Semi-Annual
Effluent and Wast Disposal Report
First Half 1989

Consolidated Edison Company of New York, Inc.
Indian Point Unit Nos. 1 and 2
Docket Nos. 50-03 50-247
August, 1989

8909180085 890831
PDR ADOCK 05000003
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August 31, 1989

Re: Indian Point Unit Nos. 1 and 2
Docket Nos. 50-3 and 50-247

SEMI-ANNUAL

EFFLUENT AND WASTE DISPOSAL REPORT

JANUARY 1, 1989 - JUNE 30, 1989

FACILITY: Indian Point Station (Units 1 and 2)

LICENSEE: Consolidated Edison Company of New York, Inc.

This information is provided pursuant to 10 CFR 50.36a(a) (2), and employs certain guidance as set fourth in Regulatory Guide 1.21, Revision 1. The numbered sections of this part of the report reference corresponding sections of the subject Regulatory Guide, pages 1.21-10 through 1.21-12. This Semi-Annual Effluent and Waste Disposal Report for Indian Point Units 1 and 2 covers discharges for the first and second quarters of 1989. The New York Power Authority, licensee of Indian Point Unit 3, will issue a separate semi-annual report.

A. Supplemental Information and Definition

1. Regulatory Limits

Indian Point Units 1 and 2 are presently subject to radioactive waste release specifications that are set forth in Appendix A to Facility Operating Licenses DPR-5 and DPR-26 entitled "Technical Specifications and Bases".

2. Maximum Permissible Concentrations (MPC)

Liquid Effluents

All liquid discharges from Indian Point are made through a common discharge canal with a minimum of 100,000 gpm dilution water. The isotopic content, excluding tritium and dissolved noble gas, of continuous and batch mode discharges for each calendar quarter has been added, and a weighted average fraction of MPC has been calculated for this isotopic mixture. The percent of the applicable limit reported in Table 2A of this document is the percent of MPC concentration of the time averaged diluted concentration for each calendar quarter.

August 31, 1989

Re: Indian Point Unit Nos. 1 and 2
Docket Nos. 50-3 and 50-247

The tritium limit has been established in the same manner as the other isotopes in liquid effluents. A derived MPC of $2x10^{-4}$ uCi/ml for dissolved noble gases has been conservatively adopted for the liquid effluents due to swimming pathway.

3. Average Energy

The average energy ($\bar{E}$) of the radionuclide mixture in releases of fission and activation gases for the first quarter was 0.145 Mev/Dis. for E-Gamma and 0.238 Mev/Dis. for E-Beta. The corresponding values for the second quarter were 0.045 Mev/Dis., and 0.193 Mev/Dis., respectively.

4. Measurements and Approximations of Total Radioactivity

a. Fission and Activation Gases

Analysis of effluent gases has been performed in compliance with the requirements of Table 4.10-3 of the Technical Specifications. In the case of isolated tanks (batch releases), the total activity discharged is based on an isotopic analysis of each batch and the volume of gas in that batch corrected to standard temperature and pressure.

Vapor Containment ventilation discharges have been generally treated as batch releases. At least one complete isotopic concentration analysis of containment air is performed per week. This is applied to gross analysis of the ventilation air performed prior to each discharge. This information is combined with the volume of air in each discharge to calculate the radionuclide composition of these discharges.

The continuous discharges are based on the isotopic content determined from weekly samples of ventilation air. This information is combined with total air volume discharged by this route. The accumulation of batch and containment ventilation releases is then used to determine total discharges.

August 31, 1989

Re: Indian Point Unit Nos. 1 and 2
Docket Nos. 50-03 and 50-247

b&c. Iodines and Particulates

Iodine-131 and particulate releases are quantified by collecting a continuous sample of ventilation air on a potassium-iodine impregnated activated charcoal cartridge and a glass-fiber filter paper. These samples are obtained as required by Table 4.10-3 of the Technical Specifications, and the concentration of isotopes found by analysis of these samples is combined with the volume of air discharged during the sampling period to calculate the amount of activity discharged.

For other iodine isotopes the ratio of each isotope to Iodine-131 is determined by a monthly 24 hour composite sample. This ensures the proper identification of the short-lived I-133 and I-135 isotopes.

d. Liquid Effluents

A sample of each batch discharge is taken and an isotopic analysis is performed in compliance with requirements specified in Table 4.10-1 of the Technical Specifications. This isotopic concentration data is combined with information of volume discharged to determine the amount of each isotope discharged in the period.

Samples of continuous discharges have been taken and analyzed in compliance with Table 4.10-1 of the Technical Specifications. This concentration data is combined with the volume discharged to calculate the amount of each isotope discharged.

The above concentrations are used in conjunction with the dilution flow to calculate the fraction of maximum permissible concentration.

August 31, 1989

Re: Indian Point Units 1 and 2
Docket Nos. 50-03 and 50-247

5. Batch Releases:

a. Liquid	1st Qtr.	2nd Qtr.
Number of Batch Releases	45	28
Total Time Period Batch Releases (Minutes)	3919	7238
Maximum Time Period Batch Release (Minutes)	340	533
Average Time Period Batch Release (Minutes)	87	259
Minimum Time Period Batch Release (Minutes)	35	50
Average Stream Flow (cfs)	N/A(1)	N/A(1)
b. Gaseous		
Number of Batch Releases	145	39
Total Time Period Batch Release (Minutes)	15167	5762
Maximum Time Period Batch Release (Minutes)	310	390
Average Time Period Batch Release (Minutes)	105	148
Minimum Time Period Batch Release (Minutes)	5	9

6. ABNORMAL RELEASES

a. Liquid - One

b. Gaseous - Two

(1) This information is obtained from the U.S. Department of Interior. It is not available at this time.

SEMI-ANNUAL EFFLUENT AND WASTE DISPOSAL REPORT

B - GASEOUS EFFLUENTS

FIRST HALF 1989

Consolidated Edison Company of New York, Inc.
Indian Point Unit Nos. 1 and 2
Docket Nos. 50-03 50-247
August, 1989

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1989

GASEOUS EFFLUENTS -- SUMMATION OF ALL RELEASES

	UNITS	QUARTER 1	QUARTER 2	EST. TOTAL ERROR, %
A. FISSION AND ACTIVATION GASES				
1. TOTAL RELEASE	CI	5.47E 01	3.83E 00	5.00E 01
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	7.03E 00	4.87E-01	
B. IODINES				
1. TOTAL IODINE-131	CI	2.36E-06	2.36E-06	5.00E 01
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	3.04E-07	3.01E-07	
C. PARTICULATES				
1. PARTICULATES WITH HALF-LIVES >8 DAYS	CI	1.30E-03	4.91E-04	5.00E 01
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	1.67E-04	6.24E-05	
4. GROSS ALPHA RADIOACTIVITY	CI	0.00E 00	0.00E 00	
D. TRITIUM				
1. TOTAL RELEASE	CI	1.12E-01	8.92E-03	5.00E 01
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	1.44E-02	1.13E-03	

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INDIAN POINT STATION
UNIT II

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1989

GASEOUS EFFLUENTS -- SUMMATION OF ALL RELEASES

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNITS	QUARTER 1	QUARTER 2	QUARTER 1	QUARTER 2
1. FISSION AND ACTIVATION GASES					
H3	CI	1.12E-01	8.92E-03	0.00E 00	0.00E 00
C14	CI	2.00E 00	2.00E 00	0.00E 00	0.00E 00
AR41	CI	1.67E-02	0.00E 00	1.38E-01	0.00E 00
KR85M	CI	3.51E-04	0.00E 00	8.34E-02	0.00E 00
KR85	CI	0.00E 00	0.00E 00	0.00E 00	8.90E-03
KR87	CI	0.00E 00	0.00E 00	4.98E-01	0.00E 00
KR88	CI	1.72E-04	0.00E 00	1.76E-01	0.00E 00
XE131M	CI	0.00E 00	0.00E 00	0.00E 00	5.12E-04
XE133M	CI	0.00E 00	0.00E 00	1.55E-01	0.00E 00
XE133	CI	2.71E 01	1.29E 00	1.38E 01	5.28E-01
XE135M	CI	2.11E-01	0.00E 00	6.57E-01	0.00E 00
XE135	CI	3.44E 00	0.00E 00	4.22E 00	0.00E 00
XE138	CI	0.00E 00	0.00E 00	2.22E 00	0.00E 00
TOTAL FOR PERIOD (ABOVE)	CI	3.28E 01	3.30E 00	2.19E 01	5.37E-01

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UNIT II

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1989

GASEOUS EFFLUENTS -- SUMMATION OF ALL RELEASES

CONTINUOUS MODE

NUCLIDES RELEASED	UNITS	QUARTER 1	QUARTER 2
2. IODINES			
I131	CI	2.36E-06	2.36E-06
TOTAL FOR PERIOD (ABOVE)	CI	2.36E-06	2.36E-06
3. PARTICULATES			
MN54	CI	2.73E-05	4.59E-06
CO58	CI	5.16E-06	7.13E-05
CO60	CI	1.23E-03	2.53E-04
SR90	CI	2.28E-07	0.00E 00
CS134	CI	0.00E 00	3.31E-06
CS137	CI	3.45E-05	1.46E-04
NI63	CI	3.31E-06	1.25E-05
TOTAL FOR PERIOD (ABOVE)	CI	1.30E-03	4.91E-04

SEMI-ANNUAL EFFLUENT AND WASTE DISPOSAL REPORT

C - LIQUID EFFLUENTS

FIRST HALF 1989

Consolidated Edison Company of New York, Inc.
Indian Point Unit Nos. 1 and 2
Docket Nos. 50-03 50-247
August, 1989

Con Edison
INDIAN POINT STATION UNIT II

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1989

LIQUID EFFLUENTS -- SUMMATION OF ALL RELEASES

	UNITS	QUARTER 1	QUARTER 2	EST. TOTAL ERROR, %
A. FISSION AND ACTIVATION PRODUCTS				
1. TOTAL RELEASE (EXCL. TRIT., GASES, ALPHA)	CI	2.73E-01	5.17E-02	2.50E 01
2. AVERAGE DILUTED CONC. DURING PERIOD	UCI/ML	1.72E-09	1.27E-09	
3. PERCENT OF MPC	%	4.95E-02	1.78E-03	
B. TRITIUM				
1. TOTAL RELEASE	CI	3.06E 02	3.05E 01	2.50E 01
2. AVERAGE DILUTED CONC. DURING PERIOD	UCI/ML	1.93E-06	7.46E-07	
3. PERCENT OF MPC	%	6.43E-02	2.49E-02	
C. DISSOLVED AND ENTRAINED GASES				
1. TOTAL RELEASE	CI	2.93E-02	4.00E-04	2.50E 01
2. AVERAGE DILUTED CONC. DURING PERIOD	UCI/ML	1.85E-10	9.80E-12	
3. PERCENT OF MPC	%	9.23E-05	4.90E-06	
D. GROSS ALPHA RADIOACTIVITY				
1. TOTAL RELEASE	CI	0.00E 00	0.00E 00	2.50E 01
E. VOLUME WASTE RELEASED (PRIOR TO DILUTION)	LITERS	4.69E 07	8.46E 06	1.00E 01
F. VOLUME DILUTION WATER USED DURING PERIOD	LITERS	1.59E 11	4.08E 10	1.00E 01

Con Edison
INDIAN POINT STATION UNIT II

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1989

LIQUID EFFLUENTS FOR ALL RELEASE POINTS

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNITS	QUARTER 1	QUARTER 2	QUARTER 1	QUARTER 2
H3	CI	7.53E-01	3.07E-02	3.06E 02	3.04E 01
CR51	CI	0.00E 00	0.00E 00	1.63E-03	6.82E-03
MN54	CI	0.00E 00	8.95E-04	3.20E-04	1.78E-03
FE55	CI	7.31E-02	0.00E 00	1.61E-02	4.36E-03
FE59	CI	0.00E 00	0.00E 00	0.00E 00	2.08E-04
CO58	CI	1.78E-05	4.64E-03	1.05E-02	8.63E-03
CO60	CI	1.84E-03	1.36E-03	1.53E-02	1.06E-02
NI63	CI	3.11E-03	0.00E 00	4.15E-03	1.37E-04
SR89	CI	0.00E 00	0.00E 00	0.00E 00	8.62E-05
NB95	CI	0.00E 00	0.00E 00	5.88E-05	0.00E 00
RU103	CI	0.00E 00	0.00E 00	0.00E 00	3.01E-05
TE132	CI	0.00E 00	0.00E 00	0.00E 00	3.98E-05
I131	CI	4.69E-03	0.00E 00	1.50E-03	0.00E 00
I132	CI	2.61E-02	0.00E 00	0.00E 00	0.00E 00
I133	CI	4.12E-02	0.00E 00	0.00E 00	0.00E 00
I134	CI	1.85E-02	0.00E 00	0.00E 00	0.00E 00
I135	CI	4.60E-02	0.00E 00	0.00E 00	0.00E 00

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INDIAN POINT STATION UNIT II

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1989

LIQUID EFFLUENTS FOR ALL RELEASE POINTS

NUCLIDES RELEASED	UNITS	CONTINUOUS MODE QUARTER 1	CONTINUOUS MODE QUARTER 2	BATCH MODE QUARTER 1	BATCH MODE QUARTER 2
LIQUID EFFLUENTS (CONTD)					
CS137	CI	0.00E 00	8.82E-04	1.08E-03	1.13E-03
LA140	CI	0.00E 00	0.00E 00	0.00E 00	6.74E-05
SB125	CI	0.00E 00	0.00E 00	7.79E-03	7.08E-03
SB124	CI	0.00E 00	0.00E 00	0.00E 00	2.91E-03
TOTAL FOR PERIOD (ABOVE)	CI	9.68E-01	3.84E-02	3.06E 02	3.05E 01

NUCLIDES RELEASED	UNITS	CONTINUOUS MODE QUARTER 1	CONTINUOUS MODE QUARTER 2	BATCH MODE QUARTER 1	BATCH MODE QUARTER 2
XE133	CI	3.90E-04	0.00E 00	5.83E-03	4.00E-04
XE135	CI	2.76E-03	0.00E 00	1.24E-05	0.00E 00
XE135M	CI	2.03E-02	0.00E 00	0.00E 00	0.00E 00

SEMI-ANNUAL EFFLUENT AND WASTE DISPOSAL REPORT

D - SOLID WASTE

FIRST HALF 1989

Consolidated Edison Company of New York, Inc.
Indian Point Unit Nos. 1 and 2
Docket Nos. 50-03 50-247
August, 1989

August 31, 1989

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

Solid Radwaste Disposal Report January 1, 1989 through June 30, 1989.

Solid Radwaste Shipped Offsite for Burial or Disposal (No irradiated fuel).

6 MONTH PERIOD

1. Type of Waste	Units	Class A	Class B	Class C	Total Error, %
a. Spent Resins,	m^3	6.44	3.41	3.41	--
sludges, etc.	Ci	22.273	27.48	265.145	1.00E+2
b. DAW	m^3	177.01	--	--	--
	Ci	14.049	--	--	1.00E+2
c. Irradiated	m^3	--	--	--	--
components	Ci	--	--	--	--
control rods, etc.					

2. Estimate of major nuclide composition in percent (by type of waste)

a.	Cs-134	-	2.3	Mn-54	-	1.3
	Cs-137	-	4.9	Fe-55	-	6.3
	Co-60	-	42.9	Ni-63	-	9.3
	Co-58	-	32.4	Other*	-	0.6
b.	H-3	-	10.3	Co-60	-	25.3
	Fe-55	-	7.8	Zr-95	-	4.1
	Co-58	-	9.4	Cs-134	-	7.9
	Mn-54	-	3.2	Cs-137	-	16.8
	Nb-95	-	0.9	C-14	-	0.3
	Ni-63	-	13.8	Sr-90	-	0.2
				I-129	-	0.001

* Other in Section 2.a include - Cr-51,I-129, Tc-99, Sr-90, Pu-241, C-14, H-3, Co-57, Pu-238, Pu-239, Cm-242, Cm-244, Am-241

Note: Item "1b" above is the cubic meter of waste buried after volume reduction.

August 31, 1989

Re: Indian Point Unit No. 1 and 2
Docket Nos. 50-3 and 50-247

3. Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
23	Truck	Barnwell, SC Channahon, Ill. Oakridge, Tenn.

4. Solid Waste Containers

a. 3 High Integrity Containers
1 Solidification Steel Liner

b. 6 High Integrity Containers
32 Crates
12 Cargo Containers
915 Steel Drums

5. Waste Class

Container	Class A	Class B	Class C
Carbon Steel Solidification Liners	1	--	--
High Integrity Container	797	1	1
Steel Crates	32	--	--
Steel Drums	915	--	--
Cargo Container	12	--	--

Note: Items "4 and 5" are the number of steel crates, cargo containers and steel drums shipped offsite for volume reduction and direct burial not the total number of containers buried.

SEMI-ANNUAL EFFLUENT AND WASTE DISPOSAL REPORT

E - RADIOLOGICAL IMPACT ON MAN

FIRST HALF 1989

Consolidated Edison Company of New York, Inc.
Indian Point Unit Nos. 1 and 2
Docket Nos. 50-03 50-247
August, 1989

August 31, 1989

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

RADIOLOGICAL IMPACT EVALUATION

Doses from gaseous immersion, inhalation, ground deposition, and vegetation ingestion were evaluated for the nearest residence likely to be occupied in the critical sector for each pathway and were combined to provide a conservative determination of the maximum individual offsite radiation dose from these pathways. Calculations were performed for members of the public on site for this reporting period. Doses to such individuals were found to be significantly less than one percent of the maximum individual offsite dose. Doses were also evaluated for an individual ingesting milk and meat from a cow located at a 5.0 mile distance, for all sectors. In all cases these evaluations were performed using the models presented in Regulatory Guide 1.109.

All releases were evaluated using actual meteorological conditions existing during the release period.

Integrated doses from the population within 50 miles of Indian Point from gaseous effluents were computed based on the most current population data.

Dose calculations for liquid pathways to individuals and populations are computed for a year. The LADTAP II computer program that is utilized for these calculations incorporated the calculation model and parameters that are presented in Regulatory Guide 1.109.

The fish, invertebrate, algae, drinking, shoreline, swimming and boating pathways are calculated for the adult, teenager, child and infant. These calculations are performed for reasons such as estimating the population water consumption dose, the population recreation dose, and cost-benefit analysis.

NUREG-0017, "Calculation of Release of Radioactive Materials in Gaseous and Liquid effluents from Pressurized Water Reactors", assumes an annual release of 8.0 Ci/yr of Carbon-14. Therefore, to be consistent with NUREG-0017, a release of 4.0 Curies of Carbon-14 was assumed for the six month period in addition to the radioactive materials measured in Indian Point gaseous effluents.

This impact evaluation demonstrates that the dose commitment to man from the operation of Indian Point Unit Nos. 1 and 2 is negligible, and is well below the levels set forth in 10 CFR 20, 10 CFR 50 and the Indian Point Unit Nos. 1 and 2 Technical Specifications.

Indian Point Units 1 & 2

RADIOLOGICAL IMPACT ON MAN

(Reference Regulatory Guide 1.21, Page 12)

A. Maximum Individual Doses

(1) Pathways (Gaseous)

Pathways (Gaseous) mRem	Total Body mRem	Skin mRem	Thyroid mRem	Bone
a) Noble Gas Immersion	4.23E-3	9.70E-3	N/A	N/A
b) Inhalation	2.31E-2	N/A	4.33E-3	4.34E-3
c) Ground Deposition	1.19E-2	1.79E-2	1.52E-2	1.52E-2
d) Milk Ingestion	2.54E-2	N/A	2.54E-2	1.19E-1
e) Meat Ingestion	3.91E-3	N/A	3.91E-3	1.95E-2
f) Vegetable Ingestion	2.54E-1	N/A	2.54E-1	1.27E-0

(2) Pathways (Liquid)

a) All — See Attached "LADTAP" printout, Attachment I

N/A = Not Applicable

B. Population

(1) Pathways (Gaseous)

	Total Body (man-rem)	Thyroid (man-rem)
a) Noble Gas Immersion	5.8E-2	5.8E-2
b) Inhalation	1.3E-1	1.3E-1
c) Ground Deposition	2.7E-1	2.7E-1
d) Totals	4.6E-1	4.6E-1

(2) Pathways (Liquid)

a) All — See Attached "LADTAP" printout, Attachment I

C. Average Doses to Individuals

(1) Pathways

a) Liquid-Total Body	4.46E-5	millirem
b) Gaseous-Total Body	2.20E-5	millirem

IP2 SEMI-ANNUAL EFFLUENT REPORT 1ST HALF 1989 - USNRC LADTAP II CODE

DISCHARGE=4.50E+02 CFS SOURCE TERM MULTIPLIER=1.00E+00

50-MILE POPULATION=2.09E+07 FRACTION --- CATEGORY I=0.71
                                CATEGORY II=0.11
                                CATEGORY III=0.18

FRESHWATER SITE

SOURCE TERM FOLLOWS
NO INTERNAL RECONCENTRATION MODEL EMPLOYED

* * * CATEGORY I DOSE FACTORS * * *

			INGESTION DOSE FACTORS (MREM/PCI INTAKE)								SHORELINE (MREM/HR)/(PCI/M**2)		
NUCLIDE		CURIE/YEAR	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI		SKIN	TOTAL BODY	RECON
1H	3	3.37E+02	0.00E+00	1.05E-07	1.05E-07	1.05E-07	1.05E-07	1.05E-07	1.05E-07		0.00E+00	0.00E+00	1.00E+00
24CR	51	8.45E-03	0.00E+00	0.00E+00	2.66E-09	1.59E-09	5.86E-10	3.53E-09	6.69E-07		2.60E-10	2.20E-10	1.00E+00
25MN	54	2.99E-03	0.00E+00	4.57E-06	8.72E-07	0.00E+00	1.36E-06	0.00E+00	1.40E-05		6.80E-09	5.80E-09	1.00E+00
26FE	55	9.36E-02	2.75E-06	1.90E-06	4.43E-07	0.00E+00	0.00E+00	1.06E-06	1.09E-06		0.00E+00	0.00E+00	1.00E+00
26FE	59	2.08E-04	4.34E-06	1.02E-05	3.91E-06	0.00E+00	0.00E+00	2.85E-06	3.40E-05		9.40E-09	8.00E-09	1.00E+00
27CO	58	2.38E-02	0.00E+00	7.45E-07	1.67E-06	0.00E+00	0.00E+00	0.00E+00	1.51E-05		8.20E-09	7.00E-09	1.00E+00
27CO	60	2.91E-02	0.00E+00	2.14E-06	4.72E-06	0.00E+00	0.00E+00	0.00E+00	4.02E-05		2.00E-08	1.70E-08	1.00E+00
28NI	63	7.40E-03	1.30E-04	9.01E-06	4.36E-06	0.00E+00	0.00E+00	0.00E+00	1.88E-06		0.00E+00	0.00E+00	1.00E+00
38SR	89	8.62E-05	3.08E-04	0.00E+00	8.84E-06	0.00E+00	0.00E+00	0.00E+00	4.94E-05		6.50E-13	5.60E-13	1.00E+00
41NB	95	5.88E-05	6.22E-09	3.46E-09	1.86E-09	0.00E+00	3.42E-09	0.00E+00	2.10E-05		5.10E-09	6.00E-09	1.00E+00
44RU	103	3.01E-05	1.85E-07	0.00E+00	7.97E-08	0.00E+00	7.06E-07	0.00E+00	2.16E-05		3.60E-09	4.20E-09	1.00E+00
52TE	132	3.98E-05	2.52E-06	1.63E-06	1.53E-06	1.80E-06	1.57E-05	0.00E+00	7.71E-05		2.00E-09	1.70E-09	1.00E+00
53I	131	6.19E-03	4.16E-06	5.95E-06	3.41E-06	1.95E-03	1.02E-05	0.00E+00	1.57E-06		3.40E-09	2.80E-09	1.00E+00
53I	132	2.61E-02	2.03E-07	5.43E-07	1.90E-07	1.90E-05	8.65E-07	0.00E+00	1.02E-07		1.70E-08	2.00E-08	1.00E+00
53I	133	4.12E-02	1.42E-06	2.47E-06	7.53E-07	3.63E-04	4.31E-06	0.00E+00	2.22E-06		4.50E-09	3.70E-09	1.00E+00
53I	134	1.85E-02	1.06E-07	2.88E-07	1.03E-07	4.99E-06	4.58E-07	0.00E+00	2.51E-10		1.90E-08	1.60E-08	1.00E+00
53I	135	4.60E-02	4.43E-07	1.16E-06	4.28E-07	7.65E-05	1.86E-06	0.00E+00	1.31E-06		1.20E-08	1.40E-08	1.00E+00
55CS	137	3.09E-02	7.97E-05	1.09E-04	7.14E-05	0.00E+00	3.70E-05	1.23E-05	2.11E-06		4.90E-09	4.20E-09	1.00E+00
57LA	140	6.74E-05	2.50E-09	1.26E-09	3.33E-10	0.00E+00	0.00E+00	0.00E+00	9.25E-05		1.50E-08	1.70E-08	1.00E+00
51SB	124	2.91E-03	2.80E-06	5.29E-08	1.11E-06	6.79E-09	0.00E+00	2.18E-06	7.95E-05		1.50E-08	1.30E-08	1.00E+00
51SB	125	1.49E-02	1.79E-06	2.00E-08	4.26E-07	1.82E-09	0.00E+00	1.38E-06	1.97E-05		3.50E-09	3.10E-09	1.00E+00

* * * CATEGORY II DOSE FACTORS * * *

			INGESTION DOSE FACTORS (MREM/PCI INTAKE)							SHORELINE (MREM/HR)/(PCI/M**2)		
NUCLIDE		CURIE/YEAR	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN	TOTAL BODY	RECON
1H	3	3.37E+02	0.00E+00	1.06E-07	1.06E-07	1.06E-07	1.06E-07	1.06E-07	1.06E-07			
24CR	51	8.45E-03	0.00E+00	0.00E+00	3.60E-09	2.00E-09	7.89E-10	5.14E-09	6.05E-07			
25MN	54	2.99E-03	0.00E+00	5.90E-06	1.17E-06	0.00E+00	1.76E-06	0.00E+00	1.21E-05			
26FE	55	9.36E-02	3.78E-06	2.68E-06	6.25E-07	0.00E+00	0.00E+00	1.70E-06	1.16E-06			
26FE	59	2.08E-04	5.87E-06	1.37E-05	5.29E-06	0.00E+00	0.00E+00	4.32E-06	3.24E-05			
27CO	58	2.38E-02	0.00E+00	9.72E-07	2.24E-06	0.00E+00	0.00E+00	0.00E+00	1.34E-05			
27CO	60	2.91E-02	0.00E+00	2.81E-06	6.33E-06	0.00E+00	0.00E+00	0.00E+00	3.66E-05			
28NI	63	7.40E-03	1.77E-04	1.25E-05	6.00E-06	0.00E+00	0.00E+00	0.00E+00	1.99E-06			
38SR	89	8.62E-05	4.40E-04	0.00E+00	1.26E-05	0.00E+00	0.00E+00	0.00E+00	5.24E-05			
41NB	95	5.88E-05	8.22E-09	4.56E-09	2.51E-09	0.00E+00	4.42E-09	0.00E+00	1.95E-05			
44RU	103	3.01E-05	2.55E-07	0.00E+00	1.09E-07	0.00E+00	8.99E-07	0.00E+00	2.13E-05			
52TE	132	3.98E-05	3.49E-06	2.21E-06	2.08E-06	2.33E-06	2.12E-05	0.00E+00	7.00E-05			
53I	131	6.19E-03	5.85E-06	8.19E-06	4.40E-06	2.39E-03	1.41E-05	0.00E+00	1.62E-06			
53I	132	2.61E-02	2.79E-07	7.30E-07	2.62E-07	2.46E-05	1.15E-06	0.00E+00	3.18E-07			
53I	133	4.12E-02	2.01E-06	3.41E-06	1.04E-06	4.76E-04	5.98E-06	0.00E+00	2.58E-06			
53I	134	1.85E-02	1.46E-07	3.87E-07	1.39E-07	6.45E-06	6.10E-07	0.00E+00	5.10E-09			
53I	135	4.60E-02	6.10E-07	1.57E-06	5.82E-07	1.01E-04	2.48E-06	0.00E+00	1.74E-06			
55CS	137	3.09E-02	1.12E-04	1.49E-04	5.19E-05	0.00E+00	5.07E-05	1.97E-05	2.12E-06			
57LA	140	6.74E-05	3.48E-09	1.71E-09	4.55E-10	0.00E+00	0.00E+00	0.00E+00	9.82E-05			
51SB	124	2.91E-03	3.87E-06	7.13E-08	1.51E-06	8.78E-09	0.00E+00	3.38E-06	7.80E-05			
51SB	125	1.49E-02	2.48E-06	2.71E-08	5.80E-07	2.37E-09	0.00E+00	2.18E-06	1.93E-05			

* * * CATEGORY III DOSE FACTORS * * *

NUCLIDE		CURIE/YEAR	INGESTION DOSE FACTORS (MREM/PCI INTAKE) BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SHORELINE (MREM/HR)/(PCI/M**2) SKIN	TOTAL BODY	RECON
1H	3	3.37E+02	0.00E+00	2.03E-07	2.03E-07	2.03E-07	2.03E-07	2.03E-07	2.03E-07			
24CR	51	8.45E-03	0.00E+00	0.00E+00	8.90E-09	4.94E-09	1.35E-09	9.02E-09	4.72E-07			
25MN	54	2.99E-03	0.00E+00	1.07E-05	2.85E-06	0.00E+00	3.00E-06	0.00E+00	8.98E-06			
26FE	55	9.36E-02	1.15E-05	6.10E-06	1.89E-06	0.00E+00	0.00E+00	3.45E-06	1.13E-06			
26FE	59	2.08E-04	1.65E-05	2.67E-05	1.33E-05	0.00E+00	0.00E+00	7.74E-06	2.78E-05			
27CO	58	2.38E-02	0.00E+00	1.80E-06	5.51E-06	0.00E+00	0.00E+00	0.00E+00	1.05E-05			
27CO	60	2.91E-02	0.00E+00	5.29E-06	1.56E-05	0.00E+00	0.00E+00	0.00E+00	2.93E-05			
28NI	63	7.40E-03	5.38E-04	2.88E-05	1.83E-05	0.00E+00	0.00E+00	0.00E+00	1.94E-06			
38SR	89	8.62E-05	1.32E-03	0.00E+00	3.77E-05	0.00E+00	0.00E+00	0.00E+00	5.11E-05			
41NB	95	5.88E-05	2.25E-08	8.76E-09	6.26E-09	0.00E+00	8.23E-09	0.00E+00	1.62E-05			
44RU	103	3.01E-05	7.31E-07	0.00E+00	2.81E-07	0.00E+00	1.84E-06	0.00E+00	1.89E-05			
52TE	132	3.98E-05	1.01E-05	4.47E-06	5.40E-06	6.51E-06	4.15E-05	0.00E+00	4.50E-05			
53I	131	6.19E-03	1.72E-05	1.73E-05	9.83E-06	5.72E-03	2.84E-05	0.00E+00	1.54E-06			
53I	132	2.61E-02	8.00E-07	1.47E-06	6.76E-07	6.82E-05	2.25E-06	0.00E+00	1.73E-06			
53I	133	4.12E-02	5.92E-06	7.32E-06	2.77E-06	1.36E-03	1.22E-05	0.00E+00	2.95E-06			
53I	134	1.85E-02	4.19E-07	7.78E-07	3.58E-07	1.79E-05	1.19E-06	0.00E+00	5.16E-07			
53I	135	4.60E-02	1.75E-06	3.15E-06	1.49E-06	2.79E-04	4.83E-06	0.00E+00	2.40E-06			
55CS	137	3.09E-02	3.27E-04	3.13E-04	4.62E-05	0.00E+00	1.02E-04	3.67E-05	1.96E-06			
57LA	140	6.74E-05	1.01E-08	3.53E-09	1.19E-09	0.00E+00	0.00E+00	0.00E+00	9.84E-05			
51SB	124	2.91E-03	1.11E-05	1.44E-07	3.89E-06	2.45E-08	0.00E+00	6.16E-06	6.94E-05			
51SB	125	1.49E-02	7.16E-06	5.52E-08	1.50E-06	6.63E-09	0.00E+00	3.99E-06	1.71E-05			

* * * CATEGORY IV DOSE FACTORS * * *

NUCLIDE		CURIE/YEAR	INGESTION DOSE FACTORS (MREM/PCI INTAKE) BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SHORELINE (MREM/HR)/(PCI/M**2) SKIN	TOTAL BODY	RECON
1H	3	3.37E+02	0.00E+00	3.08E-07	3.08E-07	3.08E-07	3.08E-07	3.08E-07	3.08E-07			
24CR	51	8.45E-03	0.00E+00	0.00E+00	1.41E-08	9.20E-09	2.01E-09	1.79E-08	4.11E-07			
25MN	54	2.99E-03	0.00E+00	1.99E-05	4.51E-06	0.00E+00	4.41E-06	0.00E+00	7.31E-06			
26FE	55	9.36E-02	1.39E-05	8.98E-06	2.40E-06	0.00E+00	0.00E+00	4.39E-06	1.14E-06			
26FE	59	2.08E-04	3.08E-05	5.38E-05	2.12E-05	0.00E+00	0.00E+00	1.59E-05	2.57E-05			
27CO	58	2.38E-02	0.00E+00	3.60E-06	8.98E-06	0.00E+00	0.00E+00	0.00E+00	8.97E-06			
27CO	60	2.91E-02	0.00E+00	1.08E-05	2.55E-05	0.00E+00	0.00E+00	0.00E+00	2.57E-05			
28NI	63	7.40E-03	6.34E-04	3.92E-05	2.20E-05	0.00E+00	0.00E+00	0.00E+00	1.95E-06			
38SR	89	8.62E-05	2.51E-03	0.00E+00	7.20E-05	0.00E+00	0.00E+00	0.00E+00	5.16E-05			
41NB	95	5.88E-05	4.20E-08	1.73E-08	1.00E-08	0.00E+00	1.24E-08	0.00E+00	1.46E-05			
44RU	103	3.01E-05	1.48E-06	0.00E+00	4.95E-07	0.00E+00	3.08E-06	0.00E+00	1.80E-05			
52TE	132	3.98E-05	2.08E-05	1.03E-05	9.61E-06	1.52E-05	6.44E-05	0.00E+00	3.81E-05			
53I	131	6.19E-03	3.59E-05	4.23E-05	1.86E-05	1.39E-02	4.94E-05	0.00E+00	1.51E-06			
53I	132	2.61E-02	1.66E-06	3.37E-06	1.20E-06	1.58E-04	3.76E-06	0.00E+00	2.73E-06			
53I	133	4.12E-02	1.25E-05	1.82E-05	5.33E-06	3.31E-03	2.14E-05	0.00E+00	3.08E-06			
53I	134	1.85E-02	8.69E-07	1.78E-06	6.33E-07	4.15E-05	1.99E-06	0.00E+00	1.84E-06			
53I	135	4.60E-02	3.64E-06	7.24E-06	2.64E-06	6.49E-04	8.07E-06	0.00E+00	2.62E-06			
55CS	137	3.09E-02	5.22E-04	6.11E-04	4.33E-05	0.00E+00	1.64E-04	6.64E-05	1.91E-06			
57LA	140	6.74E-05	2.11E-08	8.32E-09	2.14E-09	0.00E+00	0.00E+00	0.00E+00	9.77E-05			
51SB	124	2.91E-03	2.14E-05	3.15E-07	6.63E-06	5.68E-08	0.00E+00	1.34E-05	6.60E-05			
51SB	125	1.49E-02	1.23E-05	1.19E-07	2.53E-06	1.54E-08	0.00E+00	7.12E-06	1.64E-05			

TOTAL NUMBER IN SOURCE TERM IS 21 TOTAL RELEASE IS 3.3735E+02

* * * AS LOW AS REASONABLY ACHIEVABLE * * *

C A T E G O R Y I D O S E S

DOSE (MREM PER YEAR INTAKE)

PATHWAY	SKIN	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH		5.27E-02	7.10E-02	4.66E-02	3.12E-03	2.43E-02	8.38E-03	3.21E-03
INVERTEBRATE		2.93E-03	5.47E-03	1.65E-03	3.15E-04	1.40E-03	9.68E-04	1.17E-02
ALGAE		7.98E-09	1.02E-08	6.25E-09	3.70E-09	3.23E-09	1.80E-09	8.60E-09
DRINKING		1.87E-13	1.94E-12	1.88E-12	2.18E-12	1.82E-12	1.78E-12	1.87E-12
SHORELINE	7.45E-04	6.36E-04	6.36E-04	6.36E-04	6.36E-04	6.36E-04	6.36E-04	6.36E-04
SWIMMING	0.00E+00	7.79E-06	7.79E-06	7.79E-06	7.79E-06	7.79E-06	7.79E-06	7.79E-06
BOATING	0.00E+00	7.79E-06	7.79E-06	7.79E-06	7.79E-06	7.79E-06	7.79E-06	7.79E-06
TOTAL	7.45E-04	5.63E-02	7.72E-02	4.89E-02	4.09E-03	2.63E-02	9.99E-03	1.56E-02

	USAGE (KG/YR,HR/YR)	DILUTION	TIME(HR)
FISH	21.0	5.0	25.00
INVERTEBRATE	5.0	5.0	25.00
ALGAE	0.0	5.0	25.00
DRINKING	0.0	500.0	112.00
SHORELINE	50.0	5.0	1.00
SWIMMING	50.0	5.0	1.00
BOATING	100.0	5.0	1.00

SHOREWIDTH FACTOR=0.2

C A T E G O R Y I I D O S E S

DOSE (MREM PER YEAR INTAKE)

PATHWAY	SKIN	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH		5.64E-02	7.39E-02	2.60E-02	2.93E-03	2.52E-02	1.01E-02	2.36E-03
INVERTEBRATE		3.08E-03	5.53E-03	1.43E-03	2.86E-04	1.38E-03	1.14E-03	7.89E-03
ALGAE		1.12E-08	1.39E-08	4.97E-09	4.61E-09	4.36E-09	2.78E-09	8.13E-09
DRINKING		2.60E-13	2.03E-12	1.87E-12	2.29E-12	1.86E-12	1.82E-12	1.88E-12
SHORELINE	9.98E-04	8.52E-04	8.52E-04	8.52E-04	8.52E-04	8.52E-04	8.52E-04	8.52E-04
SWIMMING	0.00E+00	1.56E-05	1.56E-05	1.56E-05	1.56E-05	1.56E-05	1.56E-05	1.56E-05
BOATING	0.00E+00	7.79E-06	7.79E-06	7.79E-06	7.79E-06	7.79E-06	7.79E-06	7.79E-06
TOTAL	9.98E-04	6.04E-02	8.03E-02	2.83E-02	4.09E-03	2.75E-02	1.21E-02	1.11E-02

	USAGE (KG/YR,HR/YR)	DILUTION	TIME(HR)
FISH	16.0	5.0	25.00
INVERTEBRATE	3.8	5.0	25.00
ALGAE	0.0	5.0	25.00
DRINKING	0.0	500.0	112.00
SHORELINE	67.0	5.0	1.00
SWIMMING	100.0	5.0	1.00
BOATING	100.0	5.0	1.00

SHOREWIDTH FACTOR=0.2

C A T E G O R Y I I I D O S E S

DOSE (MREM PER YEAR INTAKE)

PATHWAY	SKIN	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH		7.11E-02	6.69E-02	1.02E-02	3.18E-03	2.19E-02	8.11E-03	1.00E-03
INVERTEBRATE		4.15E-03	4.92E-03	1.43E-03	3.13E-04	1.11E-03	1.03E-03	2.72E-03
ALGAE		3.28E-05	2.91E-05	6.07E-06	1.18E-05	8.67E-06	5.32E-06	7.05E-06
DRINKING		7.70E-10	3.94E-09	3.52E-09	4.64E-09	3.56E-09	3.48E-09	3.49E-09
SHORELINE	2.08E-04	1.78E-04	1.78E-04	1.78E-04	1.78E-04	1.78E-04	1.78E-04	1.78E-04
SWIMMING	0.00E+00	3.90E-06	3.90E-06	3.90E-06	3.90E-06	3.90E-06	3.90E-06	3.90E-06
BOATING	0.00E+00	7.79E-06	7.79E-06	7.79E-06	7.79E-06	7.79E-06	7.79E-06	7.79E-06

TOTAL	2.08E-04	7.55E-02	7.21E-02	1.19E-02	3.69E-03	2.32E-02	9.33E-03	3.92E-03

	USAGE (KG/YR,HR/YR)	DILUTION	TIME(HR)	SHOREWIDTH FACTOR=0.2
FISH	6.9	5.0	25.00	
INVERTEBRATE	1.7	5.0	25.00	
ALGAE	0.0	5.0	25.00	
DRINKING	0.0	500.0	112.00	
SHORELINE	14.0	5.0	1.00	
SWIMMING	25.0	5.0	1.00	
BOATING	100.0	5.0	1.00	

C A T E G O R Y I V D O S E S

DOSE (MREM PER YEAR INTAKE)

PATHWAY	SKIN	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH		8.17E-03	9.45E-03	7.12E-04	5.46E-04	2.55E-03	1.05E-03	7.68E-05
INVERTEBRATE		3.16E-04	5.07E-04	1.20E-04	4.19E-05	9.91E-05	8.08E-05	1.37E-04
ALGAE		5.02E-08	5.52E-08	7.07E-09	2.83E-08	1.39E-08	8.71E-09	6.66E-09
DRINKING		1.13E-12	6.19E-12	5.30E-12	8.18E-12	5.42E-12	5.29E-12	5.24E-12
SHORELINE	4.47E-05	3.81E-05	3.81E-05	3.81E-05	3.81E-05	3.81E-05	3.81E-05	3.81E-05
SWIMMING	0.00E+00	1.56E-12	1.56E-12	1.56E-12	1.56E-12	1.56E-12	1.56E-12	1.56E-12
BOATING	0.00E+00	3.90E-08	3.90E-08	3.90E-08	3.90E-08	3.90E-08	3.90E-08	3.90E-08
TOTAL	4.47E-05	8.53E-03	1.00E-02	8.70E-04	6.26E-04	2.68E-03	1.17E-03	2.52E-04

	USAGE (KG/YR,HR/YR)	DILUTION	TIME(HR)	SHOREWIDTH FACTOR=0.2
FISH	0.5	5.0	25.00	
INVERTEBRATE	0.1	5.0	25.00	
ALGAE	0.0	5.0	25.00	
DRINKING	0.0	500.0	112.00	
SHORELINE	3.0	5.0	1.00	
SWIMMING	0.0	5.0	1.00	
BOATING	0.5	5.0	1.00	

* * * SELECTED LOCATION * * *

LOCATION IS DOWNSTREAM

C A T E G O R Y I D O S E S

DOSE (MREM PER YEAR INTAKE)

PATHWAY	SKIN	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH		3.77E-02	5.07E-02	3.33E-02	2.06E-03	1.73E-02	5.98E-03	2.29E-03
INVERTEBRATE		2.09E-03	3.90E-03	1.18E-03	2.11E-04	9.93E-04	6.91E-04	8.35E-03
ALGAE		5.70E-09	7.30E-09	4.46E-09	2.42E-09	2.31E-09	1.29E-09	6.13E-09
DRINKING		1.35E-11	1.39E-10	1.35E-10	1.96E-10	1.30E-10	1.27E-10	1.34E-10
SHORELINE	5.32E-04	4.54E-04	4.54E-04	4.54E-04	4.54E-04	4.54E-04	4.54E-04	4.54E-04
SWIMMING	0.00E+00	4.82E-06	4.82E-06	4.82E-06	4.82E-06	4.82E-06	4.82E-06	4.82E-06
BOATING	0.00E+00	4.82E-06	4.82E-06	4.82E-06	4.82E-06	4.82E-06	4.82E-06	4.82E-06
TOTAL	5.32E-04	4.02E-02	5.51E-02	3.49E-02	2.73E-03	1.88E-02	7.14E-03	1.11E-02

	USAGE (KG/YR,HR/YR)	DILUTION	TIME(HR)
FISH	21.0	7.0	31.00
INVERTEBRATE	5.0	7.0	31.00
ALGAE	0.0	7.0	31.00
DRINKING	0.0	7.0	19.00
SHORELINE	50.0	7.0	7.00
SWIMMING	50.0	7.0	7.00
BOATING	100.0	7.0	7.00

SHOREWIDTH FACTOR=0.2

LOCATION IS DOWNSTREAM

C A T E G O R Y I I D O S E S

DOSE (MREM PER YEAR INTAKE)

PATHWAY	SKIN	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH		4.03E-02	5.28E-02	1.85E-02	1.92E-03	1.80E-02	7.19E-03	1.68E-03
INVERTEBRATE		2.20E-03	3.95E-03	1.02E-03	1.91E-04	9.80E-04	8.17E-04	5.62E-03
ALGAE		7.97E-09	9.92E-09	3.55E-09	3.01E-09	3.11E-09	1.99E-09	5.79E-09
DRINKING		1.88E-11	1.45E-10	1.34E-10	2.15E-10	1.33E-10	1.30E-10	1.35E-10
SHORELINE	7.13E-04	6.08E-04	6.08E-04	6.08E-04	6.08E-04	6.08E-04	6.08E-04	6.08E-04
SWIMMING	0.00E+00	9.64E-06	9.64E-06	9.64E-06	9.64E-06	9.64E-06	9.64E-06	9.64E-06
BOATING	0.00E+00	4.82E-06	4.82E-06	4.82E-06	4.82E-06	4.82E-06	4.82E-06	4.82E-06
TOTAL	7.13E-04	4.31E-02	5.74E-02	2.02E-02	2.74E-03	1.96E-02	8.63E-03	7.93E-03

	USAGE (KG/YR,HR/YR)	DILUTION	TIME(HR)
FISH	16.0	7.0	31.00
INVERTEBRATE	3.8	7.0	31.00
ALGAE	0.0	7.0	31.00
DRINKING	0.0	7.0	19.00
SHORELINE	67.0	7.0	7.00
SWIMMING	100.0	7.0	7.00
BOATING	100.0	7.0	7.00

SHOREWIDTH FACTOR=0.2

LOCATION IS DOWNSTREAM

C A T E G O R Y I I I D O S E S

DOSE (MREM PER YEAR INTAKE)

PATHWAY	SKIN	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH		5.08E-02	4.78E-02	7.31E-03	2.07E-03	1.56E-02	5.79E-03	7.15E-04

INVERTEBRATE		2.96E-03	3.51E-03	1.02E-03	2.07E-04	7.90E-04	7.33E-04	1.94E-03
ALGAE		2.34E-05	2.08E-05	4.33E-06	7.63E-06	6.18E-06	3.80E-06	5.02E-06
DRINKING		5.56E-08	2.82E-07	2.52E-07	4.72E-07	2.56E-07	2.48E-07	2.50E-07
SHORELINE	1.49E-04	1.27E-04	1.27E-04	1.27E-04	1.27E-04	1.27E-04	1.27E-04	1.27E-04
SWIMMING	0.00E+00	2.41E-06	2.41E-06	2.41E-06	2.41E-06	2.41E-06	2.41E-06	2.41E-06
BOATING	0.00E+00	4.82E-06	4.82E-06	4.82E-06	4.82E-06	4.82E-06	4.82E-06	4.82E-06
TOTAL	1.49E-04	5.39E-02	5.15E-02	8.47E-03	2.42E-03	1.66E-02	6.66E-03	2.79E-03

	USAGE (KG/YR,HR/YR)	DILUTION	TIME(HR)
FISH	6.9	7.0	31.00
INVERTEBRATE	1.7	7.0	31.00
ALGAE	0.0	7.0	31.00
DRINKING	0.0	7.0	19.00
SHORELINE	14.0	7.0	7.00
SWIMMING	25.0	7.0	7.00
BOATING	100.0	7.0	7.00

SHOREWIDTH FACTOR=0.2

LOCATION IS DOWNSTREAM

C A T E G O R Y I V D O S E S

DOSE (MREM PER YEAR INTAKE)

PATHWAY	SKIN	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH		5.84E-03	6.75E-03	5.09E-04	3.54E-04	1.82E-03	7.53E-04	5.48E-05
INVERTEBRATE		2.26E-04	3.62E-04	8.55E 05	2.75E-05	7.04E-05	5.77E-05	9.74E-05
ALGAE		3.59E-08	3.94E-08	5.05E-09	1.83E-08	9.89E-09	6.22E-09	4.74E-09
DRINKING		8.20E-11	4.44E-10	3.79E-10	9.26E-10	3.90E-10	3.78E-10	3.75E-10
SHORELINE	3.19E-05	2.72E-05	2.72E-05	2.72E-05	2.72E-05	2.72E-05	2.72E-05	2.72E-05
SWIMMING	0.00E+00	9.64E-13	9.64E-13	9.64E-13	9.64E-13	9.64E-13	9.64E-13	9.64E-13
BOATING	0.00E+00	2.41E-08	2.41E-08	2.41E-08	2.41E-08	2.41E-08	2.41E-08	2.41E-08
TOTAL	3.19E-05	6.09E-03	7.14E-03	6.22E-04	4.09E-04	1.92E 03	8.38E-04	1.79E 04

	USAGE (KG/YR,HR/YR)	DILUTION	TIME(HR)
FISH	0.5	7.0	31.00
INVERTEBRATE	0.1	7.0	31.00
ALGAE	0.0	7.0	31.00
DRINKING	0.0	7.0	19.00
SHORELINE	3.0	7.0	7.00
SWIMMING	0.0	7.0	7.00
BOATING	0.5	7.0	7.00

SHOREWIDTH FACTOR=0.2

* * * FISH CONSUMPTION POPULATION DOSES * * *
MAN-REM

_____SPORT HARVEST_____

PATHWAY	AGE GROUP	USAGE	DOSE (MAN-REM) BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH	CATEGORY I	7.60E+04	1.34E-01	1.80E-01	1.18E-01	3.49E-03	6.15E-02	2.13E-02	7.96E-03
FISH	CATEGORY II	8.87E+03	2.20E-02	2.88E-02	1.01E-02	4.79E-04	9.81E-03	3.92E-03	8.99E-04
FISH	CATEGORY III	6.14E+03	4.44E-02	4.18E-02	6.39E-03	7.62E-04	1.37E-02	5.06E-03	6.14E-04
FISH	TOTAL	9.10E+04	2.00E-01	2.51E-01	1.35E-01	4.73E-03	8.50E-02	3.03E-02	9.48E-03

LOCATION DILUTION CATCH TIME(HR)-INCLUDES FOOD PROCESSING TIME OF 1.68E+02 HR POPULATION=1.55E+04
7.00E+00 9.10E+04 1.68E+02

AVERAGE INDIVIDUAL CONSUMPTION (KG/YR) CATEGORY I=6.90E+00 CATEGORY II=5.20E+00 CATEGORY IV=2.20E+00

* * * FISH CONSUMPTION POPULATION DOSES * * *
MAN-REM

_____COMMERCIAL HARVEST_____

PATHWAY	AGE GROUP	USAGE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
			DOSE (MAN-REM)						
FISH	CATEGORY I	1.02E+08	6.35E-01	8.56E-01	5.62E-01	1.36E-02	2.92E-01	1.01E-01	3.74E-02
FISH	CATEGORY II	1.20E+07	1.04E-01	1.36E-01	4.80E-02	1.85E-03	4.66E-02	1.86E-02	4.23E-03
FISH	CATEGORY III	8.28E+06	2.11E-01	1.98E-01	3.03E-02	2.91E-03	6.48E-02	2.40E-02	2.89E-03
FISH	TOTAL	1.23E+08	9.50E-01	1.19E+00	6.40E-01	1.84E-02	4.03E-01	1.44E-01	4.46E-02

LOCATION	DILUTION	CATCH	TIME(HR)-INCLUDES FOOD PROCESSING TIME OF 2.40E+02 HR	POPULATION=2.09E+07
	7.00E+00	1.55E+05	2.40E+02	

AVERAGE INDIVIDUAL CONSUMPTION (KG/YR) CATEGORY I=6.90E+00 CATEGORY II=5.20E+00 CATEGORY IV=2.20E+00

_____NEPA DOSES_____

NOTE--TOTAL NEPA DOSE INCLUDES SPORT CATCH

PATHWAY	AGE GROUP	USAGE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
			DOSE (MAN-REM)						
FISH	CATEGORY I	2.05E+05	3.62E-01	4.88E-01	3.20E-01	8.39E-03	1.66E-01	5.75E-02	2.14E-02
FISH	CATEGORY II	2.40E+04	5.93E-02	7.77E-02	2.73E-02	1.14E-03	2.65E-02	1.06E-02	2.42E-03
FISH	CATEGORY III	1.66E+04	1.20E-01	1.13E-01	1.73E-02	1.81E-03	3.69E-02	1.37E-02	1.65E-03
FISH	TOTAL	2.46E+05	5.41E-01	6.78E-01	3.64E-01	1.13E-02	2.30E-01	8.18E-02	2.55E-02

* * * INVERTEBRATE CONSUMPTION POPULATION DOSES * * *
MAN-REM

_____SPORT HARVEST_____

PATHWAY	AGE GROUP	USAGE	DOSE (MAN-REM) BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
INVER	CATEGORY I	8.33E+03	3.40E-03	6.33E-03	1.91E-03	1.94E-04	1.52E-03	1.13E-03	1.30E-02
INVER	CATEGORY II	9.68E+02	5.46E-04	9.79E-04	2.52E-04	2.54E-05	2.28E-04	2.04E-04	1.34E-03
INVER	CATEGORY III	6.97E+02	1.18E-03	1.40E-03	4.05E-04	4.02E-05	2.94E-04	2.94E-04	7.48E-04
INVER	TOTAL	1.00E+04	5.14E-03	8.71E-03	2.57E-03	2.60E-04	2.04E-03	1.63E-03	1.51E-02

LOCATION	DILUTION	CATCH	TIME(HR)-INCLUDES FOOD PROCESSING TIME OF 1.68E+02 HR	POPULATION=1.17E+04
	7.00E+00	1.00E+04	1.68E+02	

AVERAGE INDIVIDUAL CONSUMPTION (KG/YR) CATEGORY I=1.00E+00 CATEGORY II=7.50E-01 CATEGORY IV=3.30E-01

* * * INVERTEBRATE CONSUMPTION POPULATION DOSES * * *
MAN-REM

_____COMMERCIAL HARVEST_____

PATHWAY	AGE GROUP	USAGE	DOSE (MAN-REM) BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
INVER	CATEGORY I	1.48E+07	2.63E-03	4.88E-03	1.47E-03	1.31E-04	1.15E-03	8.72E-04	9.95E-03
INVER	CATEGORY II	1.72E+06	4.21E-04	7.54E-04	1.94E-04	1.69E-05	1.73E-04	1.57E-04	1.02E-03
INVER	CATEGORY III	1.24E+06	9.15E-04	1.08E-03	3.12E-04	2.63E-05	2.24E-04	2.27E-04	5.72E-04
INVER	TOTAL	1.78E+07	3.96E-03	6.71E-03	1.98E-03	1.74E-04	1.55E-03	1.26E-03	1.15E-02

LOCATION	DILUTION	CATCH	TIME(HR)-INCLUDES FOOD PROCESSING TIME OF 2.40E+02 HR	POPULATION=2.09E+07
	7.00E+00	1.00E+03	2.40E+02	

AVERAGE INDIVIDUAL CONSUMPTION (KG/YR) CATEGORY I=1.00E+00 CATEGORY II=7.50E-01 CATEGORY IV=3.30E-01

_____NEPA DOSES_____

NOTE--TOTAL NEPA DOSE INCLUDES SPORT CATCH

PATHWAY	AGE GROUP	USAGE	DOSE (MAN-REM) BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
INVER	CATEGORY I	9.17E+03	3.74E-03	6.96E-03	2.10E-03	2.11E-04	1.66E-03	1.24E-03	1.43E-02
INVER	CATEGORY II	1.07E+03	6.00E-04	1.08E-03	2.77E-04	2.76E-05	2.50E-04	2.24E-04	1.47E-03
INVER	CATEGORY III	7.67E+02	1.30E-03	1.54E-03	4.46E-04	4.36E-05	3.23E-04	3.24E-04	8.22E-04
INVER	TOTAL	1.10E+04	5.65E-03	9.58E-03	2.83E-03	2.82E-04	2.24E-03	1.79E-03	1.66E-02

* * * POPULATION WATER CONSUMPTION DOSES * * *

SUPPLIER-

PATHWAY	AGE GROUP	USAGE	DOSE (MAN-REM) BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
DRINKING	CATEGORY I	2.63E+02	3.92E-09	2.17E-09	1.52E-09	3.81E-10	9.22E-10	5.61E-10	4.52E-10
DRINKING	CATEGORY II	2.86E+01	5.87E-10	3.08E-10	1.38E-10	4.19E-11	1.23E-10	7.32E-11	4.98E-11
DRINKING	CATEGORY III	4.68E+01	2.88E-09	1.06E-09	3.21E-10	1.31E-10	3.97E-10	2.27E-10	1.44E-10
DRINKING	TOTAL	3.38E+02	7.39E-09	3.53E-09	1.98E-09	5.54E-10	1.44E-09	8.61E-10	6.45E-10

POPULATION=1.00E+00 DILUTION=1.00E+02 TRANSIT TIME=1.00E+06 HR (INCLUDING 24 HR FOR TREATMENT FACILITY)

AVERAGE INDIVIDUAL CONSUMPTION (L/YR) CATEGORY I =3.70E+02 CATEGORY II=2.60E+02 CATEGORY III=2.60E+02

-----CUMULATIVE TOTAL-----

PATHWAY	AGE GROUP	USAGE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
DRINKING	CUMUL TOTAL	3.38E+02	7.39E-09	3.53E-09	1.98E-09	5.54E-10	1.44E-09	8.61E-10	6.45E-10

----------HYDROSPHERE TRITIUM DOSE----------

PATHWAY	AGE GROUP	USAGE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
WATER	TOTAL	2.20E+00	2.76E-03	2.76E-03	2.76E-03	2.76E-03	2.76E-03	2.76E-03	2.76E-03

* * * RECREATION POPULATION DOSES * * *

LOCATION- DOWNSTREAM

DILUTION=0.70E+01 TRANSIT TIME=0.40E+01 HR SWF=0.2

PATHWAY	AGE GROUP	USAGE	DOSE(MAN-REM) SKIN	TOTAL BODY	THYROID
SHORELINE	TOTAL POPUL	1.66E+07	1.77E-01	1.51E-01	1.51E-01

LOCATION- 0.2DO

DILUTION=0.70E+01 TRANSIT TIME=0.40E+01 HR

PATHWAY	AGE GROUP	USAGE	DOSE(MAN-REM) SKIN	TOTAL BODY	THYROID
SWIMMING	TOTAL POPUL	1.66E+07	0.00E+00	1.64E-03	1.64E-03

LOCATION- 0.2DO

DILUTION=0.70E+01 TRANSIT TIME=0.40E+01 HR

PATHWAY	AGE GROUP	USAGE	DOSE(MAN-REM) SKIN	TOTAL BODY	THYROID
BOATING	TOTAL POPUL	1.66E+07	0.00E+00	8.19E-04	8.19E-04

* * * DOSE TO BIOTA * * *

MRADS PER YEAR

DILUTION= 7.00E+00 TRANSIT TIME= 4.00E+00 HR

	INTERNAL	EXTERNAL	TOTAL
FISH	1.21E-01	3.98E-01	5.20E-01
INVERTEBRATE	1.44E-01	7.96E-01	9.40E-01
ALGAE	1.01E-01	8.64E-04	1.01E-01
MUSKRAT	6.91E-01	2.66E-01	9.57E-01
RACCOON	6.67E-02	1.99E-01	2.66E-01
HERON	3.54E+00	2.65E-01	3.80E+00
DUCK	6.34E-01	3.98E 01	1.03E+00

* * * COST-BENEFIT ANALYSIS * * *

NUCLIDE	RELEASE CI/YR	MAN-REM DOSE TOTAL BODY	MAN-REM DOSE THYROID	MAN REM PER CURIE TOTAL BODY	MAN REM PER CURIE THYROID
1H 3	3.37E+02	6.39E-03	6.39E-03	1.90E-05	1.90E-05
24CR 51	8.45E-03	9.56E-06	9.13E-06	1.13E-03	1.08E-03
25MN 54	2.99E-03	2.58E-03	6.54E-04	8.61E-01	2.19E-01
26FE 55	9.36E-02	1.98E-03	3.53E-08	2.12E-02	3.77E-07
26FE 59	2.08E-04	4.36E-05	1.13E-05	2.10E-01	5.42E-02
27CO 58	2.38E-02	2.07E-03	1.62E-03	8.69E-02	6.81E-02
27CO 60	2.91E-02	9.73E-02	9.56E-02	3.34E+00	3.29E+00
28NI 63	7.40E-03	7.63E-04	0.00E+00	1.03E-01	0.00E+00
38SR 89	8.62E-05	5.16E-06	2.61E-09	5.99E-02	3.03E-05
41NB 95	5.88E-05	2.03E-06	1.43E-06	3.45E-02	2.44E-02
44RU 103	3.01E-05	5.84E-07	5.75E-07	1.94E-02	1.91E-02
52TE 132	3.98E-05	9.05E-06	1.06E-05	2.27E-01	2.67E-01
53I 131	6.19E 03	7.40E-05	1.72E-02	1.20E-02	2.77E+00
53I 132	2.61E-02	1.74E-06	1.74E-06	6.66E-05	6.66E-05
53I 133	4.12E-02	2.18E-04	2.65E-04	5.28E-03	6.43E-03
53I 134	1.85E-02	1.93E-05	1.93E-05	1.05E-03	1.05E-03
53I 135	4.60E-02	1.35E-05	1.35E-05	2.93E-04	2.93E-04
55CS 137	3.09E-02	8.14E-01	4.85E-02	2.64E+01	1.57E+00
57LA 140	6.74E-05	2.08E-07	2.08E-07	3.09E-03	3.09E-03
51SB 124	2.91E-03	3.27E-04	3.26E-04	1.12E-01	1.12E-01
51SB 125	1.49E-02	5.35E-03	5.35E-03	3.59E-01	3.59E-01
TOTAL		9.32E-01	1.76E-01		

NOTE ON AGE GROUP:

CATEGORY I (17 YEARS OLD OR OLDER)
CATEGORY II (11 TO 17 YEARS OLD)
CATEGORY III (1 TO 11 YEARS OLD)
CATEGORY IV (0 TO 1 YEAR OLD)

TABLE 4A

HOURS AT EACH WIND SPEED AND DIRECTION[a]

INDIAN POINT JAN-MAR 1989
10 METER WIND SPEED & DIR. WITH 61-10 METER DELTA T
PASQUILL CLASS A

WIND DIRECTION	WIND SPEED (MPH)						
	01-03	04-07	08-12	13-18	19-24	>24	TOTAL
N	0.	16.	37.	2.	0.	0.	55.
NNE	1.	2.	2.	0.	0.	0.	5.
NE	0.	0.	2.	0.	0.	0.	2.
ENE	0.	0.	0.	0.	0.	0.	0.
E	0.	0.	0.	0.	0.	0.	0.
ESE	0.	2.	0.	0.	0.	0.	2.
SE	0.	5.	0.	0.	0.	0.	5.
SSE	0.	13.	12.	0.	0.	0.	25.
S	0.	6.	2.	0.	0.	0.	8.
SSW	0.	0.	3.	0.	0.	0.	3.
SW	0.	0.	1.	0.	0.	0.	1.
WSW	0.	2.	1.	0.	0.	0.	3.
W	0.	1.	2.	0.	0.	0.	3.
WNW	0.	5.	10.	1.	0.	0.	16.
NW	0.	10.	18.	2.	0.	0.	30.
NNW	0.	17.	12.	1.	0.	0.	30.
TOTAL	1.	79.	102.	6.	0.	0.	188.

Periods of calm (hours): 0
Hours of missing data: 1

[a]In the table, record the total number of hours of each category of wind direction for each calendar quarter. Provide similar tables separately for each atmospheric stability class and elevation.

TABLE 4A

HOURS AT EACH WIND SPEED AND DIRECTION[a]

INDIAN POINT JAN-MAR 1989
10 METER WIND SPEED & DIR. WITH 61-10 METER DELTA T
PASQUILL CLASS B

WIND DIRECTION	WIND SPEED (MPH)						
	01-03	04-07	08-12	13-18	19-24	>24	TOTAL
N	0.	6.	10.	3.	0.	0.	19.
NNE	0.	5.	0.	0.	0.	0.	5.
NE	1.	0.	0.	0.	0.	0.	1.
ENE	0.	2.	0.	0.	0.	0.	2.
E	0.	0.	0.	0.	0.	0.	0.
ESE	0.	0.	0.	0.	0.	0.	0.
SE	0.	0.	0.	0.	0.	0.	0.
SSE	0.	5.	6.	0.	0.	0.	11.
S	0.	8.	5.	0.	0.	0.	13.
SSW	0.	0.	1.	0.	0.	0.	1.
SW	0.	0.	1.	0.	0.	0.	1.
WSW	0.	2.	1.	0.	0.	0.	3.
W	0.	1.	0.	0.	0.	0.	1.
WNW	0.	4.	4.	0.	0.	0.	8.
NW	0.	7.	7.	0.	0.	0.	14.
NNW	0.	1.	3.	0.	0.	0.	4.
TOTAL	1.	41.	38.	3.	0.	0.	83.

Periods of calm (hours): 0
Hours of missing data: 1

[a]In the table, record the total number of hours of each category of wind direction for each calendar quarter. Provide similar tables separately for each atmospheric stability class and elevation.

TABLE 4A

HOURS AT EACH WIND SPEED AND DIRECTION[a]

INDIAN POINT JAN-MAR 1989
10 METER WIND SPEED & DIR. WITH 61-10 METER DELTA T
PASQUILL CLASS C

WIND DIRECTION	WIND SPEED (MPH)						
	01-03	04-07	08-12	13-18	19-24	>24	TOTAL
N	0.	5.	15.	6.	0.	0.	26.
NNE	1.	1.	1.	0.	0.	0.	3.
NE	0.	0.	0.	0.	0.	0.	0.
ENE	1.	1.	0.	0.	0.	0.	2.
E	0.	1.	0.	0.	0.	0.	1.
ESE	0.	1.	0.	0.	0.	0.	1.
SE	0.	0.	0.	0.	0.	0.	0.
SSE	0.	11.	6.	0.	0.	0.	17.
S	0.	7.	3.	0.	0.	0.	10.
SSW	0.	3.	3.	0.	0.	0.	6.
SW	0.	0.	0.	0.	0.	0.	0.
WSW	0.	1.	0.	0.	0.	0.	1.
W	0.	3.	2.	0.	0.	0.	5.
WNW	0.	6.	3.	0.	0.	0.	9.
NW	0.	6.	7.	1.	0.	0.	14.
NNW	0.	2.	2.	2.	0.	0.	6.
TOTAL	2.	48.	42.	9.	0.	0.	101.

Periods of calm (hours): 0
Hours of missing data: 1

[a]In the table, record the total number of hours of each category of wind direction for each calendar quarter. Provide similar tables separately for each atmospheric stability class and elevation.

TABLE 4A

HOURS AT EACH WIND SPEED AND DIRECTION[a]

INDIAN POINT JAN-MAR 1989
10 METER WIND SPEED & DIR. WITH 61-10 METER DELTA T
PASQUILL CLASS D

WIND DIRECTION	WIND SPEED (MPH)						
	01-03	04-07	08-12	13-18	19-24	>24	TOTAL
N	14.	93.	117.	22.	0.	0.	246.
NNE	21.	85.	41.	2.	0.	0.	149.
NE	18.	47.	1.	0.	0.	0.	66.
ENE	16.	11.	0.	0.	0.	0.	27.
E	18.	9.	0.	0.	0.	0.	27.
ESE	6.	4.	0.	0.	0.	0.	10.
SE	9.	9.	0.	0.	0.	0.	18.
SSE	16.	54.	10.	0.	0.	0.	80.
S	9.	38.	28.	0.	0.	0.	75.
SSW	8.	12.	3.	3.	0.	0.	26.
SW	2.	3.	3.	0.	0.	0.	8.
WSW	3.	8.	2.	0.	0.	0.	13.
W	4.	27.	6.	0.	0.	0.	37.
WNW	2.	26.	12.	1.	0.	0.	41.
NW	5.	54.	44.	10.	1.	0.	114.
NNW	6.	58.	20.	6.	0.	0.	90.
TOTAL	157.	538.	287.	44.	1.	0.	1027.

Periods of calm (hours): 2
Hours of missing data: 1

[a]In the table, record the total number of hours of each category of wind direction for each calendar quarter. Provide similar tables separately for each atmospheric stability class and elevation.

TABLE 4A

HOURS AT EACH WIND SPEED AND DIRECTION[a]

INDIAN POINT JAN-MAR 1989
10 METER WIND SPEED & DIR. WITH 61-10 METER DELTA T
PASQUILL CLASS E

WIND DIRECTION	WIND SPEED (MPH)						
	01-03	04-07	08-12	13-18	19-24	>24	TOTAL
N	14.	18.	5.	0.	0.	0.	37.
NNE	58.	28.	0.	0.	0.	0.	86.
NE	47.	27.	0.	0.	0.	0.	74.
ENE	18.	0.	0.	0.	0.	0.	18.
E	20.	1.	0.	0.	0.	0.	21.
ESE	15.	1.	0.	0.	0.	0.	16.
SE	19.	9.	0.	0.	0.	0.	28.
SSE	21.	42.	2.	0.	0.	0.	65.
S	20.	36.	23.	0.	0.	0.	79.
SSW	10.	14.	0.	0.	0.	0.	24.
SW	9.	9.	0.	0.	0.	0.	18.
WSW	7.	8.	2.	0.	0.	0.	17.
W	9.	11.	0.	0.	0.	0.	20.
WNW	2.	11.	0.	0.	0.	0.	13.
NW	2.	20.	0.	0.	0.	0.	22.
NNW	12.	11.	1.	0.	0.	0.	24.
TOTAL	283.	246.	33.	0.	0.	0.	562.

Periods of calm (hours): 0
Hours of missing data: 1

[a]In the table, record the total number of hours of each category of wind direction for each calendar quarter. Provide similar tables separately for each atmospheric stability class and elevation.

TABLE 4A

HOURS AT EACH WIND SPEED AND DIRECTION[a]

INDIAN POINT JAN-MAR 1989
10 METER WIND SPEED & DIR. WITH 61-10 METER DELTA T
PASQUILL CLASS F

WIND DIRECTION	WIND SPEED (MPH)						
	01-03	04-07	08-12	13-18	19-24	>24	TOTAL
N	13.	1.	0.	0.	0.	0.	14.
NNE	59.	14.	0.	0.	0.	0.	73.
NE	31.	15.	0.	0.	0.	0.	46.
ENE	6.	0.	0.	0.	0.	0.	6.
E	4.	1.	0.	0.	0.	0.	5.
ESE	3.	0.	0.	0.	0.	0.	3.
SE	3.	0.	0.	0.	0.	0.	3.
SSE	4.	3.	0.	0.	0.	0.	7.
S	6.	2.	0.	0.	0.	0.	8.
SSW	3.	0.	0.	0.	0.	0.	3.
SW	5.	0.	0.	0.	0.	0.	5.
WSW	2.	0.	0.	0.	0.	0.	2.
W	0.	0.	0.	0.	0.	0.	0.
WNW	0.	0.	0.	0.	0.	0.	0.
NW	0.	0.	0.	0.	0.	0.	0.
NNW	1.	0.	0.	0.	0.	0.	1.
TOTAL	140.	36.	0.	0.	0.	0.	176.

Periods of calm (hours): 0
Hours of missing data: 1

[a]In the table, record the total number of hours of each category of wind direction for each calendar quarter. Provide similar tables separately for each atmospheric stability class and elevation.

TABLE 4A

HOURS AT EACH WIND SPEED AND DIRECTION[a]

INDIAN POINT JAN-MAR 1989
10 METER WIND SPEED & DIR. WITH 61-10 METER DELTA T
PASQUILL CLASS G

WIND DIRECTION	WIND SPEED (MPH)						
	01-03	04-07	08-12	13-18	19-24	>24	TOTAL
N	5.	0.	0.	0.	0.	0.	5.
NNE	8.	2.	0.	0.	0.	0.	10.
NE	0.	2.	0.	0.	0.	0.	2.
ENE	0.	0.	0.	0.	0.	0.	0.
E	1.	0.	0.	0.	0.	0.	1.
ESE	1.	0.	0.	0.	0.	0.	1.
SE	0.	0.	0.	0.	0.	0.	0.
SSE	0.	0.	0.	0.	0.	0.	0.
S	0.	1.	0.	0.	0.	0.	1.
SSW	0.	0.	0.	0.	0.	0.	0.
SW	0.	0.	0.	0.	0.	0.	0.
WSW	0.	0.	0.	0.	0.	0.	0.
W	0.	0.	0.	0.	0.	0.	0.
WNW	0.	0.	0.	0.	0.	0.	0.
NW	0.	0.	0.	0.	0.	0.	0.
NNW	0.	0.	0.	0.	0.	0.	0.
TOTAL	15.	5.	0.	0.	0.	0.	20.

Periods of calm (hours): 0
Hours of missing data: 1

[a]In the table, record the total number of hours of each category of wind direction for each calendar quarter. Provide similar tables separately for each atmospheric stability class and elevation.

TABLE 4A

HOURS AT EACH WIND SPEED AND DIRECTION[a]

INDIAN POINT APR-JUNE 1989
10 METER WIND SPEED & DIR. WITH 61-10 METER DELTA T
PASQUILL CLASS A

WIND DIRECTION	WIND SPEED (MPH)						
	01-03	04-07	08-12	13-18	19-24	>24	TOTAL
N	0.	22.	10.	0.	0.	0.	32.
NNE	0.	6.	1.	0.	0.	0.	7.
NE	0.	0.	0.	0.	0.	0.	0.
ENE	0.	1.	0.	0.	0.	0.	1.
E	0.	1.	0.	0.	0.	0.	1.
ESE	0.	0.	0.	0.	0.	0.	0.
SE	0.	4.	0.	0.	0.	0.	4.
SSE	2.	14.	8.	0.	0.	0.	24.
S	2.	19.	5.	0.	0.	0.	26.
SSW	0.	12.	4.	0.	0.	0.	16.
SW	2.	4.	4.	0.	0.	0.	10.
WSW	2.	7.	5.	0.	0.	0.	14.
W	0.	9.	2.	0.	0.	0.	11.
WNW	1.	7.	5.	1.	0.	0.	14.
NW	2.	12.	18.	2.	0.	0.	34.
NNW	3.	13.	23.	0.	0.	0.	39.
TOTAL	14.	131.	85.	3.	0.	0.	233.

Periods of calm (hours): 0
Hours of missing data: NONE

[a]In the table, record the total number of hours of each category of wind direction for each calendar quarter. Provide similar tables separately for each atmospheric stability class and elevation.

TABLE 4A

HOURS AT EACH WIND SPEED AND DIRECTION[a]

INDIAN POINT APR-JUNE 1989
10 METER WIND SPEED & DIR. WITH 61-10 METER DELTA T
PASQUILL CLASS B

WIND DIRECTION	WIND SPEED (MPH)						
	01-03	04-07	08-12	13-18	19-24	>24	TOTAL
N	5.	8.	1.	0.	0.	0.	14.
NNE	2.	5.	1.	0.	0.	0.	8.
NE	0.	0.	0.	0.	0.	0.	0.
ENE	1.	0.	0.	0.	0.	0.	1.
E	0.	0.	0.	0.	0.	0.	0.
ESE	0.	0.	0.	0.	0.	0.	0.
SE	2.	1.	0.	0.	0.	0.	3.
SSE	0.	11.	6.	0.	0.	0.	17.
S	2.	8.	6.	0.	0.	0.	16.
SSW	0.	5.	2.	0.	0.	0.	7.
SW	1.	2.	2.	0.	0.	0.	5.
WSW	1.	2.	1.	0.	0.	0.	4.
W	0.	6.	2.	0.	0.	0.	8.
WNW	0.	5.	3.	0.	0.	0.	8.
NW	0.	6.	4.	0.	0.	0.	10.
NNW	1.	8.	1.	0.	0.	0.	10.
TOTAL	15.	67.	29.	0.	0.	0.	111.

Periods of calm (hours): 3
Hours of missing data: NONE

[a]In the table, record the total number of hours of each category of wind direction for each calendar quarter. Provide similar tables separately for each atmospheric stability class and elevation.

TABLE 4A

HOURS AT EACH WIND SPEED AND DIRECTION[a]

INDIAN POINT APR-JUNE 1989
10 METER WIND SPEED & DIR. WITH 61-10 METER DELTA T
PASQUILL CLASS C

WIND DIRECTION	WIND SPEED (MPH)						
	01-03	04-07	08-12	13-18	19-24	>24	TOTAL
N	1.	13.	1.	0.	0.	0.	15.
NNE	1.	4.	1.	0.	0.	0.	6.
NE	1.	0.	0.	0.	0.	0.	1.
ENE	2.	0.	0.	0.	0.	0.	2.
E	2.	0.	0.	0.	0.	0.	2.
ESE	0.	0.	0.	0.	0.	0.	0.
SE	0.	0.	0.	0.	0.	0.	0.
SSE	1.	9.	5.	0.	0.	0.	15.
S	6.	20.	2.	0.	0.	0.	28.
SSW	2.	4.	2.	0.	0.	0.	8.
SW	0.	0.	0.	0.	0.	0.	0.
WSW	0.	3.	0.	0.	0.	0.	3.
W	1.	2.	0.	0.	0.	0.	3.
WNW	1.	1.	4.	0.	0.	0.	6.
NW	1.	4.	3.	0.	0.	0.	8.
NNW	1.	6.	1.	0.	0.	0.	8.
TOTAL	20.	66.	19.	0.	0.	0.	105.

Periods of calm (hours): 0
Hours of missing data: NONE

[a]In the table, record the total number of hours of each category of wind direction for each calendar quarter. Provide similar tables separately for each atmospheric stability class and elevation.

TABLE 4A

HOURS AT EACH WIND SPEED AND DIRECTION[a]

INDIAN POINT APR-JUNE 1989
10 METER WIND SPEED & DIR. WITH 61-10 METER DELTA T
PASQUILL CLASS D

WIND DIRECTION	WIND SPEED (MPH)						
	01-03	04-07	08-12	13-18	19-24	>24	TOTAL
N	26.	63.	24.	0.	0.	0.	113.
NNE	21.	68.	13.	0.	0.	0.	102.
NE	29.	21.	3.	0.	0.	0.	53.
ENE	37.	4.	0.	0.	0.	0.	41.
E	15.	2.	0.	0.	0.	0.	17.
ESE	18.	0.	0.	0.	0.	0.	18.
SE	15.	5.	0.	0.	0.	0.	20.
SSE	25.	55.	16.	0.	0.	0.	96.
S	13.	51.	4.	0.	0.	0.	68.
SSW	5.	18.	2.	0.	0.	0.	25.
SW	3.	11.	1.	0.	0.	0.	15.
WSW	5.	13.	1.	0.	0.	0.	19.
W	5.	18.	1.	0.	0.	0.	24.
WNW	6.	19.	16.	0.	0.	0.	41.
NW	7.	33.	17.	0.	0.	0.	57.
NNW	4.	39.	12.	0.	0.	0.	55.
TOTAL	234.	420.	110.	0.	0.	0.	764.

Periods of calm (hours): 2
Hours of missing data: NONE

[a]In the table, record the total number of hours of each category of wind direction for each calendar quarter. Provide similar tables separately for each atmospheric stability class and elevation.

TABLE 4A

HOURS AT EACH WIND SPEED AND DIRECTION[a]

INDIAN POINT APR-JUNE 1989
10 METER WIND SPEED & DIR. WITH 61-10 METER DELTA T
PASQUILL CLASS E

WIND DIRECTION	WIND SPEED (MPH)						
	01-03	04-07	08-12	13-18	19-24	>24	TOTAL
N	29.	37.	4.	0.	0.	0.	70.
NNE	80.	79.	8.	0.	1.	0.	168.
NE	81.	27.	0.	0.	0.	0.	108.
ENE	49.	3.	0.	0.	0.	0.	52.
E	29.	0.	0.	0.	0.	0.	29.
ESE	20.	0.	0.	0.	0.	0.	20.
SE	27.	2.	0.	0.	0.	0.	29.
SSE	25.	27.	4.	4.	0.	0.	60.
S	14.	38.	10.	1.	0.	0.	63.
SSW	6.	8.	0.	0.	0.	0.	14.
SW	1.	2.	0.	0.	0.	0.	3.
WSW	5.	5.	0.	0.	0.	0.	10.
W	4.	6.	0.	0.	0.	0.	10.
WNW	4.	10.	0.	0.	0.	0.	14.
NW	9.	15.	1.	0.	0.	0.	25.
NNW	6.	22.	2.	0.	0.	0.	30.
TOTAL	389.	281.	29.	5.	1.	0.	705.

Periods of calm (hours): 5
Hours of missing data: NONE

[a]In the table, record the total number of hours of each category of wind direction for each calendar quarter. Provide similar tables separately for each atmospheric stability class and elevation.

TABLE 4A

HOURS AT EACH WIND SPEED AND DIRECTION[a]

INDIAN POINT APR-JUNE 1989
10 METER WIND SPEED & DIR. WITH 61-10 METER DELTA T
PASQUILL CLASS F

WIND DIRECTION	WIND SPEED (MPH)						
	01-03	04-07	08-12	13-18	19-24	>24	TOTAL
N	8.	2.	0.	0.	0.	0.	10.
NNE	97.	24.	0.	0.	0.	0.	121.
NE	40.	13.	0.	0.	0.	0.	53.
ENE	8.	0.	0.	0.	0.	0.	8.
E	9.	0.	0.	0.	0.	0.	9.
ESE	7.	0.	0.	0.	0.	0.	7.
SE	4.	0.	0.	0.	0.	0.	4.
SSE	2.	4.	0.	0.	0.	0.	6.
S	3.	0.	0.	0.	0.	0.	3.
SSW	1.	1.	0.	0.	0.	0.	2.
SW	2.	0.	0.	0.	0.	0.	2.
WSW	1.	0.	0.	0.	0.	0.	1.
W	0.	0.	0.	0.	0.	0.	0.
WNW	0.	0.	0.	0.	0.	0.	0.
NW	0.	0.	0.	0.	0.	0.	0.
NNW	0.	1.	0.	0.	0.	0.	1.
TOTAL	182.	45.	0.	0.	0.	0.	227.

Periods of calm (hours): 1
Hours of missing data: NONE

[a]In the table, record the total number of hours of each category of wind direction for each calendar quarter. Provide similar tables separately for each atmospheric stability class and elevation.

TABLE 4A

HOURS AT EACH WIND SPEED AND DIRECTION[a]

INDIAN POINT APR-JUNE 1989
10 METER WIND SPEED & DIR. WITH 61-10 METER DELTA T
PASQUILL CLASS G

WIND DIRECTION	WIND SPEED (MPH)						
	01-03	04-07	08-12	13-18	19-24	>24	TOTAL
N	2.	0.	0.	0.	0.	0.	2.
NNE	9.	8.	0.	0.	0.	0.	17.
NE	4.	3.	0.	0.	0.	0.	7.
ENE	0.	0.	0.	0.	0.	0.	0.
E	0.	0.	0.	0.	0.	0.	0.
ESE	0.	0.	0.	0.	0.	0.	0.
SE	0.	0.	0.	0.	0.	0.	0.
SSE	0.	0.	0.	0.	0.	0.	0.
S	1.	0.	0.	0.	0.	0.	1.
SSW	0.	0.	0.	0.	0.	0.	0.
SW	0.	0.	0.	0.	0.	0.	0.
WSW	0.	0.	0.	0.	0.	0.	0.
W	0.	0.	0.	0.	0.	0.	0.
WNW	0.	0.	0.	0.	0.	0.	0.
NW	0.	0.	0.	0.	0.	0.	0.
NNW	0.	0.	0.	0.	0.	0.	0.
TOTAL	16.	11.	0.	0.	0.	0.	27.

Periods of calm (hours): 1
Hours of missing data: NONE

[a]In the table, record the total number of hours of each category of wind direction for each calendar quarter. Provide similar tables separately for each atmospheric stability class and elevation.

SEMI-ANNUAL EFFLUENT AND WASTE DISPOSAL REPORT

F - REPORTABLE CHANGES

TO THE PROCESS CONTROL ROOM (PCP)

OFFSITE DOSE CALCULATION MANUAL (ODCM)

AND RADIOACTIVE WASTE SYSTEMS

G - REPORTABLE ITEMS

THE RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

H - UNPLANNED RELEASES

FIRST HALF - 1989

Consolidated Edison Company of New York, Inc.
Indian Point Unit Nos. 1 and 2
Docket Nos. 50-03 50-247
August, 1989

August 31, 1989

Re: Indian Point Unit Nos. 1 and 2
Docket Nos. 50-03 and 50-247

SECTION F

Reportable Changes

A. Process Control Program (PCP)

Section 6.14.1 of the Indian Point Unit No. 2 Technical Specifications require that licensee initiated changes to PCP be reported to the Commission in the Semi-Annual Radioactive Effluent Release Report. During the 1st half of 1989, the following change was made.

A temporary procedure change was inacted to include L. N. Technology's Process Control Program and operating procedures to allow sampling and solidification of our Regen Heat Exchanger filtration media.

B. Offsite Dose Calculation Manual (ODCM)

Section 6.15.2 of the Indian Point Unit No. 2 Technical Specifications require that changes to ODCM be reported to the Commission in the Semi-Annual Radioactive Effluent Release Report. During the 1st half of 1989, there were no changes made.

C. Radioactive Waste Systems (RWS)

Section 6.16.1 of the Indian Point Unit No. 2 Technical Specifications require that major changes to RWS be reported to the Commission in the Semi-Annual Radioactive Effluent Release Report. During the 1st half of 1989, there were no change was made.

August 31, 1989

Re: Indian Point Unit Nos. 1 and 2
Docket Nos. 50-03 and 50-247

SECTION G

Reportable Items

A. Radioactive Liquid Effluent Monitoring Instrumentation

During this reporting period there were no Radioactive Liquid Effluent Monitoring Instrumentations that were inoperable for greater than 30 days.

B. Radioactive Gaseous Effluent Monitoring Instrumentation

(i) Radiation monitor R-20 for the Waste Gas Decay Tanks, which had been out of service for three and half months during the first and second quarters of 1989, was returned to service in April 1989 following the receipt and installation of a long-lead-time replacement valve, PCV-1069.

(ii) The trip vavles for Unit 1 stack vent have been inoperable during this reporting period. Requests for repairs have been submitted. However, since replacement parts for Unit 1 components have long lead times, a projected date to complete the required repairs will be submitted in the next semi-Annual Report.

August 31, 1989

Re: Indian Point Unit Nos. 1 and 2
Docket Nos. 50-03 and 50-247

SECTION H

Unplanned Releases

A. Unplanned Liquid Releases

There was one unplanned liquid release during the 1st quarter of 1989, due to a steam coil leak in the Refueling Water Storage Tank. The contaminated steam condensate was returned to the service boilers and discharged via blowdown. The values have been integrated into the releases reported for this period. This release was less than 0.1% of MPC as per 10 CFR 20 Appendix B, Table II, Column 2.

B. Unplanned Gaseous Releases

During this reporting period there were two unplanned gaseous releases.

i) On 1-6-89 at 1530 the IVSW line between valves 4927 and 250 failed. CVCS Fluid released from this break resulted in a 2 1/2 hour unplanned monitored release of 4.9 curies.

ii) On 3-5-89 at 2155 an unplanned monitored release of 3.2 ci lasting 15 minutes occurred when 22 waste gas compressor was secured due to overheating.

SEMI-ANNUAL EFFLUENT AND WASTE DISPOSAL REPORT

Addendum to 2nd Half 1985, 1st Half 1986, and 2nd Half 1986

Changes to the report are indicated by margin bars. Carbon - 14 is now reported as fission and activation gaseous release instead of gaseous particulate. Some computational changes are also included.

Consolidated Edison Company of New York, Inc.
Indian Point Unit Nos. 1 and 2
Docket Nos. 50-03 50-247
August, 1989

Con Edison 3 & 4 QUARTERS 1985 Revision
INDIAN POINT STATION UNITS 1 & 2
EFFLUENT AND WASTE DISPOSAL REPORT
GASEOUS EFFLUENTS -- SUMMATION OF ALL RELEASES

	UNITS	QUARTER 3	QUARTER 4	EST. TOTAL ERROR %	
A. FISSION AND ACTIVATION GASES					
1. TOTAL RELEASE	CI	2.84E 02	6.31E 02	5.00E 01	R
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	3.57E 01	7.94E 01		
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	NA	NA		
B. IODINES					
1. TOTAL IODINE-131	CI	2.78E-04	8.07E-04	5.00E 01	
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	3.50E-05	1.02E-04		
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	NA	NA		
C. PARTICULATES					
1. PARTICULATES WITH HALF-LIVES >8 DAYS	CI	1.92E-04	1.89E-04	5.00E 01	R
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	2.42E-05	2.38E-05		
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	NA	NA		
4. GROSS ALPHA RADIOACTIVITY	CI	0.00E 00	0.00E 00		
D. TRITIUM					
1. TOTAL RELEASE	CI	7.03E-01	2.92E-01	5.00E 01	
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	8.85E-02	3.68E-02		
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	NA	NA		

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INDIAN POINT STATION UNITS 1 & 2

EFFLUENT AND WASTE DISPOSAL REPORT

GASEOUS EFFLUENTS FOR ALL RELEASE POINTS

NUCLIDES RELEASED	UNITS	CONTINUOUS MODE QUARTER 3	CONTINUOUS MODE QUARTER 4	BATCH MODE QUARTER 3	BATCH MODE QUARTER 4
1. FISSION AND ACTIVATION GASES					
H3	CI	7.03E-01	2.92E-01		
C14	CI	2.00E+00	2.00E+00		
AR41	CI	4.56E-02	8.25E-02	1.52E-02	3.42E-01
KR85M	CI	1.40E-01	6.92E-02	3.94E-03	1.38E-01
KR85	CI	1.35E-02	3.24E+00	6.77E-01	1.39E+00
KR87	CI	1.05E-01	5.37E-02	1.16E-03	1.10E-01
KR88	CI	2.53E-01	1.26E-01	5.71E-03	5.04E-01
XE131M	CI			9.87E-01	4.63E-01
XE133M	CI	4.72E-02	1.16E-02	5.92E-01	2.51E+00
XE133	CI	1.07E+02	3.01E+02	1.33E+02	2.81E+02
XE135M	CI	4.52E-01	4.33E-01	2.16E-03	5.97E-02
XE135	CI	3.69E+01	2.97E+01	1.29E+00	7.24E+00
XE138	CI	3.02E-02			
TOTAL FOR PERIOD	CI	1.48E+02	3.37E+02	1.37E+02	2.94E+02

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INDIAN POINT STATION UNITS 1 & 2

EFFLUENT AND WASTE DISPOSAL REPORT

GASEOUS EFFLUENTS FOR ALL RELEASE POINTS

CONTINUOUS MODE

NUCLIDES RELEASED	UNITS	QUARTER 3	QUARTER 4
3. PARTICULATES			
CO58	CI		7.13E-07
CO60	CI	9.78E-05	8.58E-05
CS134	CI	4.75E-07	2.18E-06
CS137	CI	8.94E-05	9.64E-05
FE55	CI	2.94E-06	3.53E-06
NI63	CI	1.40E-06	8.15E-07
TOTAL FOR PERIOD	CI	1.92E-04	1.89E-04

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Con Edison 1 & 2 QUARTERS 1986 Revision
INDIAN POINT STATION UNITS 1 & 2
EFFLUENT AND WASTE DISPOSAL REPORT
GASEOUS EFFLUENTS -- SUMMATION OF ALL RELEASES

	UNITS	QUARTER 1	QUARTER 2	EST. TOTAL ERROR %	
A. FISSION AND ACTIVATION GASES					
1. TOTAL RELEASE	CI	1.69E 03	4.83E 01	5.00E 01	R
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	2.17E 02	6.14E 00		
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	NA	NA		
B. IODINES					
1. TOTAL IODINE-131	CI	4.22E-04	2.25E-05	5.00E 01	
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	5.43E-05	2.86E-06		
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	NA	NA		
C. PARTICULATES					
1. PARTICULATES WITH HALF-LIVES >8 DAYS	CI	9.91E-05	1.08E-04	5.00E 01	R
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	1.27E-05	1.37E-05		
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	NA	NA		
4. GROSS ALPHA RADIOACTIVITY	CI	0.00E 00	0.00E 00		
D. TRITIUM					
1. TOTAL RELEASE	CI	1.32E 00	2.77E-01	5.00E 01	
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	1.70E-01	3.52E-02		
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	NA	NA		

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INDIAN POINT STATION UNITS 1 & 2

EFFLUENT AND WASTE DISPOSAL REPORT

GASEOUS EFFLUENTS FOR ALL RELEASE POINTS

NUCLIDES RELEASED	UNITS	CONTINUOUS MODE QUARTER 1	CONTINUOUS MODE QUARTER 2	BATCH MODE QUARTER 1	BATCH MODE QUARTER 2	
1. FISSION AND ACTIVATION GASES						
H3	CI	1.32E+00	2.77E-01			
C14	CI	2.00E+00	2.00E+00			R
AR41	CI			2.04E-01		
KR85M	CI			1.87E-01		
KR85	CI	1.91E+00		8.58E-01	5.02E-01	
KR87	CI	8.27E-02		8.44E-02	5.39E-01	
KR88	CI	3.16E-01	1.48E-01	3.42E-01	1.02E+00	
XE131M	CI			1.67E+00	1.35E+00	
XE133M	CI	2.66E+00		1.88E+00	1.84E-01	
XE133	CI	1.47E+03	2.74E+01	1.50E+02	7.07E+00	
XE135M	CI		1.61E-01	8.59E-02	3.55E-01	
XE135	CI	5.64E+01	4.55E+00	6.01E+00	2.78E+00	
TOTAL FOR PERIOD	CI	1.53E+03	3.45E+01	1.61E+02	1.38E+01	R

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1 & 2 QUARTERS 1986 Revision

INDIAN POINT STATION UNITS 1 & 2

EFFLUENT AND WASTE DISPOSAL REPORT

GASEOUS EFFLUENTS FOR ALL RELEASE POINTS

CONTINUOUS MODE

NUCLIDES RELEASED	UNITS	QUARTER 1	QUARTER 2
2. IODINES			
I131	CI	4.22E-04	2.25E-05
I133	CI	5.99E-04	1.62E-04
TOTAL FOR PERIOD	CI	1.02E-03	1.85E-04
3. PARTICULATES			
CO58	CI	8.99E-07	
CO60	CI	3.41E-05	6.85E-07
CS137	CI	3.92E-05	2.03E-06
FE55	CI	2.11E-05	3.87E-06
NI63	CI	3.82E-06	1.00E-04
NB95	CI		1.76E-06
TOTAL FOR PERIOD	CI	9.91E-05	1.08E-04

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Con Edison 3 & 4 QUARTERS 1986 Revision
INDIAN POINT STATION UNITS 1 & 2
EFFLUENT AND WASTE DISPOSAL REPORT
GASEOUS EFFLUENTS -- SUMMATION OF ALL RELEASES

	UNITS	QUARTER 3	QUARTER 4	EST. TOTAL ERROR %
A. FISSION AND ACTIVATION GASES				
1. TOTAL RELEASE	CI	1.85E 02	1.37E 02	5.00E 01
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	2.33E 01	1.72E 01	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	NA	NA	
B. IODINES				
1. TOTAL IODINE-131	CI	1.11E-03	3.17E-04	5.00E 01
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	1.39E-04	3.99E-05	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	NA	NA	
C. PARTICULATES				
1. PARTICULATES WITH HALF-LIVES >8 DAYS	CI	1.73E-04	1.02E-02	5.00E 01
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	2.18E-05	1.28E-03	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	NA	NA	
4. GROSS ALPHA RADIOACTIVITY	CI	0.00E 00	0.00E 00	
D. TRITIUM				
1. TOTAL RELEASE	CI	9.72E-01	5.18E-01	5.00E 01
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	1.22E-01	6.52E-02	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	NA	NA	

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3 & 4 QUARTERS 1986 Revision

INDIAN POINT STATION UNITS 1 & 2

EFFLUENT AND WASTE DISPOSAL REPORT

GASEOUS EFFLUENTS FOR ALL RELEASE POINTS

NUCLIDES RELEASED	UNITS	CONTINUOUS MODE QUARTER 3	CONTINUOUS MODE QUARTER 4	BATCH MODE QUARTER 3	BATCH MODE QUARTER 4	
1. FISSION AND ACTIVATION GASES						
H3	CI	9.72E-01	5.18E-01			
C14	CI	2.00E+00	2.00E+00			R
AR41	CI	2.57E-02	8.08E-02			
KR85M	CI	2.60E-02	8.67E-02			
KR87	CI	6.76E-03	4.09E-02			
KR88	CI	3.60E-02	1.43E-01			
XE133M	CI	2.68E-02	6.27E-02	2.79E-02	2.35E-01	
XE133	CI	1.59E+02	9.82E+01	1.20E+01	2.36E+01	
XE135M	CI	2.75E-01	8.27E-01			
XE135	CI	1.12E+01	1.18E+01	1.32E-01	4.75E-02	
TOTAL FOR PERIOD	CI	1.73E+02	1.13E+02	1.22E+01	2.39E+01	R

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INDIAN POINT STATION UNITS 1 & 2

EFFLUENT AND WASTE DISPOSAL REPORT

GASEOUS EFFLUENTS FOR ALL RELEASE POINTS

CONTINUOUS MODE

NUCLIDES RELEASED	UNITS	QUARTER 3	QUARTER 4
2. IODINES			
I131	CI	1.10E-03	3.17E-04
I133	CI	1.89E-03	8.93E-04
TOTAL FOR PERIOD	CI	2.99E-03	1.21E-03
3. PARTICULATES			
CO58	CI	2.37E-05	
CO60	CI	6.90E-05	3.50E-05
CS137	CI	7.43E-05	6.78E-05
FE55	CI	4.73E-06	4.82E-03
NI63	CI	1.76E-06	5.25E-03
TOTAL FOR PERIOD	CI	1.73E-04	1.02E-02

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