ATTACHMENT A

Instruction Sheet

Remove	Insert
Pg. 3.7-1/3.7-2	Pg. 3.7-1/3.7-2
Pg. 3.7-3/3.7-4	Pg. 3.7-3/3.7-4
Pg. 3.7-5	Pg. 3.7-5/3.7-6
Table 4.1-2 Sheet 2/ Table 4.1-3, Sheet 1	Table 4.1-2, Sheet 2/ Table 4.1-3, Sheet 1
Pg. 4.4-3/4.4-4	Pg. 4.4-3/4.4-4
Pg. 4.4-9/4.4-10	Pg. 4.4-9/4.4-10

3.7 AUXILIARY ELECTRICAL SYSTEMS

Applicability

Applies to the availability of electrical power for the operation of plant auxiliaries.

Objective

To define those conditions of electrical power availability necessary (1) to provide for safe reactor operation, and (2) to provide for the continuing availability of engineered safety features.

Specification

A. The reactor shall not be brought above the cold shutdown condition unless the following requirements are met:

1. Two physically independent transmission circuits to Buchanan Substation capable of supplying engineered safeguards loads.

2. 6.9 KV buses 5 and 6 energized from either 138 KV feeder 95331 or 95332.

3. Either 13.8 KV feeder 13W92 or 13W93 and its associated 13.8/6.9 KV transformer available to supply 6.9 KV power.

4. The four 480-volt buses 2A, 3A, 5A and 6A energized and the bus tie breakers between buses 5A and 2A, and between buses 3A and 6A, opened.

5. Three diesel generators operable with a minimum onsite supply of 5676 gallons of fuel available in each of the three individual underground storage tanks and 26,300 gallons of fuel compatible for operation with the diesels available onsite other than the underground storage tanks or at the Buchanan substation. This 26,300 gallon reserve is for Indian Point Unit No. 3 usage only

and is in addition to the fuel requirements for other nuclear units on the site.

6. Three batteries plus three chargers and the D. C. distribution systems operable.

7. No more than one 120 volt A. C. Instrument Bus in the backup lighting supply.

B. The requirements of 3.7.A may be modified to allow any one of the following power supplies to be inoperable at any one time:

1. One diesel or any diesel fuel oil system or a diesel and its associated fuel oil system may be inoperable for up to 7 days provided the 138 KV and the 13.8 KV sources of offsite power are available and the remaining diesel generators are tested daily to ensure operability and the engineered safety features associated with these diesel generator buses are operable.

2. The 138 KV or the 13.8 KV sources of power may be inoperable for 48 hours provided the three diesel generators are operable. This operation may be extended beyond 48 hours provided the failure is reported to the NRC within the 48 hour period with an outline of the plans for restoration of offsite power and NRC approval is granted.

3. One battery may be inoperable for 24 hours provided the other batteries and the three battery chargers remain operable with one battery charger carrying the D. C. load of the failed battery supply system.

C. If the electrical distribution system is not restored to meet the requirements of 3.7.A within the time periods specified in 3.7.B, then:

1. If the reactor is critical, it shall be brought to the hot shutdown condition utilizing normal operating procedures. The shutdown shall start no later than at the end of the specified time period.

2. If the reactor is subcritical, the reactor coolant system temperature and pressure shall not be increased more than 25°F and 100 psi, respectively, over existing values.

3. In either case, if the requirements of 3.7.A are not satisfied within an additional 48 hours, the reactor shall be brought to the cold shutdown condition utilizing normal operating procedures. The shutdown shall start no later than the end of the 48 hour period.

D. The requirements of Specification 3.7.A.1 may be modified during an emergency system-wide blackout condition as follows:
Two of the three 13.8 KV feeders (13W92, 13W93 and/or 13W94) to the Buchanan Substation 138 KV buses operable with at least 37 MW power from any combination of gas turbines (nameplate rating at 80°F) at the Buchanan Substation and onsite available for exclusive use on Indian Point Unit No. 3.

E. Whenever the reactor critical, the circuit breaker on the electrical feeder to emergency lighting panel 318 inside containment shall be locked open except when containment access is required.

Basis

The electrical system equipment is arranged so that no single contingency can inactivate enough safeguards equipment to jeopardize the plant safety. The 480-volt equipment is arranged on 4 buses. The 6900-volt equipment is supplied from 6 buses.

The Buchanan Substation has both 345 KV and 138 KV transmission circuits which are capable of supplying startup, normal operation, shutdown and/or engineered safeguards loads.

The 138 KV supplies or the gas turbines are capable of providing sufficient power for plant startup. Power via the station auxiliary transformer can supply all the required plant auxiliaries during normal operation, if required.

In addition to the unit transformer, four separate sources supply station service power to the plant.(1)

The plant auxiliary equipment is arranged electrically so that multiple items receive their power from different buses. Redundant valves are individually supplied from separate motor control centers.

The bus arrangements specified for operation ensure that power is available to an adequate number of safeguards auxiliaries. With additional switching, more equipment could be out of service without infringing on safety.

Two diesel generators have sufficient capacity to start and run within design load the minimum required engineered safeguards equipment.(1) The minimum onsite underground stored diesel fuel oil inventory is maintained at all times to assure the operation of two diesels carrying the minimum required engineered safeguards equipment load for at least 48 hours.(2) Additional fuel oil suitable for use in the diesel generators will be stored either on site or at the Buchanan Substation. The minimum storage of 26,300 gallons of additional fuel oil will assure continuous operation of two diesels at the minimum engineered safeguards load for a total of 7 days. A truck with hosing connections compatible with the underground diesel fuel oil storage tanks is available for transferal of diesel oil from storage areas either on site or at the Buchanan Substation. Commercial oil supplies and trucking facilities are also available.

Periodic diesel outages will be necessary to perform the corrective maintenance required as a result of previous tests or operations and the preventive maintenance recommended by the manufacturer.

One battery charger shall be in service on each battery so that the batteries will always be at full charge in anticipation of a loss-of-AC power incident. This insures that adequate D.C. power will be available for starting the emergency generators and other emergency uses.

The plant can be safely shutdown without the use of offsite power since all vital loads (safety systems, instruments, etc.) can be supplied from the emergency diesel generators.

Any two of three diesel generators, the station auxiliary transformer or the separate 13.8 to 6.9 KV transformer are each capable of supplying the minimum safeguards loads, and therefore provide separate sources of power immediately available for operation of these loads. Thus the power supply system meets the single failure criteria required of safety systems. To provide maximum assurance that the redundant or alternate power supplies will operate if required to do so, the redundant or alternate power supplies are verified operable prior to initiating repair of the inoperable power supply. If it develops that (a) the inoperable power supply is not repaired within the specified allowable time period, or (b) a second power supply in the same or related category is found to be inoperable, the reactor, if critical, will initially be brought to the hot shutdown condition utilizing normal operating procedures to provide for reduction of the decay heat from the fuel, and consequent reduction of cooling requirements after a postulated loss-of-coolant accident. If the reactor was already subcritical, the reactor coolant system temperature and pressure will be maintained within the stated values in order to limit the amount of stored energy in the Reactor Coolant System. The stated tolerances provide a band for operator control. After a limited time in hot shutdown, if the malfunction(s) are not corrected, the reactor will be brought to the cold shutdown condition, utilizing normal shutdown and cool-down procedures. In the cold shutdown condition there is no possibility of an accident that would release fission products or damage the fuel elements.

Conditions of a system-wide blackout could result in a unit trip. Since normal off-site power supplies as required in Specification 3.7.A.1 are not available for startup, it is necessary to be able to black start the unit with gas turbines providing the incoming power supplies as a first step in restoring the system to an operable status and restoring power to customers for essential services. Specification 3.7.C provides for startup using 37 MW's of gas turbine power (nameplate rating at 80°F) which is sufficient to carry out a normal plant startup. A system-wide blackout is deemed to exist when the majority of Con Edison electric generating facilities are shutdown due to an electrical disturbance and the remainder are incapable of supplying the system therefore necessitating major load shedding.

Since the backup lighting supply is stripped on safety injection, the requirement that not more than one 120 volt A. C. instrument bus be energized from the backup lighting supply is to assure minimum operable containment spray actuation channels.

As a result of an investigation of the effect components that might become submerged following a LOCA may have an ECCS, containment isolation and other safety-related functions, a fuse and a locked open circuit breaker were provided on the electrical feeder to emergency lighting panel 318 inside containment. With the circuit breaker in the open position, containment electrical penetration H-70 is de-energized during the accident condition. Personnel access to containment may be required during power operation. Since it is highly improbable that a LOCA would occur during this short period of time, the circuit breaker may be closed during that time to provide emergency lighting inside containment for personnel safety.

References

1) FSAR - Section 8.2.1

2) FSAR - Section 8.2.3

TABLE 4.1-2 (Sheet 2 of 2)

FREQUENCIES FOR SAMPLING TESTS

FOOTNOTES:

(1) A gross activity analysis shall consist of the quantitative measurement of the total radioactivity of the primary coolant in units of μCi/cc.

(2) A radiochemical analysis shall consist of the quantitative measurement of each radionuclide with half life greater than 10 minutes making up at least 95% of the total activity of the primary coolant.

(3) $\bar{E}$ determination will be started when the gross activity analysis indicates $\geq$ 10 μCi/cc and will be redetermined if the primary coolant gross radioactivity changes by more than 10 μCi/cc in accordance with Specification 3.1.D.

(4) Whenever the Gross Failed Fuel Monitor is inoperable, the sampling frequency shall be increased to twice per day, five days per week. The maximum time between analyses shall be sixteen hours for the two samples taken on a given day and three days between daily analysis. This accelerated sampling frequency need only be performed until the Gross Failed Fuel Monitor is declared operable.

(5) Once per 4 hours whenever the DOSE EQUIVALENT I-131 exceeds 1.0 μCi/cc or one sample after two hours but before six hours following a thermal power change exceeding 15 percent of the rated thermal power within a one-hour period.

TABLE 4.1-3 (Sheet 1 of 1)

FREQUENCIES FOR EQUIPMENT TESTS

		Check	Frequency
1.	Control Rods	Rod drop times of all full length rods	R
2.	Control Rod	Partial movement of all full length rods	Every 2 weeks during reactor critical operations
3.	Pressurizer Safety Valves	Set point	R
4.	Main Steam Safety Valves	Set point	R
5.	Containment Isolation System	Automatic actuation	R
6.	Refueling System Interlocks	Functioning	Prior to each refueling outage
7.	Fire Protection System and Power Supply	Functioning	Annually
8.	Primary System Leakage	Evaluate	5 days/week
9.	Diesel Fuel Supply	Fuel Inventory	Weekly
10.	Turbine Steam Stop, Control Valves	Closure	Monthly
11.	L.P. Steam Dump System (6 Lines)	Closure	Monthly
12.	Service Water System	Each pump starts and operates for 15 minutes (unless already operating)	Monthly
13.	City Water Connections to Charging Pumps and Boric Acid Piping	Temporary connections available and valves operable	R
14.	RHR Valves 730 and 731	Automatic isolation and interlock action	R*

R Each refueling outage

* If not done during the previous 18 months, the check will be performed the next time the plant is cooled down.

b. If repairs are not completed and conformance to the acceptance criterion is not demonstrated within 7 days, the reactor shall be shut down until repairs are effected and the continuous leakage meets the acceptance criterion.

C. Sensitive Leakage Rate

1. Test

A sensitive leakage rate test shall be conducted with the containment penetrations, weld channels, and certain double gasketed seals and isolation valve interspaces at a minimum pressure of 41 psig and with the containment building at atmospheric pressure.

2. Acceptance Criteria

The test shall be considered satisfactory if the leak rate for the containment penetrations, weld channel and other pressurized zones is equal to or less than 0.2% of the containment free volume per day.

3. Frequency

A sensitive leakage rate test shall be performed at a frequency of at least every other refueling but in no case at intervals greater than 3 years.

D. Air Lock Tests

1. The containment air locks shall be tested at a minimum pressure of 40.6 psig and at a frequency of every 6-months. The acceptance criteria is included in E.2.a.

2. Whenever containment integrity is required, verification shall be made of proper repressurization to at least 41 psig of the double-gasket air lock door seal upon closing an air lock door.

E. Containment Isolation Valves

1. Tests and Frequency

a. Isolation valves in Table 4.4-1 shall be tested for operability at a frequency of at least every refueling.

b. Isolation valves in Table 4.4-1 which are pressurized by the Weld Channel and Penetration Pressurization System shall be leakage tested as part of the Weld Channel and Penetration Pressurization System Test at a frequency of at least every refueling.

c. Isolation valves in Table 4.4-1 which are pressurized by the Isolation Valve Seal Water System shall be tested at a frequency of at least every refueling as part of an overall Isolation Valve Seal Water System Test.

d. Isolation valves in Table 4.4-1 which are not pressurized will be tested at a frequency of at least every refueling.

e. Isolation valves in Table 4.4-1 shall be tested with the medium and at the pressure specified therein.

2. Acceptance Criteria

a. The combined leakage rate for the following shall be less than 0.6 L_a: isolation valves listed in Table 4.4-1 subject to gas or nitrogen pressurization testing, air lock testing as specified in D.1, portions of the sensitive leakage rate test described in C.1 which pertain to containment penetrations and double-gasketed seals.

b. The leakage rate into containment for the isolation valves sealed with the service water system is 0.36 gpm per fan cooler.

c. The leakage rate for the Isolation Valve Seal Water System shall not exceed 14,700 cc/hr.

A full pressure test of the air lock will be periodically performed at 6-month intervals to detect any unanticipated leakage.

The containment isolation valve leakage and sensitive leakage rate measurements obtained periodically, periodic inspection of accessible portions of the containment wall to detect possible damage to the liner plates, combined with the leakage monitoring afforded by the weld Channel and Penetration Pressurization System,(5) and IVSWS(6) provide assurance that the containment leakage is within design limits.

The testing of containment isolation valves in Table 4.4-1 either individually or in groups, utilizes the WC & PPS(5) or IVSWS(6) (where appropriate), and is in accordance with the requirements of Type C tests in Appendix J (issue effective date March 16, 1973) to 10CFR50. The specified test pressures are greater than the peak calculated accident pressure. Sufficient water is available in the Isolation Valve Seal Water System, Primary Water System, Service Water System, Residual Heat Removal System, and the City Water System to assure a sealing function for at least 30 days.The leakage limit for the Isolation Valve Seal Water System is consistent with the design capacity of the Isolation Valve Seal Water supply tank.

The acceptance criterion of 0.6 L_a for the combined leakage of isolation valves subject to gas or nitrogen pressurization, the air lock, containment penetrations and double-gasketed seals is in accordance with Appendix J (issue effective date March 16, 1973) to 10CFR50.

The 350 psig test pressure, achieved either by normal Residual Heat Removal System operation or hydrostatic testing, gives an adequate margin over the highest pressure within the system after a design basis accident. Similarly, the hydrostatic test pressure for the containment sump return line of 100 psig gives an adequate margin over the highest pressure within the line after a design basis accident. A recirculation system leakage of 2 gal./hr. will limit off-site exposures due to leakage to insignificant levels relative to those calculated for leakage directly from the containment in the design basis accident.

These specifications have been developed using Appendix J (issue effective date March 16, 1973) of 10CFR50 and ANSI N45.4-1972 "Leakage Rate Testing of Containment Structures for Nuclear Reactors" (March 16, 1972) for guidance.

The maximum permissible inleakage rate from the containment isolation valves sealed with service water for the full 12-month period of post accident recirculation without flooding the internal recirculation pumps is 0.36 gpm per fan cooler.

REFERENCES

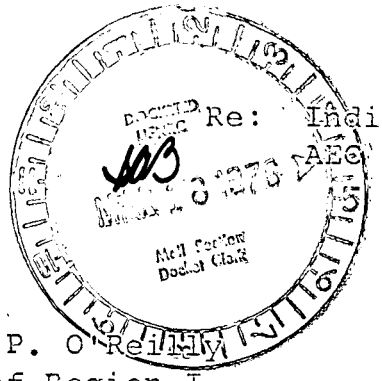
(1) FSAR - Section 5
(2) FSAR - Section 5.1.7
(3) FSAR - Section 14.3.5
(4) FSAR - Volume 7, Response to Question 14.6
(5) FSAR - Section 6.6
(6) FSAR - Section 6.5

William J. Cahill, Jr.

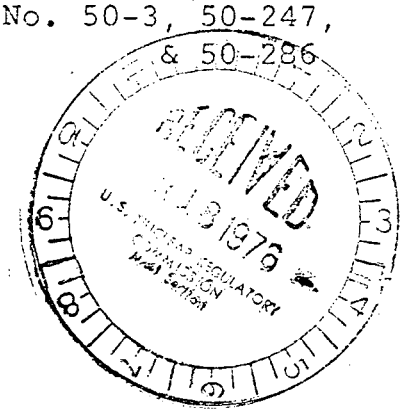
4 Irving Place, New York, N Y 10003
Telephone (212) 460-3819

Regulatory File Cy.

March 12, 1976



Re: Indian Point Unit Nos. 1,2&3
AEC Docket No. 50-3, 50-247,
& 50-286



Mr. James P. O'Reilly
Director of Region I
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, Pennsylvania 19406

Dear Mr. O'Reilly

Pursuant to Appendix B of Unit Nos. 1, 2&3 Technical Specifications with respect to the operation of our Unit Nos. 1, 2&3, a tabulation of daily record of fish collections at Indian Point Unit Nos. 2&3 for the month of February is enclosed herewith. A daily species breakdown and total daily weights are also enclosed. Because the circulators at Unit No. 1 were shutdown the entire month, there were no fish collections made.

Very truly yours

William J. Cahill, Jr.
Vice President

enc.

cc: Ben C. Rusche
(Office of Nuclear Reactor Regulations)

2741

cc: James P. Corcoran, Esq.
(Assistant Attorney General of the State of N.Y.)

Sarah Chasis, Esq.
(Natural Resources Defense Council, Inc.)

Michael Curley, Esq., Counsel
N.Y. State Dep't. of Commerce

Nicholas A. Robinson, Esq.(w/o encl.)
(Marshall, Bratter, Greene, Allison & Tucker)

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

DATA SHEET

NO. _____

DATE February, 1976

LOCATION Indian Point Station

PREPARED BY _____

SUBJECT

Daily Fish Counts From

Intake Screens
Unit No. 3

Date	07	10	11	12	15	17	18	25	28	30	32	34	35	36	75		Total Number	Total Wt(lbs
13	2		1						4	2	2	4	121				136	2.5
14									2	1	2	1	133		1		140	1.8
15	1							1	3	4			579	1	2		591	8.3
16	3	1							1	3			877	1	1		887	12.3
21	6			2	3	1	1		5	2	1	3	842				866	11.0
22	1	1							1		1	1	230		1		236	4.07
Totals	13	2	1	2	3	1	1	1	16	12	6	9	2782	2	5		2856	40.2

SEE ATTACHED SHEET FOR SPECIES IDENTIFICATION

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

DATA SHEET

PREPARED BY _____

SUBJECT

DATE February, 1975

LOCATION Indian Point Sta.

Daily Fish Counts From Intake Screens
Unit No. 2

DATE	01 05	06 07	10 11	12 14	15 16	17 18	25 27	28 29	30 31	32 34	35	36 74	75 78	96 99		Total Number	Total Wt (lbs)
1							1	4		4 1	38		2			50	0.67
2		N	O	C O	U N T	-	S C R	E N	S N	O T	W A	S H E	D -	S P R A Y		L I N E	F R O Z E N
3								5	2	7 2	57	1	1			75	1.22
4		3	1		2			5	2	8 12	34		1			68	2.05
5		1 6	2				4	5	13	49 10	573		6	1 2		672	22.16
6		1			2		1	3		4 2	76		1			90	1.71
7			1				2	2	1	2 3	168			1		180	3.86
8				1 1			1	2	3	5 4	275		1			292	5.17
9							1		1	2 2	119					125	5.63
10			1					2	2	8 1	556	1				571	10.44
11		1 1	3		3		10	21	14	123 3	942		1			1122	32.91
12		1	2	1		1	1	36 1	11	37 4	527					622	16.47
13		2	1		4		14	38	11	19 8	2201	1	3	5		2307	40.15
14		1			2	1	4	20	2	16 4	669		1			720	15.56
15			1	1	5		7	11	5	12 2	1847		1	1		1893	30.79
16	1	2		1		1	11 1	10	13	19 8	8380		3			8450	129.08
17			2		1		3	11	2	22 3	3347					3391	54.99
18		2		1	2 1	1	6	27	2	30 10	2903	1	3	1		2990	42.72
19		1	1	1	1		4	11	3 2	9 4	1508	1	2			1548	22.94
20			1 1	1	2			17	5	37 3	1309	1	3	1 1		1382	21.00
21		1	1	1	8			16	1	33 3	543	1	1	2		611	11.33
22		1	2				5	7		25	195			1		236	5.64
23		5	2		3	1	5	42		39 1	144	2	1			245	6.11
24	1	6	4	1			8	61	1	44 2	88	1	1	1		219	6.23
25		9	1	1	2		9	55	4	30 1	113	2	2 1	1		231	6.27
26		2			1		1	18	2	11 2	108	2	1			148	5.04
27	N	O C	O U N T	-	U N I T		O F F		L I N E								
28							4	19	1	13	43					80	1.77
29		1 1		1	1	1	11	37	3	40 5	52					155	5.30
TOTALS	1 1	4 44	25 2	2 9	39 1	1 5	113 1	485 1	104 2	648 100	26815	13 1	35 2	15 2		28471	507.21

SEE ATTACHED SHEET FOR SPECIES IDENTIFICATION

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)
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 Flounder
73 Tidewater Silverside
74 Sea Lamprey
75 Gizzard Shad
76 Silver Hake
77 Striped Mullet
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