, therefore, request that you review the alarm circuitry and diesel generator control circuitry for the diesel generators at your facility to determine how each condition that renders a diesel generator unable to respond to an automatic emergency start signal is alarmed in the control room. These conditions include not only the trips that lock out the diesel generator start and require manual reset, but also control switch or mode switch positions that block automatic start, loss of control voltage, insufficient starting air pressure or battery voltage, etc. This review should consider all aspects of possible diesel generator operational conditions, for example test conditions and operation from local control stations. One area of particular concern is the unreset condition following a manual stop at the local station which terminates a diesel generator test prior to resetting the diesel generator controls for enabling subsequent automatic operation.

Please respond within 45 days of your receipt of this letter by providing the following information:

(a) all conditions that render the diesel generator incapable of responding to an automatic emergency start signal as discussed above;

(b) the wording on the annunicator window in the control room that is alarmed for each of the conditions identified in (a);

(c) any other alarm signals that also cause the same annunicator to alarm;

(d) any condition that renders the diesel generator incapable of responding to an automatic emergency start signal which is not alarmed in the control room; and

(e) any proposed modifications resulting from this evaluation.

Sincerely,

M. B. Fairtile for

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

cc: See next page

Consolidated Edison Company
of New York, Inc.

cc: Mrs. Kay Winter, Librarian
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Empire State Plaza
Albany, New York 12223

William J. Cahill, Jr.
Vice President

Consolidated Edison Company of New York, Inc.
4 Irving Place, New York, N Y 10003
Telephone (212) 460-3819

RECEIVED
MAR 25 1977
U.S. NUCLEAR REGULATORY COMMISSION
Mail Section

March 21, 1977

Re: Indian Point Unit Nos. 2 and 3
Docket Nos. 50-247 and 50-286

Regulatory Docket File

Director of Nuclear Reactor Regulation
ATTN: Mr. Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Reid:

As requested by your letter of January 17, 1977, we have performed a detailed evaluation of the potential consequences of a postulated refueling accident inside the vapor containment building. A description of the analyses that were performed, and the results of the analyses, are attached to this letter.

Should you or your staff have any further questions concerning this postulated accident or our evaluation of the potential consequences, we would be pleased to discuss them with you at your convenience.

Very truly yours,

William J. Cahill, Jr.
Vice President

Attachments

7708404O7

ANALYSIS OF A POSTULATED REFUELING ACCIDENT INSIDE THE CONTAINMENT BUILDING

Indian Point Units 2 and 3
Docket Nos. 50-247 and 50-286

March, 1977

INTRODUCTION

A postulated drop of a fuel assembly in the reactor cavity was analyzed in the Final Safety Analysis Reports (FSAR), for Indian Point Units 2 and 3. The assumptions used in these analyses are described in Section 14.2 of the FSARs. The results of the analyses indicated that the releases following a postulated fuel handling accident inside the Vapor Containment Building (VCB) were substantially less than the 10 CFR Part 100 limits.

By letter, dated January 17, 1977, the NRC requested a detailed evaluation of the potential refueling accident inside the Vapor Containment Building of Indian Point Units 2 and 3, using the assumptions specified in Regulatory Guide 1.25, "Assumptions Used for Evaluating the Potential Radiological Consequences of a Fuel Handling Accident in the Fuel Handling and Storage Facilities". To comply with this request, the analyses that were performed in the FSARs were reviewed and a detailed reanalysis of the postulated accident has been performed.

DESCRIPTION OF ANALYSES

The possibility of a fuel handling accident is very remote because of many administrative controls and physical limitations that are imposed on fuel handling operations.

In the unlikely event that a refueling accident should occur in the Vapor Containment Building, a variety of equipment will assure exposure guidelines set forth in 10 CFR Part 100 are not exceeded. The first constraint on the releases is the building itself. The VCB is designed to contain any potential radiological release from the reactor and associated systems located within the building. To accomplish this function, the structure is designed such that all pathways to the outside can be isolated and made airtight.

In addition, all exhausts from the VCB Ventilation System and the VCB Pressure Relief System are expelled through in-line high efficiency particulate (HEPA) and charcoalbed filter systems and are released through the plant vent. There is no bypass around the HEPA and charcoalbed filters.

The Technical Specifications for both Units 2 and 3 require that the containment ventilation and purge systems including the radiation monitors which initiate VCB ventilation isolation, be tested and verified to be operable prior to the start of refueling operations. In addition, the Technical Specifications require that the equipment door and at least one door in each personnel air lock be properly closed. At least one isolation valve in each line penetrating the containment which provides a direct path from containment atmosphere to the outside must also be operable or locked closed. No path exists, therefore, which is not closed or cannot be quickly isolated either locally or remotely.

The Technical Specifications for both Units also requires that radiation levels inside the containment be continuously monitored during refueling operations. The following instrumentation can be used to provide this monitoring function:

1. <u>Channel R-11 Containment Air Particulate Monitor</u>

This monitor measures air particulate radioactivity inside the containment building. A continuous sample is taken from the inlet of two recirculation air filtration units located on diametrically opposite sides of the containment building. On a high radiation indication, the channel will alarm in the Central Control Room and will automatically indicate closure of the containment purge supply and exhaust duct valves, and pressure relief line valves.

2. Channel R-12 Containment Radio-Gas Monitor

This channel measures radio-gas activity of the air sampled by Channel R-11. Sampling for this channel is also continuous. On a high radiation level indication, this channel will also alarm in the Central Control Room and initiate containment ventilation and purge system isolation.

3. Channel R-13 Plant Vent Air Particulate Monitor

This channel measures air particulate radioactivity sampled from the 105 foot elevation of the plant vent. Sampling is done continuously. On a high radiation indication, this channel alarms in the Central Control Room.

4. Channel R-14 Plant Vent Radio-Gas Monitor

This channel measures radio-gas activity at the 105 foot elevation of the plant vent. The activity is monitored continuously. On a high radiation indication, this channel alarms in the Central Control Room.

5. Channel R-2 Containment Area Radiation Monitor

This monitor is located at the 80 foot elevation in the Containment Building. The detector will alarm in the Central Control Room on a high radiation indication.

6. Channel R-7 In-Core Instrument Room Area Radiation Monitor

This monitor is located at the seal table inside the Containment Building. The detector will alarm in the Central Control Room on a high radiation indication.

7. Local Radiation Monitors

During refueling operations, air particulate and radio-gas radiation monitors are installed inside the Containment Building near where fuel movement is being made. The monitors alarm locally on a high radiation indication.

The Technical Specifications for both Indian Point Units 2 and 3, also require that direct communication between the Central Control Room and the refueling cavity manipulator crane be available at all times whenever fuel is being moved in the VCB. Should a refueling accident take place in the VCB, containment isolation would be initiated immediately by the operators in the Central Control Room. This action would assure that all potential paths from the VCB to the outside atmosphere are closed and the building is leak-tight. All systems required to assure this isolation capability of the VCB are designed to meet safeguards equipment standards. This equipment is also designed to withstand the seismic loads for which all safeguards equipment is designed. In addition, this equipment is designed to withstand any single failure and still perform its required function.

To assure conservatism, no automatic or operator action to initiate VCB isolation is assumed to take place for 10 minutes following the postulated refueling accident. The gaseous releases resulting from this postulated accident are assumed to escape from the VCB through the building vent and purge systems for this 10 minute period. No releases to the outside of the VCB are assumed to occur other than that which is passed through the building ventilation and purge systems. Should a VCB isolation valve fail to close when the isolation signal is initiated, indicating lights in the Central Control Room will alert the operator to the problem. Action could then be taken to assure that VCB isolation has been achieved. Potential releases through paths other than the purge and ventilation exhaust ducts would be precluded by the tortuous routes, the interposing fluid systems and the restricted flow paths that exist and that would have to be overcome before an outside release could take place.

ASSUMPTIONS MADE FOR THE ANALYSES

The assumptions made in performing these analyses of a postulated refueling accident inside the VCB, conform with the positions that are outlined in Regulatory Guide 1.25. The assumptions which are described in Regulatory Guide 1.25, are as follows:

1. The postulated accident is assumed to occur at the earliest time after reactor shutdown at which fuel movement is permitted to occur. Section 3.8 of the Technical Specifications for Indian Point Units 2 and 3 require that no movement of the fuel shall take place until the reactor has been subcritical for at least 90 and 100 hours respectively. The postulated accident is assumed to occur at these times.

2. The values assumed for individual fission product inventories are calculated assuming full power operation at the end of core life immediately preceeding shutdown. The saturation inventories and dose conversion factors used are as presented in TID-14844. A peaking factor of 1.65 was used to determine these inventories.

3. Gap iodine activity is assumed to be 10% of the total saturation inventory in the fuel rod. All of the gap activity in the damaged rods is assumed to be released.

4. Iodines released from the pool are considered to consist of 75% inorganic and 25% organic forms of iodine.

5. The effective pool decontamination factors (DFp) for the pool is taken to be 100. Studies performed in Section 14.2 of the Indian Point Unit 2 and 3 FSARs to determine the activity release characteristics following a postulated fuel handling accident indicate that this value for DFp is very conservative. Decontamination factors five to ten times greater are expected as a result of the "scrubbing" effect of the water. In the interest of complying with the Regulatory Guide, however, the lower, more conservative value for DFp was used in the analyses.

6. The radioactive material is assumed to disperse in the building so that the release rate from the building is equivalent to a uniform release of all of the activity over a two hour period.

7. The conservative assumptions for atmospheric diffusion outlined in Regulatory Guide 1.25 were used in the analyses. The calculations were based on a Pasquill diffusion category F, and a uniform wind direction. In addition, a conservatively small wind velocity of 0.7 m/sec., was assumed.

8. The conservative assumptions outlined in Regulatory Guide 1.25 for determining approximations of thyroid dose from inhalation of released radioactive iodine were followed.

In addition to the assumptions outlined in Regulatory Guide 1.25 and described above, additional conservatisms were used in calculating potential radiation release following the postulated accident. These additional conservative assumptions are as follows:

1. All rods in the damaged assembly are assumed to be ruptured in the accident such that the entire gap iodine inventory for the assembly is released.

2. Closure times for the VCB ventilation isolation valves are required to be 2 seconds or less. Section 3.8 of the Technical Specifications for both Units 2 and 3, require that these valves be tested and verified to be operable along with the rest of the containment vent and purge system prior to refueling operations. Consequently, there is assurance that the valves will close within the required time if required to do so. For the purposes of the release analyses, no activation of the valves is assumed for 10 minutes following the postulated accident.

3. Releases from the VCB through the building ventilation and purge systems were assumed to begin immediately following the postulated accident at the rate specified by Regulatory Guide 1.25. In fact, the VCB is a very large building and the exhaust ports for the ventilation and purge systems are located in different areas and

on different levels in the VCB than the point of release at the surface of the refueling pool from the postulated failed fuel assembly. The radioactive gases from the postulated refueling accident will actually take a number of minutes to reach the ventilation and purge exhaust ducts.

4. No plate-out of the gaseous iodine is assumed to occur within the ventilation and purge exhaust ducts.

5. HEPA and charcoalbed filters are installed in the VCB ventilation and purge exhaust ducts such that all flow must pass through them. However, no credit for decontamination of the postulated gaseous releases by the filters is assumed.

6. No credit is taken for the operation of charcoal filtration systems located within the VCB. The following such charcoal filter systems could be available to remove iodine from a postulated refueling accident inside the VCB.

   a. <u>In-Containment Air Recirculation Cooling and Filtration System</u>

      There are five fan cooler - charcoal filtration units inside the Containment Building. Each of these cooler - filter units contains in excess of about 500 pounds of activated impregnated charcoal and can be used to remove iodine that could be released from a fuel handling accident inside the Containment Building. When operated, the charcoal in each unit will filter 8000 cubic feet of air per minute.

   b. <u>Kidney Filtration System</u>

      Two kidney filter units are located inside the VCB. These filter units are designed to remove gaseous iodine from the containment building and have individual capacities of 8000 cubic feet of air per minute.

7. No credit has been assumed for the continuous decay of radioactive gases released following the postulated refueling accident.

8. No credit is taken in the atmospheric diffusion calculations for elevated release points from the plant. A ground level release is assumed.

RESULTS OF THE ANALYSES

The calculated offsite limiting doses were found to be a small fraction of the 10 CFR Part 100 Guidelines. For Indian Point Unit 2, the maximum offsite thyroid dose was calculated to be 22.01 Rem. For Indian Point Unit 3, this dose was calculated to be 37.82 Rem.

No facility equipment changes, or changes to the Technical Specifications are required at either Unit to assure that these very conservatively calculated offsite consequences of a postulated refueling accident are well within the 10 CFR Part 100 exposure guidelines over the facility lifetime. Actually, should such an accident occur, it is very unlikely that any offsite exposures at all would result.

For the purposes of these analyses, many "worse case" and overly conservative assumptions have been made. These assumptions make the calculation of conservative values for the releases following a postulated refueling accident inside the VCB easier to determine. Because the doses resulting from these calculated releases are so small compared with the regulation limits, no attempt has been made to determine more realistic dose rates at this time.

Con Edison
Consolidated Edison Company of New York, Inc.
4 Irving Place, New York, N Y 10003

50-3/247/286

Indian Point Station

March 15, 1977
File No. 4-879a

Mr. Peter A. A. Berle, Commissioner
New York State Department of
Environmental Conservation
Albany, New York 12201

Dear Mr. Berle:

Attached is the data specified in Section 401 Certification, for the month of February, 1977.

Very truly yours,

CONSOLIDATED EDISON COMPANY
OF NEW YORK, INC.

Edward F. Kessig

Edward F. Kessig
Acting Manager
Nuclear Power Generation Dept.
Indian Point Station
Buchanan, New York 10511

ANF/daf

cc/ Mr. Gerald M. Hansler
Mr. Ben C. Rusche
Mr. James P. O'Reilly
Mr. John Blake

770870223

SPECIES CODE LIST

01 Alewife
02 Bay Anchovy
03 American Shad
04 Bluefish
05 Bluegill
06 Brown Bullhead
07 Pumpkinseed
08 Black Crappie
09 Carp
10 American Eel
11 Goldfish
12 Golden Shiner
13 Hogchocker
14 Tessellated Darter
15 Banded Killifish
16 Emerald Shiner (Notropis anthernoides)
17 Largemouth Bass
18 Mummichog
19 Atlantic Menhaden
20 Minnow Unidentified
21 Chain Pickerel
22 Blueback Herring
23 White Sucker
24 Atlantic Silverside
25 Rainbow Smelt
26 Smallmouth Bass
27 Shortnose Sturgeon
28 Spottail Shiner (Notropis hudsonius)
26 Smallmouth Bass
27 Shortnose Sturgeon
28 Spottail Shiner (Notropis hudsonius)
28 Spottail Shiner (Notropis hudsonius)
29 Atlantic Sturgeon
30 Striped Bass
31 Fourspine Stickleback
32 Atlantic tomcod
33 Unidentified at time of capture
34 White Catfish
35 White Perch
36 Yellow Perch
37 Satinfin Shiner (Notropis analostanus)
38 Rock Bass
39 Northern Pipefish
40 Redbreast Sunfish
41 Atlantic Needlefish (Silver Gar)
42 Crevalle jack
43 Silvery Minnow
44 Fallfish
45 Weakfish
46 Comely Shiner (N. amoenus)
47 Common Shiner (N. cornutus)
48 Mimic Shiner (N. volcellus)
49 Lookdown
50 Clupeid Unidentified
51 Clupeid Larvae
52 Morone Larvae
53 Grass Pickerel
54 Sea Horse
55 Logperch
56 Trout Perch
57 Northern Hogsucker
58 Fathead Minnow
59 Cyprinid, Unidentified
60 Morone (Unidentified)
61 Redfin Pickerel
62 Tautog
63 Four Bearded Rockling
64 Striped Cuskeel
65 Centrarchidae Larvae
66 King Fish
67 Spot
68 Moonfish
69 Brook Stickleback
70 Sturgeon Unidentified
71 Northern Porgy
72 Winter lounder
73 Tidewater Silverside
74 Sea Lamprey
75 Gizzard Shad
76 Silver Hake
77 Striped Mullet
78 Threespine Stickleback
76 Silver Hake
77 Striped Mullet
78 Threespine Stickleback
78 Threespine Stickleback
79 Brown Trout
80 Butterfish
81 White Crappie
82 Brook Trout
83 Northern Pike
84 Green Sunfish
85 Silver Perch
86 Northern Puffer
87 Blacknose Dace
88 Bridle Shiner (N. bifrenatus)
89 Cyprinidae I
90 Cutlips Minnow
91 Yearling Striped Bass
92 Yearling Blueback Herring
93 Yearling American Shad
94 Yearling Alewife
95 Yearling White Perch
96 Centrarchid Unidentified
97 Spotfin Shiner
98 Squirrel Hake, Red Hake (U. chuss)
99 Others

CHEMICAL DISCHARGES

Feb. 1977

DATE	ppm Boron	ppm LiOH	DATE	ppm Boron	ppm LiOH
1	0.01	$<1\times10^{-4}$	16	0.01	$<1\times10^{-4}$
2	0.02	↓	17	0.01	↓
3	0.01		18	0.01	
4	0.02		19	0.01	
5	0.01		20	0.01	
6	0.02		21	0.01	
7	0.01		22	0.01	
8	0.02		23	0.01	
9	0.01		24	<0.01	
10	0.01		25	<0.01	
11	0.02		26	0.01	
12	0.02		27	0.01	
13	0.02		28	0.01	
14	0.02				
15	0.02				

NOTES: (1) The Boron and LiOH concentrations were calculated by the following formula:

$$\text{Diluted ppm} = \frac{(\text{ppm of tank})\ (\text{gpm. Disch. Rate})}{100{,}000\ \text{gpm}^*}$$

*In many cases the recirculation water flow was much greater than the 100,000 gpm used in the calculation.

CHEMICAL DISCHARGES

Feb. , 19 77

	DATE Feb. 2		DATE Feb. 9		DATE Feb. 16		DATE Feb. 23	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT
pH	7.6	7.5	7.7	7.6	7.4	7.4	7.5	7.5
CHROMIUM mg/l	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005
BORON mg/l (1)	0.16	0.21	0.20	0.20	0.30	0.30	0.13	0.16
PHOSPHATE mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
HYDRAZINE mg/l	<.003	<.003	<.003	<.003	.008	.008	<.003	<.003
CYCLOHEXYLAMINE mg/l (2)								
LITHIUM HYDROXIDE mg/l (1)								
CHLORINE mg/l (3)								
TOTAL SUSPENDED SOLIDS mg/l	<20	<20	<20	<20	22	42	28	31
DISSOLVED OXYGEN mg/l	>15	12.8	12.0	9.2	13.2	10.2	14.2	11.2

NOTES:
(1) Boron and LiOH results are attached.
(2) Cycle hexylamine is no longer used at Indian Point.
(3) No chlorinations performed during the month of February, 1977.

Unit No. 2 Electrical Output

Date	Kilowatts Minimum	Kilowatts Maximum	Kilowatts Avg.	Gross Kilowatt Hrs.
1	0	875000	573750	13770000
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	905000	325417	7810000
7	760000	890000	865000	20760000
8	880000	890000	872917	20950000
9	0	890000	617917	14830000
10	0	880000	679583	16310000
11	810000	865000	839167	20140000
12	850000	860000	834167	20020000
13	855000	880000	836250	20070000
14	0	760000	260417	6250000
15	780000	885000	858750	20610000
16	880000	885000	871250	20910000
17	870000	880000	861250	20670000
18	620000	880000	738333	17720000
19	700000	880000	835417	20050000
20	870000	885000	867500	20820000
21	870000	880000	867083	20810000
22	870000	880000	865417	20770000
23	850000	880000	860833	20660000
24	725000	880000	851667	20440000
25	670000	870000	804583	19310000
26	680000	860000	747083	17930000
27	845000	870000	550833	20420000
28	840000	875000	870000	20880000

Unit No. 3 Electrical Output

Date	Kilowatts Minimum	Kilowatts Maximum	Kilowatts Avg.	Gross Kilowatt Hrs.
1	910000	910000	905000	21720000
2	910000	910000	908333	21800000
3	910000	910000	907917	21790000
4	910000	910000	908750	21810000
5	910000	910000	912083	21890000
6	910000	910000	912500	21900000
7	910000	910000	910000	21840000
8	910000	1000000	967500	23220000
9	900000	995000	903750	21690000
10	910000	910000	905417	21730000
11	910000	910000	912083	21890000
12	910000	910000	911667	21880000
13	910000	910000	908333	21800000
14	910000	910000	907917	21790000
15	910000	910000	910000	21840000
16	910000	910000	908333	21800000
17	910000	910000	908750	21810000
18	910000	910000	906250	21750000
19	910000	910000	906250	21750000
20	0	910000	543333	13040000
21	460000	880000	781667	18760000
22	870000	880000	873333	20960000
23	880000	910000	882083	21170000
24	910000	910000	911250	21870000
25	850000	910000	895000	21480000
26	700000	910000	778333	18680000
27	910000	910000	908750	21810000
28	910000	910000	909583	21830000

SITE THERMAL DISCHARGES

DATE	Inlet MIN.	Inlet MAX.	Inlet AVG.	Outlet MIN.	Outlet MAX.	Outlet AVG.
1	31.6	37.0	35.1	51.0	76.0	66.3
2	32.0	35.0	34.8	49.0	71.5	61.8
3	32.1	36.2	34.9	65.0	79.2	72.2
4	31.8	37.1	34.4	76.0	79.3	77.3
5	32.2	35.8	34.6	46.5	78.2	61.3
6	32.3	35.5	34.9	46.5	66.0	55.4
7	32.0	36.8	35.0	64.2	68.2	65.8
8	31.7	35.8	34.8	65.5	71.2	67.7
9	31.9	36.2	32.9	51.2	74.4	64.2
10	32.0	38.3	33.5	50.5	71.2	65.2
11	31.8	36.2	33.5	65.5	70.2	67.8
12	32.3	37.5	34.1	66.9	70.6	68.9
13	32.5	39.8	35.1	63.2	69.0	65.6
14	33.0	36.0	34.2	48.5	65.0	56.3
15	52.8	37.8	34.5	63.7	69.0	66.1
16	32.4	36.0	33.6	63.0	66.2	64.4
17	32.6	37.1	34.2	62.8	69.2	67.7
18	32.0	37.0	33.8	58.3	69.3	63.4
19	32.8	36.9	33.9	49.2	70.3	65.3
20	32.5	36.4	34.2	48.6	68.9	67.2
21	32.4	36.9	33.9	49.4	70.2	67.3
22	32.4	37.0	34.6	68.5	72.3	71.2
23	32.5	36.3	34.1	64.0	72.2	67.9
24	32.8	37.3	35.0	63.8	69.7	66.4
25	33.0	43.0	35.7	68.0	78.0	72.0
26	33.1	40.5	35.8	67.0	77.0	73.0
27	33.0	37.5	34.5	63.8	70.8	67.7
28	33.6	40.2	35.0	63.8	70.0	66.1

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

DATA SHEET

NO

DATE February 1977

LOCATION Indian Point Station

PREPARED BY

SUBJECT

Daily Fish Counts From Intake Screens
Unit No. 2

Date	05	06	07	10	11	12	15	18	25	27	28	29	30	32	34	36	35	72	74	75	78	96	Total Number	Total WT. (Lbs)
1			8			1	1		12		14		70	6	4		7564			1	2		7683	67.0
2			1		1		2		3		9		28	1	6		2105			4	1		2161	38.6
3*	NO COUNT - ALL CIRCULATORS OFF																						----	----
4*	NO COUNT - ALL CIRCULATORS OFF																						----	----
5			1						2				18				936						957	16.4
6	1										4		9	2			698				1		715	10.5
7			1	2					1		1		12	3	2		1663						1685	47.2
8			2		1				2		4		29	3	7		2502						2550	63.1
9*			4			1	2		11		9		52	1	4		4708			1			11663	108.1
10**																							5430	----
11**																							7100	----
12**																							2490	----
13**																							2649	----
14**																							8750	----
15**																							4936	----
16**																							4120	----
17**																							3080	----
18**																							4430	----
19**																							5300	----
20**																							5480	----
21		1	3	1	2	1			97		49		169	40	11	1	11702			1	1	3	12082	153.9
22			12	1	3		2	1	43		50		169	46	24	1	11611			2	2	1	11968	168.2
23		1	5	1	1	3	2		65	1	43	1	260	42	18	2	28901		1		2	1	29350	421.4
24			3	1	1				58		6		153	22	12		35738				1		35995	497.9
25			10	2	1				139		25		191	12	14		23490	1		1	3		23889	339.7
26			5	2	2		1		20		12		47	7	9		3814				2		3921	84.3
27			10	1					19		11		22	16	13		1879			1	1		1973	40.2
28			5	1					9		12		22	10	8	1	1584				4		1656	26.2
TOTALS	1	2	70	12	12	6	10	1	481	1	249	1	1251	211	132	5	138895	[illegible]	1	11	20	5	202013	2082.7

*TOTAL NUMBER DERIVED FROM TWO SCREEN WASHINGS, ONE AN EXACT COUNT OF 4793, THE OTHER AN ESTIMATE OF 6870. WEIGHT SHOWN IS ONLY FOR WEIGHT OF EXACT COUNT.

**ESTIMATE, NO WEIGHTS GIVEN. (AN OIL SPILL NORTH OF INDIAN POINT MADE IT IMPOSSIBLE TO IDENTIFY AND QUANTIFY INDIVIDUAL SPECIES OF FISH)

SEE ATTACHED SHEET FOR SPECIES IDENTIFICATION.

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

DATA SHEET

NO.
DATE February 1977
LOCATION Indian Point Station

PREPARED BY

SUBJECT

Daily Fish Counts From Intake Screens
Unit No. 3

Date	05	07	10	11	12	15	17	18	25	28	30	32	34	36	35	75	78		Total Number		Total WT(Lbs)	
1		1	2			1			3	1	27		1		301	1			338		10.9	
2		5				1				1	9				313	1			330		5.8	
3											2				90				92		2.3	
4			1						3	1	20	2			509	4			540		15.2	
5											20	5	3		324	1			353		10.6	
6											4	1			171	1			177		5.9	
7*																			620		----	
8*																			1200		----	
9*																			1500		----	
10*																			2412		----	
11*																			2100		----	
12*																			3360		----	
13*																			3401		----	
14*																			7905		----	
15*																			6940		----	
16*																			5070		----	
17*																			4320		----	
18*																			2870		----	
19*																			2900		----	
20*																			6930		----	
21*																			6300		----	
22*																			4800		----	
23						1			7	3	92	1	14		6111	1	1		6231		60.2	
24		3				1	1	1	22	4	104	1	24		10028	3	1		10193		108.0	
25	2	9	2	1	1				18	3	87	1	14	1	7078	2	1		7220		80.8	
26		3							3	1	29	4	6		1392	1			1439		21.2	
27		6	3		1	1	+		2	2	19	3	18		860	1	1		917		13.3	
28		7	2					1	6	2	12	5	4		884	1	1		925		10.1	
TOTALS	2	34	10	1	2	5	1	2	64	18	425	23	84	1	38061	17	5		91383		344.3	

*Estimate, No Weights Given (AN OIL SPILL NORTH OF INDIAN POINT MADE IT IMPOSSIBLE TO IDENTIFY AND QUANTIFY INDIVIDUAL SPECIES OF FISH)

SEE ATTACHED SHEET FOR SPECIES IDENTIFICATION

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

DATA SHEET

NO. ______

DATE February 1977

LOCATION Indian Point Station

PREPARED BY ______

SUBJECT

River Water Discharges By Circulator*
Unit No. 2

DATE	#21 ON	#21 OFF	#21 HRS	#22 ON	#22 OFF	#22 HRS	#23 ON	#23 OFF	#23 HRS	#24 ON	#24 OFF	#24 HRS	#25 ON	#25 OFF	#25 HRS	#26 ON	#26 OFF	#26 HRS	AVG. TOTAL UNIT DISCHARGE, GPMx10^3
1			24	1030		13^{30}			0			24			24			24	403.0
2			24		0457	4^{57}			↓		0620	6^{20}		0820	8^{30}		0820	8^{20}	202.2
3		0835	8^{35}			0						0			0			0	50.2
4			0			0						0			0			0	20.0
5	0600		18^{00}	1245		11^{15}						11^{15}	1245		11^{15}	1245		11^{15}	241.0
6			24			24						24			24			24	440.0
7			↓			↓						↓			↓			↓	440.0
8																			440.0
9					1135	11^{35}													396.3
10	2225	2105	22^{40}	1355	2230	8^{35}							2035	1734	20^{59}				370.3
11			24			0									24				356.0
12			↓			0									↓				356.0
13				0325		20^{35}													428.2
14					1200	12^{00}													398.0
15				0500		19^{00}													422.4
16						24													440.0
17						↓										1905	1900	23^{55}	↓
18																		24	
19																		↓	
20																			
21																			
22																			
23																			435.0
24		1737	17^{37}																412.3
25			0										2243	1850	20^{02}		2300	23^{00}	338.3
26			0												24	1415		9^{45}	306.4
27	1423		9^{37}												↓			24	389.6
28			24															24	440.0

*ALL OPERATING CIRCULATORS AT 60% FLOW (84,000 GPM)

2-39 (pad) 1/74 Const.

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

DATA SHEET

NO.

DATE February 1977

LOCATION 'Indian Point Station

PREPARED BY

SUBJECT

River Water Discharges By Circulator*
Unit No. 3

	#31			#32			#33			#34			#35			#36			
DATE	ON	OFF	HRS	ON	OFF	HRS	ON	OFF	HRS	ON	OFF	HRS	ON	OFF	HRS	ON	OFF	HRS	AVG. TOTAL UNIT DISCHARGE, $GPMx10^3$
1			24			24			0			24			24			24	435.0
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			
16																			
17																			
18																			
19																			
20					0558	5^{58}													372.0
21						0													351.0
22						0													351.0
23				1845		5^{15}													369.5
24						24													365.0
25					1620	16^{20}													408.1
26				1455 1947	1655 2032	4^{26}													366.1
27				2210		24													435.0
28						24													435.0

*ALL OPERATING CIRCULATORS AT 60% FLOW (84,000 GPM)

2-39 (pad) 1/74 Const.

William J. Cahill, Jr.
Vice President

Consolidated Edison Company of New York, Inc.
4 Irving Place, New York, N Y 10003
Telephone (212) 460-3819

March 8, 1977

Regulatory Docket File

RE: Indian Point Units Nos.1, 2 & 3
Docket Nos. 50-03
50-247
50-286

Director of Nuclear Reactor Regulation
ATTN: Mr. Robert W. Reid, Chief
Operating Reactors Branch No.4
Division of Operating Reactors
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

The attached pages correct typographical errors in our Quality Assurance Program description dated February 22, 1977 and submitted by letter dated March 1, 1977.

Page ii corrects the date of revision 1 of Regulatory Guide 1.64.

Page A-23 adds item #52 inadvertently omitted from the previous issue.

Please replace the corresponding pages in the program description previously submitted.

Very truly yours,

William J. Cahill, Jr.
William J. Cahill, Jr.
Vice President

attachments

cc - George T Berry
General Manager and Chief Engineer
Power Authority of the State of New York
10 Columbus Circle
New York, N. Y. 10019

NRC Regulatory Guides (Cont'd)

1.54	"Quality Assurance Requirements for Protective Coatings Applied to Water-Cooled Nuclear Power Plants," June, 1973
1.58	"Qualification of Nuclear Power Plant Inspection, Examination, and Testing Personnel," August, 1973
1.64	"Quality Assurance Requirements for the Design of Nuclear Power Plants," Revision 1, February, 1975
1.74	"Quality Assurance Terms and Definitions," February, 1974
1.88	"Collection, Storage and Maintenance of Nuclear Power Plant Quality Assurance Records," August, 1974
1.94	"Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete and Structural Steel during the Construction Phase of Nuclear Power Plants," April, 1975

A majority of these ANSI standards give QA programmatic control for the design and/or construction phases of nuclear power plants. Accordingly, Con Edison has, where practicable, adapted these standards' requirements to the operations phase of its nuclear power plants and has developed provisions for certain operations phase conditions not addressed in these standards.

Where any discrepancies exist between this program description and the requirements of the above ANSI Standards and Regulatory Guides, the requirements of the ANSI Standards and associated Regulatory Guides shall prevail as modified by Table "A".

TABLE A

Item No.	Regulatory Guide/ANSI Std. Reference	Requirement	Interpretation/Alternate/ Exception
51.	ANSI N45.2.9 Section 6.2	Requires a "Facility" or duplicate records.	Non-permanent records need not be duplicated or stored in a "Facility" but are required to be stored per NFPA Class I record provisions.
52.	ANSI N45.2.9	"Storage system shall provide for the accurate retrieval of information without undue delay."	In accordance with Draft ANSI N45.2.9, paragraph 6.2, October 1976, the storage system shall provide for the accurate retrieval of information.
53.	Regulatory Guide 1.88	"When NFPA 232-1975 is used, Quality Assurance Records should be classified as NFPA Class I Records".	When a single record storage facility is maintained, permanent (lifetime) records will be afforded fire protection in accordance with NFPA Class I record provisions. Fire protection in accordance with NFPA Class 2 or NFPA Class 3 provisions shall be provided for records designated as non-permanent.
54.	ANSI N45.2.9 Section 5.6	"An alternative to... a record storage facility... is...duplicate records stored in a separate remote location."	Our duplicate records may be stored in separate rooms distant from one another but within the same building providing their simultaneous exposure to hazards is unlikely.