John D. O'Toole
Vice President

Consolidated Edison Company of New York, Inc.
4 Irving Place, New York, NY 10003
Telephone (212) 460-2533

March 1, 1983

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

Mr. Ronald C. Haynes, Regional Administrator
Region I
U. S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, Pa. 19406

Dear Mr. Haynes:

Enclosed are two copies of the semi-annual Effluent and Waste Disposal Report for the period July 1, 1982 through December 31, 1982.

Very truly yours,

John D. O'Toole

Encl.

6 copies to: Mr. Richard DeYoung, Director
Office of Inspection and Enforcement
c/o Distribution Services Branch, DDC, ADM
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

1 copy to: Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

1 copy to: Mr. Thomas Foley, Senior Resident Inspector
U. S. Nuclear Regulatory Commission
P. O. Box 38
Buchanan, New York 10511

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EFFLUENT AND WASTE DISPOSAL

SEMI-ANNUAL REPORT

3rd & 4th Quarter 1982

FACILITY: Indian Point Station (Units 1 and 2)

LICENSEE: Consolidated Edison Company of New York, Inc.

This information is provided in accordance with the guidance of Regulatory Guide 1.21 Rev. 1. The numbered sections of this part of the report reference corresponding sections of the subject Regulatory Guide, pages 1.21-10 through 12. The Power Authority of the State of New York has chosen to issue a separate semi-annual report. This Semi-Annual Effluent and Waste Disposal Report for Indian Point Units 1 and 2 covers discharges for the third and fourth quarters of 1982.

A. Supplement Information

1. Regulatory Limits

Indian Point Units 1, 2 and 3 are presently subject to specifications on radioactive waste releases that are set forth in Sections 2.4 and 3.4 of Appendix B Part II to Provisional Operating License DPR-5 and Facility Operating Licenses DPR-26 and DPR-64 entitled "Environmental Technical Specification Requirements for Once-Through Cooling" (ETSR). The "percent of applicable limit" reported in Table 2A of this document, is the applicable quarterly limit specified in the ETSR.

2. Maximum Permissible Concentrations

a. Fission and Activation Gases

The quarterly limits for those specifications stated in the ETSR have been used to calculate the percent of technical specification limit. Site dependent gamma-and beta dose factors for Indian Point, Units Nos. 1 and 2 as found in Table 2.4-5 of the ETSR were utilized with the isotopic concentration values reported for elevated and ground releases to determine the average dose factors due to gamma and beta emissions.

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b&c. Iodines and Particulates

The applicable quarterly limits for Iodine-131 and particulates with half-lives greater than 8 days in Section 2.4.2.b.3 of the ETSR have been used as the maximum permissible concentrations for the purpose of calculating the percent of technical specification limit in Table 1A of this document.

d. Liquid Effluents

All liquid discharges from Indian Point are made through a common discharge canal with a minimum of 100,000gpm 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 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

The third and fourth quarter continuous releases are for Units 1 and 2 only. The batch releases discharged through the common site liquid waste processing facility have been apportioned according to the volume transferred from the respective units to that processing facility.

The tritium limit has been established in the same manner as the other isotopes in liquid effluents. A derived MPC of 2×10^{-4} uCi/ml for dissolved noble gases has been conservatively adopted for the swimming pathway.

3. Average Energy

The average energy ($\bar{E}$) of the radionuclide mixture in releases of fission and activation gases for the third quarter was 9.54E-2 Mev/Dis. for $\bar{E}_{\gamma}$ and 1.88E-1 Mev/Dis. for $\bar{E}_{\beta}$. The corresponding values for the fourth quarter were 1.98E-3 Mev/Dis. and 2.15E-1 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 2.4-2 of the ETSR. 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 month and 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.

b&c. Iodines and Particulates

Iodine-131 and particulate releases are quantified by collecting a continuous sample of ventilation air on a potassium-iodide impregnated activated charcoal cartridge and a glass-fiber filter paper. These samples are obtained weekly as required by Table 2.4-2 of the ETSR, 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 for a monthly 24 hour sample. These ratios are then used, along with the total monthly discharge of Iodine-131, to calculate the amount of these isotopes discharged in this monthly period.

d. Liquid Effluents

A proportional composite sample of each batch discharge is taken and an isotopic analysis is performed in compliance with requirements specified in Table 2.4-1 of the ETSR. This isotopic concentration data is combined with information of volume discharged to determine the amount of each isotope discharged in this period.

Samples of continuous disharges have been taken and analyzed in compliancae with Table 2.4-1 of the ETSR. This concentration data is combined with the volume discharged to calculate the total activity discharged.

5. BATCH RELEASES

	1982 3rd Quarter	1982 4th Quarter
a. Liquid		
Number of Batch Releases	35	16
Total Time Period Batch Release (Min)	5372	4008
Maximum Time Period Batch Releases (Min)	3039	3751
Average Time Period Batch Releases (Min)	153	250
Minimum Time Period Batch Releases (Min)	24	3
Average Stream Flow (cfs)	6,937	8,380
b. Gaseous		
Number of Batch Releases	82	52
Total Time Period Batch Releases (Min)	21174	112591
Maximum Time Period Batch Releases (Min)	1439	10080
Average Time Period Batch Releases (Min)	258	2165
Minimum Time Period Batch Releases (Min)	45	27

6. ABNORMAL RELEASES

a. Liquid - None
b. Gaseous - None

EFFLUENT AND WASTE DISPOSAL

SEMI-ANNUAL REPORT

B - GASEOUS EFFLUENTS

SECOND HALF - 1982

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1982)

GASEOUS EFFLUENTS—SUMMATION OF ALL RELEASES

	Unit	Quarter 3rd	Quarter 4th	Est. Total Error, %
A. Fission & activation gases				
1. Total release	Ci	1.81 E+3	8.81 E+7	± 50 E+1
2. Average release rate for period	μCi/sec	2.27 E+2	1.11 E+3	
3. Percent of Technical specification limit	%	5.85 E0	1.54 E1	
B. Iodines				
1. Total iodine-131	Ci	1.17 E-2	5.65 E-4	±5.0 E+1
2. Average release rate for period	μCi/sec	1.47 E-3	7.11 E-5	
3. Percent of technical specification limit	%	7.64 E-1	4.62 E-2	
C. Particulates				
1. Particulates with half-lives >8 days	Ci	1.30 E-3	1.74 E-3	±5.0 E+1
2. Average release rate for period	μCi/sec	1.64 E-4	2.20 E-4	
3. Percent of technical specification limit	%	1.05 E-1	1.07 E-1	
4. Gross alpha radioactivity	Ci	7.30 E-10	7.40 E-10	
D. Tritium				
1. Total release	Ci	5.06 E-1	3.34 E0	±5.0 E+1
2. Average release rate for period	μCi/sec	6.36 E-2	4.21 E-1	
3. Percent of technical specification limit	%	. E	. E	

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1982)

GASEOUS EFFLUENTS—ELEVATED RELEASE

Nuclides Released	Unit	CONTINUOUS MODE 3rd Quarter	CONTINUOUS MODE 4th Quarter	BATCH MODE Quarter	BATCH MODE Quarter
1. Fission gases					
krypton-85	Ci	3.99 E-1	1.08 E+2	. E	. E
krypton-85m	Ci	. E	. E	. E	. E
krypton-87	Ci	. E	. E	. E	. E
krypton-88	Ci	. E	. E	. E	. E
xenon-133	Ci	7.92 E+1	1.10 E+2	. E	. E
xenón-135	Ci	8.04 E0	. E	. E	. E
xenon-135m	Ci	. E	. E	. E	. E
xenon-138	Ci	. E	. E	. E	. E
Others (specify)	Ci	. E	. E	. E	E
	Ci	. E	. E	. E	. E
	Ci	. E	. E	. E	. E
unidentified	Ci	. E	. E	. E	. E
Total for period	Ci	8.76 E+1	2.18 E+2	. E	. E
2. Iodines					
iodine-131	Ci	4.61 E-3	9.84 E-5	. E	. E
iodine-133	Ci	6.00 E-4	2.14 E-4	. E	. E
iodine-135	Ci	7.18 E-3	9.17 E-4	. E	E
Total for period	Ci	1.24 E-2	1.23 E-3	. E	. E
3. Particulates					
strontium-89	Ci	. E	. E	. E	. E
strontium-90	Ci	. E	. E	. E	. E
cesium-134	Ci	1.32 E-5	4.74 E-5	. E	. E
cesium-137	Ci	4.77 E-5	2.26 E-4	. E	. E
barium-lanthanum-140	Ci	4.83 E-5	1.22 E-4	. E	. E
iodine-131	Ci	3.43 E-5	4.79 E-5	. E	E
cobalt-58	Ci	1.45 E-5	1.18 E-4	. E	. E
cobalt-60	Ci	8.85 E-5	2.24 E-4	. E	. E
unidentified	Ci	. E	. E	. E	. E

Blank boxes indicate radionuclide not detected

TABLE 1C

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1982)

GASEOUS EFFLUENTS–GROUND-LEVEL RELEASES

Nuclides Released	Unit	CONTINUOUS MODE 3rd Quarter	CONTINUOUS MODE 4th Quarter	BATCH MODE 3rd Quarter	BATCH MODE 4th Quarter
1. Fission gases					
krypton-85	Ci	6.39 E 0	1.76 E+1	2.20 E+1	7.19 E+1
krypton-85m	Ci	. E	. E	3.25 E-1	. E
krypton-87	Ci	. E	. E	5.43 E+1	. E
krypton-88	Ci	6.97 E	. E	8.70 E-1	. E
xenon-1. 3	Ci	1.38 E+3	6.45 E+2	1.24 E+3	5.46 E+1
xenon-135	Ci	2.99 E+1	. E	1.67 E+1	. E
xenon-135m	Ci	. E	. E	6.15 E-2	. E
xenon-138	Ci	. E	. E	. E	. E
xenon-133m	Ci	8.81 E 0	. E	1.34 E+1	7.94 E-2
xenon-131m	Ci	. E	. E	1.50 E+1	5.99 E 0
	Ci	. E	. E	. E	. E
unidentified	Ci	. E	. E	. E	. E
Total for period	Ci	1.43 E+3	6.63 E+2	1.36 E+3	1.32 E+2
2. Iodines					
iodine-131	Ci	7.05 E-3	4.67 E-4	. E	. E
iodine-133	Ci	1.30 E-3	5.81 E-4	. E	. E
iodine-135	Ci	7.00 E-3	5.54 E-3	. E	. E
Total for period	Ci	7.83 E-2	6.59 E-3	. E	. E
3. Particulates					
strontium-89	Ci	. E	. E	. E	. E
strontium-90	Ci	. E	. E	. E	. E
cesium-134	Ci	6.13 E-5	6.53 E-5	. E	. E
cesium-137	Ci	1.85 E-4	2.44 E-4	. E	. E
barium-lanthanum-140	Ci	1.60 E-4	1.78 E-4	. E	. E
iodine-131	Ci	1.42 E-4	5.37 E-5	. E	. E
cobalt-58	Ci	7.96 E-5	1.28 E-4	. E	. E
cobalt-60	Ci	4.34 E-4	2.92 E-4	. E	. E
unidentified	Ci	. E	. E	. E	. E

Blank boxes indicate radionuclide not detected

EFFLUENT AND WASTE DISPOSAL

SEMI-ANNUAL REPORT

C - LIQUID EFFLUENT

SECOND HALF - 1982

TABLE 1A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1982)

LIQUID EFFLUENTS–SUMMATION OF ALL RELEASES

	Unit	Quarter 3rd	Quarter 4th	Est. Total Error, %
A. Fission and activation products				
1. Total release (not including tritium, gases, alpha)	Ci	1.21 E 0	2.59 E-1	±2.5 E+1
2. Average diluted concentration during period	μCi/ml	5.93 E-9	2.89 E-9	
3. Percent of applicable limit	%	7.45 E-2	4.27 E-2	
B. Tritium				
1. Total release	Ci	6.38 E +1	1.51 E +1	±2.5 E +1
2. Average diluted concentration during period	μCi/ml	3.13 E -7	2.68 E-7	
3. Percent of applicable limit	%	1.04 E -2	5.60 E-1	
C. Dissolved and entrained gases				
1. Total release	Ci	3.33 E -2	3.48 E -3	±2.5 E +1
2. Average diluted concentration during period	μCi/ml	1.63 E-10	3.88 E-11	
3. Percent of applicable limit	%	8.17 E -5	1.94 E -5	
D. Gross alpha radioactivity				
1. Total release	Ci	1.10 E -1	2.42 E -4	±2.5 E +1
E. Volume of waste released (prior to dilution)	liters	2.68 E+7	3.91 E+6	±1.0 E+1
F. Volume of dilution water used during period	liters	2.04 E+11	8.97 E+10	±1.0 E+1

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1982)

LIQUID EFFLUENTS

Nuclides Released	Unit	CONTINUOUS MODE 3rd Quarter	CONTINUOUS MODE 4th Quarter	BATCH MODE 3rd Quarter	BATCH MODE 4th Quarter
strontium-89	Ci	7.93 E-4	8.84 E-5	7.23 E-5	2.87 E-5
strontium-90	Ci	1.66 E-4	2.18 E-5	2.12 E-5	[illegible] E-6
cesium-134	Ci	3.43 E-3	1.10 E-3	2.21 E-1	8.76 E-4
cesium-137	Ci	9.22 E-3	1.23 E-3	4.81 E-1	4.67 E-3
iodine-131	Ci	9.42 E-3	3.04 E-3	6.28 E-3	2.97 E-3
cobalt-58	Ci	2.75 E-3	1.34 E-3	4.94 E-3	2.68 E-3
cobalt-60	Ci	8.05 E-3	1.81 E-3	4.66 E-2	1.72 E-3
iron-59	Ci	5.01 E-3	1.74 E-3	1.70 E-3	1.64 E-3
zinc-65	Ci	5.25 E-3	2.44 E-3	1.53 E-3	1.47 E-3
manganese-54	Ci	1.91 E-3	9.96 E-4	1.29 E-3	6.35 E-4
chromium-51	Ci	2.29 E-2	7.72 E-3	1.61 E-2	8.02 E-3
zirconium-niobium-95	Ci	3.36 E-3	2.01 E-3	1.50 E-3	1.12 E-3
molybdenum-99	Ci	4.52 E-2	8.81 E-3	3.04 E-3	2.63 E-3
technetium-99m	Ci	5.46 E-3	7.49 E-4	1.25 E-3	2.11 E-4
barium-lanthanum-140	Ci	1.65 E-2	6.75 E-3	1.17 E-2	5.33 E-3
cerium-141	Ci	3.29 E-3	1.13 E-3	1.93 E-3	9.04 E-4
cesium-136	Ci	5.22 E-3	2.76 E-3	5.85 E-3	3.75 E-3
iron-55	Ci	4.21 E-2	5.90 E-3	1.52 E-2	5.66 E-3
nickel-63	Ci	6.12 E-3	2.05 E-4	4.56 E-2	9.18 E-3
phosphorus-32	Ci	7.78 E-3	5.90 E-4	4.06 E-3	2.42 E-3
cobalt-57	Ci	1.42 E-3	4.16 E-4	7.89 E-4	3.96 E-4
silver-110m	Ci	5.88 E-3	1.78 E-3	7.28 E-3	1.72 E-3
antimony-125	Ci	5.84 E-3	1.73 E-3	2.49 E-2	1.83 E-3
sodium-24	Ci	8.01 E-2			
Total for period (above)	Ci	2.97 E-1	5.44 E-2	9.10 E-1	2.05 E-1
xenon-133	Ci	1.43 E-2	1.00 E-3	1.14 E-2	4.68 E-4
xenon-135	Ci	6.02 E-3	8.76 E-4	1.57 E-3	2.57 E-4

Blank boxes indicate radionuclide not detected

EFFLUENT AND WASTE DISPOSAL

SEMI-ANNUAL REPORT

D - SOLID WASTE

SECOND HALF - 1982

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1982)

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (Not irradiated fuel)

1. Type of waste	Unit	6-month Period	Est. Total Error, %
a. Spent resins, filter sludges, evaporator bottoms, etc.	m^3 Ci	1.415 E+2 5.892 E+3	±1.0 E+2
b. Dry compressible waste, contaminated equip, etc.	m^3 Ci	5.839 E+2 1.814 E+1	±1.0 E+2
c. Irradiated components, control rods, etc.	m^3 Ci	. E . E	. E
d. Other (describe)	m^3 Ci	. E . E	. E

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

a.	CO-60	%	2.0 E+1
	CO-58	%	1.5 E+1
	CS-134	%	7.0 E0
	CS-137	%	5.8 E+1
		%	. E
		%	. E
b.	CO-58	%	3.5 E+1
	CO-60	%	4.5 E+1
	CS-134	%	5.0 E0
	CS-137	%	1.5 E+1
		%	. E
		%	. E

3. Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
30	Trucks	Barnwell, S.C.
13	Trucks	Richland, Wash.

B. IRRADIATED FUEL SHIPMENTS (Disposition)

Number of Shipments	Mode of Transportation	Destination

EFFLUENT AND WASTE DISPOSAL

SEMI-ANNUAL REPORT

E - RADIOLOGICAL IMPACT ON MAN

SECOND HALF - 1982

RADIOLOGICAL IMPACT EVALUATION

Doses from noble gas 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. Doses were also evaluated for an individual ingesting milk and meat from a cow located about 8.9 miles to the ESE. In all cases, these evaluations were performed using the models presented in Regulatory Guide 1.109. Noble gas releases were considered to be either batch or continuous, while all iodine and particulate release were considered to be continuous. For the purpose of analysis, noble gas release from containment pressure reliefs and purges were treated as a continuous release, because of the large number of such releases. Other releases (e.g., gas decay tank releases) were considered as batch and were evaluated using actual meteorological conditions existing during the release period. Continuous releases were evaluated using average meteorological conditions based on the six month release period. Estimates of relative deposition per unit area were obtained from the numerical approximation presented in the NRC computer program XOQDOQ for ground releases. Values of atmospheric dispersion factors (X/Q) were computed using the Sagendorf straight line air flow model, assuming a ground level release, and the subroutine POLYN (from XOQDOQ) for computing standard deviations in the horizontal direction (σ y) and vertical direction (σ z).

Integrated doses for the population within 50 miles of Indian Point from gaseous effluents were computed based on linear interpolation of 1970 - 2010 population data contained in the Indian Point Unit No. 3 FSAR.

Dose calculations for liquid pathways to individuals and populations are computed for a year. The LADTAP computer program that is utilized for these calculations incorporated the calculational 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 8.0Ci/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.

Indian Point Units 1 and 2

RADIOLOGICAL IMPACT ON MAN

(Reference Regulatory Guide 1.21, page 12)

A. Maximum Individual Doses

(1) Pathways (Gaseous)	Total Body mRem	Skin mRem	Thyroid mRem	Bone mRem
(a) Noble Gas Immersion				
(i) Batch Releases	0.129 E+00	0.364 E+00	N/A	N/A
(ii) Continuous Releases	0.235 E+00	0.636 E+00	N/A	N/A
(b) Inhalation*	7.50 E-03	N/A	6.14 E-02	3.32 E-02
(c) Ground Deposition	0.906 E-02	0.106 E-0[illegible]	N/A	N/A
(d) Milk Ingestion*	2.18 E-03	N/A	5.33 E-03	1.02 E-02
(e) Meat Ingestion***	3.33 E-04	N/A	3.49 E-04	1.66 E-03
(f) Vegetable Ingestion***	3.04 E-02	N/A	8.44 E-02	1.51 E-01

(2) Pathways (Liquid)

(a) All — See Attached "LADTAP" printout Attachment I.

* Infants are critical age group
** Adults are critical age group
*** Children are critical age group

NA = Not Applicable

B. Population

(1) Pathways(Gaseous)

	Total Body (man-rem)	Thyroid (man-thyroid rem)
(a) Noble Gas Immersion		
(i) Batch Release	0.625 E+01	N/A
(ii) Continuous Release	0.117 E+02	N/A
(b) Inhalation	0.294 E+00	0.222 E+01
(c) Ground Deposition	2.07 E-01	N/A
(d) Totals	1.85 E+01	0.222 E+01

(2) Pathways(Liquid)

(a) All — See attached "LADTAP" printout Attachment I

C. Average Doses to Individuals

(1) Pathways

(a) Liquid-Total Body 9.53 E-04 mRem

(b) Gaseous-Total Body 9.64 E-04 mRem

N/A = Not Applicable

* * * ADULT 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	6.68E+01	0.0	1.34E-07	1.34E-07	1.34E-07	1.34E-07	1.34E-07	1.34E-07	0.0	0.0	1.00E+00
38SR 89	9.82E-04	3.09E-04	0.0	8.85E-06	0.0	0.0	0.0	4.94E-05	6.50E-13	5.60E-13	1.00E+00
38SR 90	2.16E-04	7.61E-03	0.0	1.86E-03	0.0	0.0	0.0	1.02E-04	0.0	0.0	1.00E+00
55CS 134	2.29E-01	6.22E-05	1.48E-04	1.21E-04	0.0	4.80E-05	1.59E-05	2.59E-06	1.40E-08	1.20E-08	1.00E+00
55CS 137	4.96E-01	7.98E-05	1.09E-04	7.15E-05	0.0	3.71E-05	1.23E-05	2.10E-06	4.90E-09	4.20E-09	1.00E+00
53I 131	2.17E-02	4.16E-06	5.96E-06	3.41E-06	1.95E-03	1.02E-05	0.0	1.57E-06	3.40E-09	2.80E-09	1.00E+00
27CO 58	3.58E-02	0.0	7.46E-07	1.67E-06	0.0	0.0	0.0	1.51E-05	8.20E-09	7.00E-09	1.00E+00
27CO 60	7.37E-02	0.0	2.15E-06	4.72E-06	0.0	0.0	0.0	4.02E-05	2.00E-08	1.70E-08	1.00E+00
26FE 59	1.01E-02	4.34E-06	1.03E-05	3.92E-06	0.0	0.0	2.86E-06	3.40E-05	9.40E-09	8.00E-09	1.00E+00
30ZN 65	1.07E-02	4.85E-06	1.54E-05	6.97E-06	0.0	1.03E-05	0.0	9.70E-06	4.60E-09	4.00E-09	1.00E+00
25MN 54	4.80E-03	0.0	4.57E-06	8.73E-07	0.0	1.36E-06	0.0	1.40E-05	6.80E-09	5.80E-09	1.00E+00
24CR 51	5.47E-02	0.0	0.0	2.66E-09	1.59E-09	5.87E-10	3.53E-09	6.69E-07	2.60E-10	2.20E-10	1.00E+00
40ZR 95	7.99E-03	3.04E-08	9.76E-09	6.61E-09	0.0	1.54E-08	0.0	3.03E-05	5.80E-09	5.00E-09	1.00E+00
43TC 99M	7.67E-03	2.47E-10	6.98E-10	8.90E-09	0.0	1.06E-08	3.42E-10	4.13E-07	1.10E-09	9.60E-10	1.00E+00
58CE 141	7.25E-03	9.37E-09	6.34E-09	7.18E-10	0.0	2.94E-09	0.0	2.42E-05	6.20E-10	5.50E-10	1.00E+00
55CS 136	1.76E-02	6.51E-06	2.57E-05	1.85E-05	0.0	1.43E-05	1.96E-06	2.92E-06	1.70E-08	1.50E-08	1.00E+00
26FE 55	6.89E-02	6.20E-06	2.79E-05	7.33E-06	0.0	0.0	3.23E-05	1.09E-05	0.0	0.0	1.00E+00
28NI 63	1.44E-01	1.30E-04	9.02E-06	4.36E-06	0.0	0.0	0.0	1.88E-06	0.0	0.0	1.00E+00
15P 32	3.73E-02	1.93E-04	1.21E-05	7.47E-06	0.0	0.0	0.0	2.17E-05	0.0	0.0	1.00E+00
27CO 57	3.02E-03	0.0	1.75E-07	2.91E-07	0.0	0.0	0.0	4.44E-06	1.00E-09	9.10E-10	1.00E+00
47AG 110M	1.67E-02	1.60E-07	1.48E-07	8.80E-08	0.0	2.91E-07	0.0	6.04E-05	2.10E-08	1.80E-08	1.00E+00
51SB 125	3.43E-02	2.23E-06	2.40E-08	4.48E-07	1.98E-09	0.0	2.33E-04	1.97E-05	3.50E-09	3.10E-09	1.00E+00
11NA 24	8.01E-02	2.26E-06	2.26E-06	2.26E-06	2.26E-06	2.26E-06	2.26E-06	2.26E-06	2.90E-08	2.50E-08	1.00E+00

* * * TEENAGER 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	6.68E+01	0.0	1.06E-07	1.06E-07	1.06E-07	1.34E-07	1.06E-07	1.06E-07			
38SR	89	9.82E-04	4.60E-04	0.0	1.32E-05	0.0	0.0	0.0	4.99E-05			
38SR	90	2.16E-04	1.04E-02	0.0	2.57E-03	0.0	0.0	0.0	2.20E-04			
55CS	134	2.29E-01	8.05E-05	1.94E-04	9.06E-05	0.0	4.80E-05	2.35E-05	2.24E-06			
55CS	137	4.95E-01	1.07E-04	1.44E-04	5.05E-05	0.0	3.71E-05	1.91E-05	1.92E-06			
53I	131	2.17E-02	5.57E-06	7.87E-06	4.69E-06	2.27E-03	1.02E-05	0.0	1.49E-06			
27CO	58	3.58E-02	0.0	9.92E-07	2.26E-06	0.0	0.0	0.0	1.34E-05			
27CO	60	7.37E-02	0.0	2.76E-06	6.30E-06	0.0	0.0	0.0	3.31E-05			
40ZR	95	7.99E-03	3.72E-08	1.24E-08	8.66E-09	0.0	1.54E-08	0.0	2.68E-05			
58CE	141	7.25E-03	1.26E-08	8.46E-09	9.70E-10	0.0	2.94E-09	0.0	2.29E-05			

* * * CHILD 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	6.68E+01	0.0	2.03E-07	2.03E-07	2.03E-07	1.34E-07	2.03E-07	2.03E-07			
38SR	89	9.82E-04	1.38E-03	0.0	3.95E-05	0.0	0.0	0.0	5.15E-05			
38SR	90	2.16E-04	1.72E-02	0.0	4.36E-03	0.0	0.0	0.0	2.29E-04			
55CS	134	2.29E-01	2.24E-04	3.77E-04	8.02E-05	0.0	4.80E-05	4.19E-05	2.04E-06			
55CS	137	4.96E-01	3.12E-04	[illegible]	4.50E-05	0.0	3.71E-05	3.54E-05	1.84E-06			
53I	131	2.17E-02	1.63E-05	[illegible]	1.26E-05	5.43E-03	1.02E-05	0.0	1.43E-06			
27CO	58	3.58E-02	0.0	1.85E-06	5.58E-06	0.0	0.0	0.0	1.10E-05			
27CO	60	7.37E-02	0.0	5.17E-06	1.55E-05	0.0	0.0	0.0	2.86E-05			
40ZR	95	7.99E-03	1.04E-07	2.42E-08	2.20E-08	0.0	1.54E-08	0.0	2.50E-05			
58CE	141	7.25E-03	3.76E-08	1.88E-08	2.80E-09	0.0	2.94E-09	0.0	2.36E-05			

* * * INFANT 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	6.68E+01	0.0	3.07E-07	3.07E-07	3.07E-07	1.34E-07	3.07E-07	3.07E-07			
38SR	89	9.82E-04	2.93E-03	0.0	8.42E-05	0.0	0.0	0.0	5.48E-05			
38SR	90	2.16E-04	2.51E-02	0.0	6.40E-03	0.0	0.0	0.0	2.43E-04			
55CS	134	2.29E-01	4.58E-04	8.24E-04	6.97E-05	0.0	4.80E-05	9.42E-05	1.96E-06			
55CS	137	4.96E-01	6.53E-04	7.31E-04	4.20E-05	0.0	3.71E-05	8.81E-05	1.89E-06			
53I	131	2.17E-02	3.42E-05	4.07E-05	2.38E-05	1.31E-02	1.02E-05	0.0	1.53E-06			
27CO	58	3.58E-02	0.0	3.78E-06	9.26E-06	0.0	0.0	0.0	9.79E-06			
27CO	60	7.37E-02	0.0	1.07E-05	2.56E-05	0.0	0.0	0.0	8.64E-05			
40ZR	95	7.99E-03	2.11E-07	5.32E-08	3.78E-09	0.0	1.54E-08	0.0	2.38E-05			
58CE	141	7.25E-03	8.00E-08	4.91E-08	[illegible]	0.0	2.94E-09	0.0	2.38E-05			

TOTAL NUMBER IN SOURCE TERM IS 23 TOTAL RELEASE IS 6.8162E+01

* * * AS LOW AS REASONABLY ACHIEVABLE * * *

ADULT DOSES

DOSE (MREM PER YEAR INTAKE)

PATHWAY	SKIN	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH		6.30E+00	1.75E+00	1.22E+00	4.71E-03	4.71E-01	1.57E-01	6.41E-01
INVERTEBRATE		2.76E-01	5.23E-02	2.78E-02	4.02E-04	8.81E-03	1.56E-02	5.26E-02
ALGAE		1.30E-05	9.98E-07	6.29E-07	5.98E-09	6.46E-08	7.23E-08	1.48E-06
DRINKING		3.05E-12	3.82E-12	2.82E-12	1.41E-12	1.46E-12	1.09E-12	6.96E-13
SHORELINE	4.78E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03
SWIMMING	0.0	4.56E-05	4.56E-05	4.56E-05	4.56E-05	4.56E-05	4.56E-05	4.56E-05
BOATING	0.0	4.56E-05	4.56E-05	4.56E-05	4.56E-05	4.56E-05	4.56E-05	4.56E-05
TOTAL	4.78E-03	6.58E+00	1.80E+00	1.25E+00	9.29E-03	4.84E-01	1.77E-01	6.98E-01

	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

TEENAGER DOSES

DOSE (MREM PER YEAR INTAKE)

PATHWAY	SKIN	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH		5.0[illegible]E+00	1.67E+00	7.18E-01	4.15E-03	3.59E-01	1.81E-01	4.86E-01
INVERTEBRATE		2.13E-01	4.37E-02	1.87E-02	3.49E-04	6.70E-03	1.26E-02	3.98E-02
ALGAE		1.31E-05	1.05E-06	5.97E-07	6.93E-09	6.46E-08	8.19E-08	1.48E-06
DRINKING		3.73E-12	4.80E-12	2.10E-12	1.51E-12	1.46E-12	1.21E-12	5.97E-13
SHORELINE	6.41E-03	5.48E-03	5.48E-03	5.48E-03	5.48E-03	5.48E-03	5.48E-03	5.48E-03
SWIMMING	0.0	9.12E-05	9.12E-05	9.12E-05	9.12E-05	9.12E-05	9.12E-05	9.12E-05
BOATING	0.0	4.56E-05	4.56E-05	4.56E-05	4.56E-05	4.56E-05	4.56E-05	4.56E-05
TOTAL	6.41E-03	5.23E+00	1.72E+00	7.43E-01	1.01E-02	3.71E-01	1.99E-01	5.32E-01

	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

CHILD DOSES

DOSE (MREM PER YEAR INTAKE)

PATHWAY	SKIN	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH		2.86E+00	1.35E+00	2.83E-01	4.25E-03	1.55E-01	1.42E-01	2.09E-01
INVERTEBRATE		1.04E-01	2.73E-02	8.15E-03	3.61E-04	3.00E-03	6.43E-03	1.78E-02
ALGAE		1.33E-02	1.28E-03	5.88E-04	1.64E-05	6.46E-05	1.05E-04	1.48E-03
DRINKING		8.91E-09	9.59E-09	2.20E-09	3.49E-09	1.46E-09	1.92E-09	8.22E-10
SHORELINE	1.34E-03	1.15E-03	1.15E-03	1.15E-03	1.15E-03	1.15E-03	1.15E-03	1.15E-03
SWIMMING	0.0	2.28E-05	2.28E-05	2.28E-05	2.28E-05	2.28E-05	2.28E-05	2.28E-05
BOATING	0.0	4.56E-05	4.56E-05	4.56E-05	4.56E-05	4.56E-05	4.56E-05	4.56E-05
TOTAL	1.34E-03	2.98E+00	1.37E+00	2.93E-01	5.85E-03	1.59E-01	1.50E-01	2.30E-01

	USAGE (KG/YR,HR/YR)	DILUTION	TIME(HR)
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

SHOREWIDTH FACTOR=0.2

INFANT DOSES

DOSE (MREM PER YEAR INTAKE)

PATHWAY	SKIN	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH		2.91E-01	2.16E-01	1.91E-02	7.40E-04	1.12E-02	2.47E-02	1.52E-02
INVERTEBRATE		6.96E-03	2.80E-03	4.74E-04	5.02E-05	1.76E-04	5.23E-04	1.04E-03
ALGAE		1.38E-05	1.87E-06	5.83E-07	3.94E-08	6.46E-08	1.77E-07	1.48E-06
DRINKING		1.74E-11	2.18E-11	2.38E-12	7.95E-12	1.46E-12	3.62E-12	1.08E-12
SHORELINE	2.87E-04	2.46E-04	2.46E-04	2.46E-04	2.46E-04	2.46E-04	2.46E-04	2.46E-04
SWIMMING	0.0	9.12E-12	9.12E-12	9.12E-12	9.12E-12	9.12E-12	9.12E-12	9.12E-12
BOATING	0.0	2.28E-07	2.28E-07	2.28E-07	2.28E-07	2.28E-07	2.28E-07	2.28E-07
TOTAL	2.87E-04	2.99E-01	2.19E-01	1.98E-02	1.04E-03	1.16E-02	2.55E-02	1.65E-02

	USAGE (KG/YR,HR/YR)	DILUTION	TIME(HR)
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

SHOREWIDTH FACTOR=0.2

	USAGE (KG/YR,HR/YR)	DILUTION	TIME(HR)
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

SHOREWIDTH FACTOR=0.2

I N F A N T D O S E S

DOSE (MREM PER YEAR INTAKE)

PATHWAY	SKIN	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH		2.91E-01	2.16E-01	1.91E-02	7.40E-04	1.12E-02	2.47E-02	1.52E-02
INVERTEBRATE		6.96E-03	2.80E-03	4.74E-04	5.02E-05	1.76E-04	5.23E-04	1.04E-03
ALGAE		1.38E-05	1.87E-06	5.83E-07	3.94E-08	6.46E-08	1.77E-07	1.48E-06
DRINKING		1.74E-11	2.18E-11	2.38E-12	7.95E-12	1.46E-12	3.62E-12	1.08E-12
SHORELINE	2.87E-04	2.46E-04	2.46E-04	2.46E-04	2.46E-04	2.46E-04	2.46E-04	2.46E-04
SWIMMING	0.0	9.12E-12	9.12E-12	9.12E-12	9.12E-12	9.12E-12	9.12E-12	9.12E-12
BOATING	0.0	2.28E-07	2.28E-07	2.28E-07	2.28E-07	2.28E-07	2.28E-07	2.28E-07
TOTAL	2.87E-04	2.99E-01	2.19E-01	1.98E-02	1.04E-03	1.16E-02	2.55E-02	1.65E-02

	USAGE (KG/YR,HR/YR)	DILUTION	TIME(HR)
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

SHOREWIDTH FACTOR=0.2

* * * SELECTED LOCATION * * *

LOCATION IS DOWNSTREAM

A D U L T D O S E S

DOSE (MREM PER YEAR INTAKE)

PATHWAY	SKIN	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH		4.45E+00	1.24E+00	8.68E-01	3.29E-03	3.37E-01	1.12E-01	4.53E-01
INVERTEBRATE		1.95E-01	3.72E-02	1.97E-02	2.78E-04	6.29E-03	1.12E-02	3.73E-02
ALGAE		9.20E-06	7.06E-07	4.45E-07	4.16E-09	4.61E-08	5.16E-08	1.05E-06
DRINKING		2.22E-10	2.74E-10	2.02E-10	1.31E-10	1.05E-10	7.83E-11	5.06E-11
SHORELINE	3.41E-03	2.92E-03	2.92E-03	2.92E-03	2.92E-03	2.92E-03	2.92E-03	2.92E-03
SWIMMING	0.0	3.06E-05	3.06E-05	3.06E-05	3.06E-05	3.06E-05	3.06E-05	3.06E-05
BOATING	0.0	3.06E-05	3.06E-05	3.06E-05	3.06E-05	3.06E-05	3.06E-05	3.06E-05
TOTAL	3.41E-03	4.65E+00	1.28E+00	8.91E-01	6.55E-03	3.46E-01	1.26E-01	4.93E-01

	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

T E E N A G E R D O S E S

DOSE (MREM PER YEAR INTAKE)

PATHWAY	SKIN	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH		3.54E+00	1.19E+00	5.12E-01	2.90E-03	2.56E-01	1.29E-01	3.43E-01
INVERTEBRATE		1.50E-01	3.11E-02	1.33E-02	2.41E-04	4.78E-03	9.00E-03	2.82E-02
ALGAE		9.22E-06	7.43E-07	4.22E-07	4.83E-09	4.61E-08	5.85E-08	1.04E-06
DRINKING		2.72E-10	3.44E-10	1.51E-10	1.43E-10	1.05E-10	8.70E-11	4.35E-11
SHORELINE	4.58E-03	3.92E-03	3.92E-03	3.92E-03	3.92E-03	3.92E-03	3.92E-03	3.92E-03
SWIMMING	0.0	6.12E-05	6.12E-05	6.12E-05	6.12E-05	6.12E-05	6.12E-05	6.12E-05
BOATING	0.0	3.06E-05	3.06E-05	3.06E-05	3.06E-05	3.06E-05	3.06E-05	3.06E-05
TOTAL	4.58E-03	3.70E+00	1.22E+00	5.29E-01	7.15E-03	2.63E-01	1.42E-01	3.76E-01

	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 H I L D D O S E S

DOSE (MREM PER YEAR INTAKE)

PATHWAY	SKIN	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH		2.03E+00	9.60E-01	2.02E-01	2.97E-03	1.11E-01	1.02E-01	1.48E-01
INVERTEBRATE		7.34E-02	1.95E-02	5.79E-03	2.51E-04	2.14E-03	4.59E-03	1.26E-02

ALGAE		9.41E-03	9.06E-04	4.16E-04	1.15E-05	4.61E-05	7.51E-05	1.04E-03
DRINKING		6.41E-07	6.87E-07	1.58E-07	3.33E-07	1.05E-07	1.38E-07	5.96E-08
SHORELINE	9.56E-04	8.18E-04	8.18E-04	8.18E-04	8.18E-04	8.18E-04	8.18E-04	8.18E-04
SWIMMING	0.0	1.53E-05	1.53E-05	1.53E-05	1.53E-05	1.53E-05	1.53E-05	1.53E-05
BOATING	0.0	3.06E-05	3.06E-05	3.06E-05	3.06E-05	3.06E-05	3.06E-05	3.06E-05
TOTAL	9.56E-04	2.11E+00	9.81E-01	2.09E-01	4.10E-03	1.14E-01	1.07E-01	1.62E-01

	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

INFANT DOSES

DOSE (MREM PER YEAR INTAKE)

PATHWAY	SKIN	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH		2.07E-01	1.54E-01	1.36E-02	5.17E-04	8.02E-03	1.76E-02	1.07E-02
INVERTEBRATE		4.93E-03	2.00E-03	3.37E-04	3.50E-05	1.26E-04	3.73E-04	7.40E-04
ALGAE		9.71E-06	1.33E-06	4.12E-07	2.75E-08	4.61E-08	1.26E-07	1.04E-06
DRINKING		1.25E-09	1.56E-09	1.71E-10	7.71E-10	1.05E-10	2.59E-10	7.78E-11
SHORELINE	2.05E-04	1.75E-04	1.75E-04	1.75E-04	1.75E-04	1.75E-04	1.75E-04	1.75E-04
SWIMMING	0.0	6.12E-12	6.12E-12	6.12E-12	6.12E-12	6.12E-12	6.12E-12	6.12E-12
BOATING	0.0	1.53E-07	1.53E-07	1.53E-07	1.53E-07	1.53E-07	1.53E-07	1.53E-07
TOTAL	2.05E-04	2.12E-01	1.57E-01	1.41E-02	7.28E-04	8.32E-03	1.82E-02	1.16E-02

	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

SPORTFISH HARVEST

PATHWAY	AGE GROUP	USAGE	DOSE (MAN-REM) BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH	ADULT	7.24E+04	1.19E+01	4.01E+00	2.81E+00	6.82E-03	1.14E+00	3.78E-01	1.18E+00
FISH	TEENAGER	1.16E+04	2.02E+00	8.12E-01	3.43E-01	1.26E-03	1.82E-01	9.18E-02	1.88E-01
FISH	CHILD	7.00E+03	1.72E+00	9.35E-01	1.89E-01	1.82E-03	1.10E-01	1.01E-01	1.13E-01
FISH	TOTAL	9.10E+04	1.57E+01	5.76E+00	3.34E+00	9.90E-03	1.43E+00	5.71E-01	1.48E+00

DILUTION	CATCH	TIME(HR)-INCLUDES FOOD PROCESSING TIME OF 1.68E+02 HR	POPULATION=1.59E+04
7.00E+00	9.10E+04	1.68E+02	

AVERAGE INDIVIDUAL CONSUMPTION (KG/YR) ADULT=6.90E+00 TEEN=5.20E+00 CHILD=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	ADULT	8.74E+07	4.51E+01	1.67E+01	1.17E+01	2.25E-02	4.82E+00	1.61E+00	4.38E+00
FISH	TEENAGER	1.40E+07	7.67E+00	3.39E+00	1.42E+00	4.16E-03	7.71E-01	3.90E-01	6.96E-01
FISH	CHILD	8.45E+06	6.76E+00	3.94E+00	7.80E-01	5.99E-03	4.66E-01	4.29E-01	4.19E-01
FISH	TOTAL	1.10E+08	5.96E+01	2.40E+01	1.39E+01	3.27E-02	6.06E+00	2.43E+00	5.50E+00

DILUTION CATCH TIME(HR)-INCLUDES FOOD PROCESSING TIME OF 2.40E+02 HR POPULATION=1.92E+07
7.00E+00 1.55E+05 2.40E+02

AVERAGE INDIVIDUAL CONSUMPTION (KG/YR) ADULT=6.90E+00 TEEN=5.20E+00 CHILD=2.00E+00

NEPA DOSES

NOTE--TOATL NEPA DOSE MUST INCLUDE SPORT CATCH, DOSES BELOW ARE FOR COMMERCIAL CATCH ONLY

PATHWAY	AGE GROUP	USAGE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
			DOSE (MAN-REM)						
FISH	ADULT	1.23E+05	1.81E+01	6.68E+00	4.70E+00	9.03E-03	1.93E+00	6.44E-01	1.76E+00
FISH	TEENAGER	1.97E+04	3.07E+00	1.36E+00	5.70E-01	1.66E-03	3.09E-01	1.56E-01	2.79E-01
FISH	CHILD	1.19E+04	2.71E+00	1.58E+00	3.12E-01	2.40E-03	1.87E-01	1.72E-01	1.68E-01
FISH	TOTAL	1.55E+05	2.39E+01	9.61E+00	5.58E+00	1.31E-02	2.43E+00	9.72E-01	2.20E+00

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

SPORTFISH HARVEST

PATHWAY	AGE GROUP	USAGE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
			DOSE (MAN-REM)						
INVER	ADULT	7.94E+03	2.36E-01	5.34E-02	2.80E-02	2.61E-04	9.72E-03	1.73E-02	5.00E-02
INVER	TEENAGER	1.26E+03	3.81E-02	9.43E-03	3.89E-03	4.73E-05	1.55E-03	2.93E-03	7.91E-03
INVER	CHILD	7.94E+02	2.68E-02	8.47E-03	2.38E-03	7.04E-05	9.72E-04	2.10E-03	4.96E-03
INVER	TOTAL	1.00E+04	3.01E-01	7.13E-02	3.43E-02	3.79E-04	1.22E-02	2.23E-02	6.29E-02

DILUTION 7.00E+00 CATCH 1.00E+04 TIME(HR)-INCLUDES FOOD PROCESSING TIME OF 1.68E+02 HR 1.68E+02 POPULATION=1.20E+04

AVERAGE INDIVIDUAL CONSUMPTION (KG/YR) ADULT=1.00E+00 TEEN=7.50E-01 CHILD=3.30E-01

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

COMMERCIAL HARVEST

DOSE (MAN-REM)

PATHWAY	AGE GROUP	USAGE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
INVER	ADULT	1.27E+07	1.43E-01	3.57E-02	1.86E-02	1.42E-04	6.72E-03	1.20E-02	3.22E-02
INVER	TEENAGER	2.02E+06	2.32E-02	6.33E-03	2.57E-03	2.57E-05	1.07E-03	2.03E-03	5.10E-03
INVER	CHILD	1.27E+06	1.66E-02	5.73E-03	1.57E-03	3.81E-05	6.72E-04	1.45E-03	3.19E-03
INVER	TOTAL	1.60E+07	1.83E-01	4.78E-02	2.27E-02	2.06E-04	8.46E-03	1.55E-02	4.05E-02

DILUTION	CATCH	TIME(HR)-INCLUDES FOOD PROCESSING TIME OF 2.40E+02 HR	POPULATION=1.92E+07
7.00E+00	1.00E+03	2.40E+02	

AVERAGE INDIVIDUAL CONSUMPTION (KG/YR) ADULT=1.00E+00 TEEN=7.50E-01 CHILD=3.30E-01

NEPA DOSES

NOTE--TOATL NEPA DOSE MUST INCLUDE SPORT CATCH, DOSES BELOW ARE FOR COMMERCIAL CATCH ONLY

DOSE (MAN-REM)

PATHWAY	AGE GROUP	USAGE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
INVER	ADULT	7.94E+02	2.06E-02	5.15E-03	2.68E-03	2.05E-05	9.68E-04	1.73E-03	4.65E-03
INVER	TEENAGER	1.26E+02	3.35E-03	9.12E-04	3.70E-04	3.70E-06	1.54E-04	2.92E-04	7.35E-04
INVER	CHILD	7.94E+01	2.39E-03	8.26E-04	2.26E-04	5.50E-06	9.68E-05	2.09E-04	4.60E-04
INVER	TOTAL	1.00E+03	2.64E-02	6.88E-03	3.28E-03	2.97E-05	1.22E-03	2.23E-03	5.84E-03

* * * POPULATION WATER CONSUMPTION DOSES * * *

DOSE (MAN-REM)

PATHWAY	AGE GROUP	USAGE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
DRINKING	ADULT	2.44E+02	5.27E-08	2.07E-08	1.33E-08	6.80E-11	6.17E-09	2.09E-09	9.85E-10
DRINKING	TEENAGER	3.64E+01	8.55E-09	3.94E-09	1.47E-09	8.02E-12	9.20E-10	4.76E-10	1.41E-10
DRINKING	CHILD	5.20E+01	1.95E-08	1.12E-08	1.94E-09	2.19E-11	1.31E-09	1.26E-09	2.10E-10
DRINKING	TOTAL	3.33E+02	8.07E-08	3.58E-08	1.67E-08	9.79E-11	8.40E-09	3.83E-09	1.34E-09

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) ADULT=3.70E+02 TEEN=2.60E+02 CHILD=2.60E+02

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

PATHWAY	AGE GROUP	USAGE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
DRINKING	CUMUL TOTAL	3.33E+02	8.07E-08	3.58E-08	1.67E-08	9.79E-11	8.40E-09	3.83E-09	1.34E-09

HYDROSPHERE TRITIUM DOSE

PATHWAY	AGE GROUP	USAGE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
WATER	TOTAL	2.20E+00	6.99E-04	6.99E-04	6.99E-04	6.99E-04	6.99E-04	6.99E-04	6.99E-04

* * * RECREATION POPULATION DOSES * * *

PATHWAY	AGE GROUP	USAGE	DOSE(MAN-REM) SKIN	TOTAL BODY	THYROID
SHORELINE	TOTAL POPUL	1.66E+07	1.13E+00	9.71E-01	9.71E-01

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
SWIMMING	TOTAL POPUL	1.66E+07	0.0	1.05E-02	1.05E-02

LOCATION-- DOWNSTREAM

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	0.0	5.23E-03	5.23E-03

LOCATION-- DOWNSTREAM

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

* * * DOSE TO BIOTA * * *

MRADS PER YEAR

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

	INTERNAL	EXTERNAL	TOTAL
FISH	1.50E+01	2.57E+00	1.76E+01
INVERTEBRATE	2.97E+00	5.13E+00	8.10E+00
ALGAE	6.58E+01	5.52E-03	6.58E+01
MUSKRAT	1.07E+02	1.71E+00	1.09E+02
RACCOON	1.34E+00	1.28E+00	2.62E+00
HERON	9.38E+01	1.71E+00	9.56E+01
DUCK	1.06E+02	2.56E+00	1.09E+02

* * * 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	6.68E+01	1.07E-03	1.07E-03	1.60E-05	1.60E-05
38SR 89	9.82E-04	4.32E-05	2.26E-08	4.40E-02	2.30E-05
38SR 90	2.16E-04	1.97E-03	5.22E-10	9.10E+00	2.42E-06
55CS 13	2.29E-01	6.75E+00	1.83E-01	2.95E+01	7.99E-01
55CS 137	4.96E-01	8.99E+00	5.90E-01	1.81E+01	1.19E+00
53I 131	2.17E-02	1.97E-04	4.22E-02	9.07E-03	1.95E+00
27CO 58	3.58E-02	2.35E-03	1.86E-03	6.56E-02	5.21E-02
27CO 60	7.37E-02	1.87E-01	1.84E-01	2.54E+00	2.50E+00
26FE 59	1.01E-02	1.35E-03	4.15E-04	1.34E-01	4.11E-02
30ZN 65	1.07E-02	2.26E-02	9.65E-04	2.11E+00	9.02E-02
25MN 54	4.80E-03	2.67E-03	7.96E-04	5.55E-01	1.66E-01
24CR 51	5.47E-02	4.59E-05	4.43E-05	8.39E-04	8.10E-04
40ZR 95	7.99E-03	2.84E-04	2.84E-04	3.56E-02	3.56E-02
43TC 99M	7.67E-03	5.31E-06	5.31E-06	6.92E-04	6.92E-04
58CE 141	7.25E-03	1.56E-05	1.56E-05	2.15E-03	2.15E-03
55CS 136	1.76E-02	5.07E-02	6.19E-04	2.88E+00	3.52E-02
26FE 55	6.89E-02	1.36E-02	1.97E-08	1.97E-01	2.86E-07
28NI 63	1.44E-01	8.23E-03	0.0	5.72E-02	0.0
15P 32	3.73E-02	2.26E+00	1.06E-06	6.05E+01	2.84E-05
27CO 57	3.02E-03	7.44E-05	6.82E-05	2.47E-02	2.26E-02
47AG 110M	1.67E-02	7.02E-03	7.01E-03	4.20E-01	4.20E-01
51SB 125	3.43E-02	9.22E-03	9.22E-03	2.69E-01	2.69E-01
11NA 24	8.01E-02	2.42E-03	2.42E-03	3.02E-02	3.02E-02
TOTAL		1.83E+01	1.02E+00		

HOURS AT EACH WIND SPEED AND DIRECTION [a]

PERIOD OF RECORD: July-September 1982

STABILITY CLASS: A

ELEVATION: 10 Meter

Wind Direction	Wind Speed (mph) at 10m Level 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	18	53	8	0	0	0	79
NNE	11	16	3	0	0	0	30
NE	7	0	0	0	0	0	7
ENE	3	1	0	0	0	0	4
E	2	0	0	0	0	0	2
ESE	5	0	0	0	0	0	5
SE	5	1	0	0	0	0	6
SSE	38	6	0	0	0	0	44
S	48	27	1	0	0	0	76
SSW	10	9	2	0	0	0	21
SW	11	5	1	0	0	0	17
WSW	11	3	0	0	0	0	14
W	10	8	0	0	0	0	18
WNW	9	9	0	0	0	0	18
NW	4	6	0	0	0	0	10
NNW	12	7	0	0	0	0	19
VARIABLE							
Total	204	151	15	0	0	0	370

Periods of calm (hours): 1

Hours of missing data: TOTAL MISSING HOURS FOR ALL STABILITY CLASSES DURING THIRD QUARTER = 2

[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.

HOURS AT EACH WIND SPEED AND DIRECTION [a]

PERIOD OF RECORD: July-September 1982

STABILITY CLASS: B

ELEVATION: 10 Meter

Wind Direction	Wind Speed (mph) at 10m Level 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	13	14	1	0	0	0	28
NNE	12	20	1	0	0	0	33
NE	5	0	0	0	0	0	5
ENE	3	0	0	0	0	0	3
E	2	0	0	0	0	0	2
ESE	2	0	0	0	0	0	2
SE	7	0	0	0	0	0	7
SSE	4	1	0	0	0	0	5
S	8	3	0	0	0	0	11
SSW	7	2	0	0	0	0	9
SW	1	4	0	0	0	0	5
WSW	1	0	0	0	0	0	1
W	3	2	0	0	0	0	5
WNW	3	2	0	0	0	0	5
NW	3	3	0	0	0	0	6
NNW	3	6	0	0	0	0	9
VARIABLE							
Total	77	57	2	0	0	0	136

Periods of calm (hours): 0

Hours of missing data:

[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.

HOURS AT EACH WIND SPEED AND DIRECTION [a]

PERIOD OF RECORD: July-September 1982

STABILITY CLASS: c

ELEVATION: 10 Meter

Wind Direction	Wind Speed (mph) at 10m Level 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	16	9	1	0	0	0	26
NNE	12	6	[illegible]	0	0	0	20
NE	9	3	0	0	0	0	12
ENE	5	0	0	0	0	0	5
E	1	0	0	0	0	0	1
ESE	1	0	0	0	0	0	1
SE	3	0	0	0	0	0	3
SSE	6	1	0	0	0	0	7
S	4	2	0	0	0	0	6
SSW	1	4	0	0	0	0	5
SW	5	5	0	0	0	0	10
WSW	2	1	0	0	0	0	3
W	7	1	0	0	0	0	8
WNW	3	2	0	0	0	0	5
NW	1	2	0	0	0	0	3
NNW	4	0	0	0	0	0	4
VARIABLE							
Total	80	36	3	0	0	0	119

Periods of calm (hours): 0

Hours of missing data:

[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.

HOURS AT EACH WIND SPEED AND DIRECTION [a]

PERIOD OF RECORD: July-September 1982

STABILITY CLASS: D

ELEVATION: 10 Meter

Wind Direction	Wind Speed (mph) at 10m Level 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	33	31	12	0	0	0	76
NNE	61	83	30	0	0	0	174
NE	55	10	0	0	0	0	65
ENE	25	1	0	0	0	0	26
E	12	0	0	0	0	0	12
ESE	15	0	0	0	0	0	15
SE	14	0	0	0	0	0	14
SSE	27	3	0	0	0	0	30
S	19	10	0	0	0	0	29
SSW	10	24	1	0	0	0	35
SW	6	9	0	0	0	0	15
WSW	7	2	0	0	0	0	9
W	10	4	1	0	0	0	14
WNW	8	0	0	0	0	0	8
NW	11	2	1	0	0	0	14
NNW	5	8	2	0	0	0	15
VARIABLE							
Total	318	187	46	0	0	0	551

Periods of calm (hours): 2

Hours of missing data:

[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.

HOURS AT EACH WIND SPEED AND DIRECTION [a]

PERIOD OF RECORD: July-September 1982

STABILITY CLASS: E

ELEVATION: 10 Meter

Wind Direction	Wind Speed (mph) at 10m Level 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	22	21	0	0	0	0	43
NNE	56	38	1	0	0	0	95
NE	128	23	0	0	0	0	151
ENE	77	1	0	0	0	0	78
E	32	0	0	0	0	0	32
ESE	22	0	0	0	0	0	22
SE	29	0	0	0	0	0	29
SSE	19	0	0	0	0	0	19
S	42	14	0	0	0	0	56
SSW	29	20	0	0	0	0	49
SW	3	3	0	0	0	0	6
WSW	5	0	0	0	0	0	5
W	9	4	0	0	0	0	13
WNW	2	10	1	0	0	0	13
NW	3	8	0	0	0	0	11
NNW	13	10	3	0	0	0	26
VARIABLE							
Total	491	152	5	0	0	0	648

Periods of calm (hours): 25

Hours of missing data:

[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]

PERIOD OF RECORD: July-September 1982

STABILITY CLASS: F

ELEVATION: 10 Meter

Wind Direction	Wind Speed (mph) at 10m Level 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	7	0	0	0	0	0	7
NNE	77	7	0	0	0	0	84
NE	106	38	0	0	0	0	144
ENE	29	3	0	0	0	0	32
E	19	0	0	0	0	0	19
ESE	5	0	0	0	0	0	5
SE	6	0	0	0	0	0	6
SSE	4	0	0	0	0	0	4
S	6	0	0	0	0	0	6
SSW	3	1	0	0	0	0	4
SW	0	0	0	0	0	0	0
WSW	1	0	0	0	0	0	1
W	1	0	0	0	0	0	1
WNW	2	0	0	0	0	0	2
NW	0	0	0	0	0	0	0
NNW	3	0	0	0	0	0	3
VARIABLE							
Total	269	49	0	0	0	0	318

Periods of calm (hours): 11

Hours of missing data:

[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.

HOURS AT EACH WIND SPEED AND DIRECTION [a]

PERIOD OF RECORD: July-September 1982

STABILITY CLASS: C

ELEVATION: 10 Meter

Wind Direction	Wind Speed (mph) at 10m Level 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	6	0	0	0	0	0	6
NE	10	4	0	0	0	0	14
ENE	4	0	0	0	0	0	4
E	0	0	0	0	0	0	0
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	0	0	0	0	0	0
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
VARIABLE							
Total	21	4	0	0	0	0	25

Periods of calm (hours): 0

Hours of missing data:

[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.

HOURS AT EACH WIND SPEED AND DIRECTION [a]

PERIOD OF RECORD: October-December 1982

STABILITY CLASS: A

ELEVATION: 10 Meter

Wind Direction	Wind Speed (mph) at 10m Level 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	6	20	3	0	0	0	29
NNE	3	11	3	0	0	0	17
NE	2	2	0	0	0	0	4
ENE	3	0	0	0	0	0	3
E	2	0	0	0	0	0	2
ESE	2	0	0	0	0	0	2
SE	9	4	0	0	0	0	13
SSE	14	3	0	0	0	0	17
S	19	12	0	0	0	0	31
SSW	8	3	0	0	0	0	11
SW	4	0	0	0	0	0	4
WSW	2	1	2	0	0	0	5
W	2	6	0	0	0	0	8
WNW	1	10	2	0	0	0	13
NW	0	8	2	0	0	0	10
NNW	0	15	4	0	0	0	19
VARIABLE							
Total	77	95	16	0	0	0	188

Periods of calm (hours): 0

Hours of missing data: TOTAL MISSING HOURS FOR ALL STABILITY CLASSES DURING FOURTH QUARTER = 2

[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.

HOURS AT EACH WIND SPEED AND DIRECTION [a]

PERIOD OF RECORD: October-December 1982

STABILITY CLASS: B

ELEVATION: 10 Meter

Wind Direction	Wind Speed (mph) at 10m Level 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	1	5	0	0	0	0	6
NNE	0	4	2	0	0	0	6
NE	2	2	0	0	0	0	4
ENE	1	0	0	0	0	0	1
E	1	0	0	0	0	0	1
ESE	3	0	0	0	0	0	3
SE	4	0	0	0	0	0	4
SSE	4	1	0	0	0	0	5
S	1	4	0	0	0	0	5
SSW	3	0	0	0	0	0	3
SW	1	5	0	0	0	0	6
WSW	2	0	0	0	0	0	2
W	2	0	0	0	0	0	2
WNW	2	5	1	0	0	0	8
NW	0	5	3	1	0	0	9
NNW	0	7	5	0	0	0	12
VARIABLE							
Total	27	38	11	1	0	0	77

Periods of calm (hours): 0

Hours of missing data:

[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.

HOURS AT EACH WIND SPEED AND DIRECTION [a]

PERIOD OF RECORD: October-December 1982

STABILITY CLASS: C

ELEVATION: 10 Meter

Wind Direction	Wind Speed (mph) at 10m Level 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	6	7	2	2	0	0	17
NNE	3	5	2	0	0	0	10
NE	1	1	0	0	0	0	2
ENE	0	1	0	0	0	0	1
E	1	0	0	0	0	0	1
ESE	4	0	0	0	0	0	4
SE	3	1	0	0	0	0	4
SSE	0	2	0	0	0	0	2
S	3	2	0	0	0	0	5
SSW	1	1	0	0	0	0	2
SW	0	1	0	0	0	0	1
WSW	0	1	0	0	0	0	1
W	0	2	0	0	0	0	2
WNW	1	2	1	0	0	0	4
NW	1	5	6	0	0	0	12
NNW	2	4	3	1	0	0	10
VARIABLE							
Total	26	35	14	3	0	0	78

Periods of calm (hours): 0

Hours of missing data:

[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.

HOURS AT EACH WIND SPEED AND DIRECTION [a]

PERIOD OF RECORD: October-December 1982

STABILITY CLASS: D

ELEVATION: 10 Meter

Wind Direction	Wind Speed (mph) at 10m Level 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	43	69	19	5	1	0	137
NNE	63	86	43	2	0	0	194
NE	68	26	2	0	0	0	96
ENE	30	2	0	0	0	0	32
E	17	1	0	0	0	0	18
ESE	18	0	0	0	0	0	18
SE	28	2	0	0	0	0	30
SSE	23	10	1	0	0	0	34
S	20	16	0	0	0	0	36
SSW	15	6	0	0	0	0	21
SW	9	1	1	0	0	0	11
WSW	6	6	0	0	0	0	12
W	9	16	0	0	0	0	25
WNW	7	51	6	0	0	0	64
NW	5	43	38	2	0	0	88
NNW	7	50	24	0	0	0	81
VARIABLE							
Total	368	385	134	9	1	0	897

Periods of calm (hours): 3

Hours of missing data:

[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.

HOURS AT EACH WIND SPEED AND DIRECTION [a]

PERIOD OF RECORD: October-December 1982

STABILITY CLASS: E

ELEVATION: 10 Meter

Wind Direction	Wind Speed (mph) at 10m Level 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	32	4	0	0	0	0	36
NNE	80	16	1	0	0	0	97
NE	143	26	0	0	0	0	169
ENE	44	2	0	0	0	0	46
E	19	1	0	0	0	0	20
ESE	13	0	0	0	0	0	13
SE	21	0	0	0	0	0	21
SSE	36	16	0	0	0	0	52
S	29	35	6	0	0	0	70
SSW	22	10	0	0	0	0	32
SW	8	5	0	0	0	0	13
WSW	6	2	0	0	0	0	8
W	19	12	0	0	0	0	31
WNW	11	15	2	0	0	0	28
NW	5	4	0	0	0	0	9
NNW	12	4	1	0	0	0	17
VARIABLE							
Total	500	152	10	0	0	0	662

Periods of calm (hours): 10

Hours of missing data:

[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.

HOURS AT EACH WIND SPEED AND DIRECTION [a]

PERIOD OF RECORD: October-December 1982

STABILITY CLASS: F

ELEVATION: 10 Meter

Wind Direction	Wind Speed (mph) at 10m Level 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	5	1	0	0	0	0	6
NNE	78	3	0	0	0	0	81
NE	69	31	0	0	0	0	100
ENE	18	0	0	0	0	0	18
E	12	1	0	0	0	0	13
ESE	5	0	0	0	0	0	5
SE	7	0	0	0	0	0	7
SSE	2	1	0	0	0	0	3
S	2	3	0	0	0	0	5
SSW	3	0	0	0	0	0	3
SW	2	0	0	0	0	0	2
WSW	1	0	0	0	0	0	1
W	2	0	0	0	0	0	2
WNW	2	0	0	0	0	0	2
NW	2	0	0	0	0	0	2
NNW	1	0	0	0	0	0	1
VARIABLE							
Total	211	40	0	0	0	0	251

Periods of calm (hours): 5

Hours of missing data:

[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.

HOURS AT EACH WIND SPEED AND DIRECTION [a]

PERIOD OF RECORD: October-December 1982

STABILITY CLASS: C

ELEVATION: 10 Meter

Wind Direction	Wind Speed (mph) at 10m Level 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	2	0	0	0	0	0	2
NNE	14	1	0	0	0	0	15
NE	5	9	0	0	0	0	14
ENE	3	0	0	0	0	0	3
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	0	0	0	0	0	0	0
SSW	1	0	0	0	0	0	1
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
VARIABLE							
Total	25	10	0	0	0	0	35

Periods of calm (hours): 0

Hours of missing data:

[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.