Request B2

Provide the following information, concerning regional meteorological conditions characterizing atmospheric transport processes within 50 miles of the plant, for as many relevant stations as practicable or necessary to define these transport processes within the region:

a. Wind speed and direction data at all height(s) at which wind characteristic data are applicable or have been measured;

b. Atmospheric stability data as defined by vertical temperature gradient or other well-documented parameters that have been substantiated by diffusion test data;

c. Monthly mixing height data; and

d. Total precipitation by month, number of hours with precipitation, rainfall rate distributions, and monthly precipitation wind roses.

e. Describe airflow trajectory regimes of importance in transporting effluents to a distance of 50 miles from the plant, including airflow reversals.

Note: The regional meteorological information provided should be based on at least a one-year period of record and should be concurrent for each station with the period of onsite data collection. Both onsite and regional meteorological data should be presented for each hour, and if possible also be available on magnetic tapes to expedite the staff review. Sources of meteorological information, in addition to the onsite program, could include available National Weather Service (NWS) stations and other well-maintained and well-exposed (e.g., other nuclear plants, university, private meteorological programs) meteorological facilities.

Response B2

a. Wind speed and direction data for the Syracuse Airport (ref. 11) for the period 1951-1960 are given in Table B2-1 by months and combined annual. Also the 1974 Local Climatological Summaries for Syracuse and Rochester (ref. 11) are also given in Table B2-2. The 1975 Local Climatological Summaries were not yet available. The data in these wind roses closely resemble the site data from 1974-1975 and the earlier 1963-1964 data (ref.4).

b. The atmospheric stability as defined in the STAR Program for Syracuse, 1967, are given in Table B2-3, as 1974-1975 data were not available (ref. 11).

c. Seasonal and annual mixing height data for morning and afternoon are given in Figures B2-1 through 5, which were abstracted from the Holzworth paper (ref. 12) on mixing heights.

d. Total precipitation by month, number of hours with precipitation, and rainfall rate distributions were extracted from the Climatological Summary for Syracuse from 1951-1960 and Local Climatological Summaries for 1974 are shown in Tables B2-1 and B2-2.

e. Covered in Meteorclogical Section 2.2.1 of the NMP2 PSAR (ref. 1).

TABLE B2-1
WIND SPEED AND DIRECTION DATA
FOR SYRACUSE AIRPORT YEARS 1951-1960

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

SYRACUSE, NEW YORK
Hancock AP

JANUARY
7440 Obs.

A TEMPERATURE AND WIND SPEED-RELATIVE HUMIDITY OCCURRENCES:

WIND / TEMP °F	0-4 MPH						5-14 MPH						15-24 MPH						25 MPH AND OVER						TOTAL OBS.
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
64/ 60															3	1									4
59/ 55									2	3	2				21	4	6				2	2	3		45
54/ 50			1						3	10	7				15	15	6	1			1	3	5		67
49/ 45			2	2	3	1			11	22	12	8		4	8	26	15	4			1	3	5	1	128
44/ 40		1	9	6	7	2		3	45	23	36	24		5	28	31	16	2			4	6	3		251
39/ 35			10	22	26	56		5	86	123	87	84		8	59	56	22	17		1	6	6	3		677
34/ 30			13	47	92	101		11	104	175	169	276		3	52	68	71	73			8	7	7	1	1278
29/ 25			64	71	95	39		11	194	170	179	92		6	115	86	79	26			11	6	9	2	1255
24/ 20		4	62	52	102	6		7	200	160	252	66		1	86	63	101	19			8	5	6		1200
19/ 15		4	71	91	79	4		14	151	187	139	24		3	60	47	46	24			8	4	2	5	963
14/ 10			65	71	54	2		7	117	155	111	9		1	66	41	34	7			4	5	3	2	754
09/ 05			40	41	32			20	75	79	71			6	19	21	18					4	11		437
04/ 00		6	52	41	31			6	51	30	19	1			4	2	2						2		247
-01/-05		5	14	14	11			7	18	17	9														95
-06/-10		2	3	3	4			7		1															20
-11/-15	3		1	1				2	2																9
-16/-20			1					5																	6
-21/-25			2						2																4
TOTAL	3	22	410	462	536	211		105	1061	1155	1093	584		37	536	461	416	173		1	53	51	59	11	7440

B PERCENTAGE FREQUENCIES OF WIND DIRECTION AND SPEED:

DIRECTION	HOURLY OBSERVATIONS OF WIND SPEED (IN MILES PER HOUR)										AV. SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	47 & OVER	TOTAL	
N	1.2	1.5	1.1	.4	+					4.2	6.6
NNE	.6	.6	.1	+						1.3	4.6
NE	.9	.4	.1	+						1.5	4.2
ENE	.9	1.6	1.4	.5	+					4.4	7.4
E	2.1	4.1	3.1	1.3	.1					10.7	7.4
ESE	1.0	2.8	1.6	.3	+					5.8	6.6
SE	1.1	2.0	1.1	.3	+					4.4	6.5
SSE	.4	1.0	.7	.5	.2	+				2.9	9.3
S	.6	1.3	1.6	1.7	.7	.4	+	+		6.3	12.4
SSW	.2	.9	1.3	1.3	.4	+				4.2	11.4
SW	.5	.9	1.3	1.0	.1	+	+			3.9	9.5
WSW	.8	2.4	3.1	3.1	1.0	.1	+			10.6	11.4
W	1.0	2.0	2.8	3.4	.9	.3	.1			10.5	12.0
WNW	.8	2.3	2.4	3.5	1.7	.5	.1	+		11.5	13.1
NW	.7	2.2	3.1	3.7	1.2	.4	.1			11.3	12.4
NNW	.7	1.0	1.5	1.8	.3	.1				5.3	10.8
CALM	1.0									1.0	
TOTAL	14.6	27.0	26.4	23.1	6.6	2.0	.3	+		100	10.0

C OCCURRENCES OF PRECIPITATION AMOUNTS

INTENSITIES	FREQUENCY OF OCCURRENCE FOR EACH HOUR OF THE DAY																								NO. OF DAYS WITH
	A.M. HOUR ENDING AT												P.M. HOUR ENDING AT												
	1	2	3	4	5	6	7	8	9	10	11	NOON	1	2	3	4	5	6	7	8	9	10	11	MID	
TRACE	111	106	96	103	96	99	101	112	105	94	101	97	100	86	80	93	74	84	96	89	94	95	93	101	84
.01 IN	26	24	30	31	30	31	31	27	32	32	23	33	22	27	33	23	35	24	23	21	22	20	28	33	19
.02 TO .09 IN	22	30	33	35	36	36	30	22	20	24	21	13	16	9	9	16	18	21	22	28	27	32	30	24	79
.10 TO .24 IN	1	1	2	1	1	1	2	1	1	2	1	2	1	1	1					2	1	1	3	2	53
.25 TO .49 IN																									31
.50 TO .99 IN																									9
1.00 TO 1.99 IN																									1
2.00 IN AND OVER																									
TOTAL	160	161	161	170	163	167	164	162	158	152	146	145	139	123	123	132	127	129	141	140	144	148	154	160	276

D PERCENTAGE FREQUENCIES OF CEILING-VISIBILITY:

VISIBILITY (MILES)	CEILING (FEET)									
	0	100-200	300-400	500-900	1000-1900	2000-2900	3000-4900	5000-9500	OVER 9500	TOT
0 TO 1/8	.2	.1	.1						.1	.4
3/16 TO 3/8		+	.1	.1	+					.2
1/2 TO 3/4		+	.1	.7	1.0	.4	+		+	2.3
1 TO 2 1/2		.1	.6	1.7	4.4	3.3	1.4	.2	.6	12.2
3 TO 6			.3	1.7	5.0	7.5	5.7	2.3	6.1	28.7
7 TO 15				.3	3.2	7.8	10.4	7.0	27.2	56.1
20 TO 30										
35 OR MORE										
TOTAL	3.2	.2	1.3	4.5	13.7	19.0	17.6	9.5	34.0	100

E PERCENTAGE FREQUENCIES OF SKY COVER, WIND, AND RELATIVE HUMIDITY

HOUR OF DAY	CLOUDS SCALE 0-10			WIND SPEED (M.P.H.)				RELATIVE HUMIDITY (%)					
	0-3	4-7	8-10	0-3	4-12	13-24	25 & OVER	0-29	30-49	50-69	70-79	80-89	90-100
00	20	6	73	16	54	27	2		1	23	31	32	13
01	18	8	74	17	57	25	2		2	21	27	35	15
02	17	8	75	20	54	24	2		1	21	32	32	14
03	16	7	77	17	59	21	3		1	19	31	34	15
04	19	3	78	15	59	23	3		1	18	32	34	15
05	17	6	77	15	57	25	3		1	20	30	34	16
06	19	6	75	16	57	24	2		1	22	26	36	16
07	15	8	77	17	55	25	3		+	21	27	34	17
08	14	8	78	21	50	28	2		1	22	28	33	15
09	13	12	75	20	48	29	3		2	25	28	30	15
10	14	12	75	14	51	32	3		3	31	26	25	14
11	14	11	75	12	48	37	3		4	32	29	21	13
12	14	14	73	9	51	36	4		5	36	30	18	11
13	13	14	73	7	49	41	3		6	39	26	19	9
14	14	14	73	6	52	38	4		6	38	26	22	8
15	14	14	72	7	48	41	3		4	40	28	19	9
16	15	12	73	10	55	34	2		3	37	27	23	11
17	15	15	70	13	56	29	2		1	35	26	28	11
18	18	12	70	14	55	29	3		2	32	25	29	13
19	20	9	71	14	55	30	1		3	29	29	27	13
20	19	10	71	19	50	29	2		2	27	29	29	14
21	18	7	75	16	53	29	2	+	1	25	33	28	13
22	17	8	75	15	53	30	1	+	2	27	28	30	12
23	17	7	75	17	53	28	2	+	2	23	33	28	14
AVG	16	10	74	15	53	30	2	+	2	28	29	28	13

SYRACUSE, NEW YORK
Hancock AP

FEBRUARY
6792 Obs.

A TEMPERATURE AND WIND SPEED–RELATIVE HUMIDITY OCCURRENCES:

WIND / TEMP °F	0-4 MPH [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5-14 MPH [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	15-24 MPH [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	25 MPH AND OVER [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOTAL OBS
64/ 60			1					1	11						5						4	1			23
59/ 55						1		2	9	4				3	4	8					2	2			35
54/ 50			3		2	3		10	8	5	3	2		9	17	7				1	4	2	1		77
49/ 45		3	4	2	2	7		6	35	9	16	6		7	24	11	4				6				142
44/ 40		1	23	4	11	14		12	85	46	34	37		10	37	20	17	3			3	3			360
39/ 35		12	34	33	71	81		21	164	122	131	122		9	55	46	53	20			3	8	2		987
34/ 30		[illegible]	45	55	49	144		13	188	204	199	243		6	62	59	66	68			6	1	3	6	1419
29/ 25			48	66	69	41		9	148	163	213	110		6	89	95	85	61		3	7	7	7	6	1233
24/ 20		2	24	48	59	7		10	99	133	172	36		2	91	62	61	23			10	8	6	3	856
19/ 15			27	31	43	4		3	115	106	85	31		9	41	47	47	32			5	9	2	1	638
14/ 10		1	24	31	14	1		6	76	115	59	5		4	41	34	37	13			3	7	16	4	491
09/ 05		[illegible]	18	29	21			5	28	45	43			1	7	22	37					9	12		278
04/ 00			18	21	11				19	18	32			2	3	2	30								156
-01/-05			4	6	6			6	5	11	18			1			12								69
-06/-10		[illegible]	11	3	1			[illegible]	3		1														23
-11/-15									1																2
-16/-20			2						1																3
TOTAL		24	286	33[illegible]	359	303		106	995	981	1006	592		69	476	413	449	220		4	53	57	49	20	6792

B PERCENTAGE FREQUENCIES OF WIND DIRECTION AND SPEED:

DIRECTION	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	47 OVER	TOTAL	AV SPEED
N	.9	.7	.6	.3		+				2.5	6.6
NNE	.4	.4	.1	+						.9	4.7
NE	.5	.8	.2	.1						1.5	5.2
ENE	.8	1.7	1.2	.8	.1					4.5	8.0
E	1.6	3.5	3.4	1.2	.1					9.7	7.7
ESE	1.5	3.0	1.6	.7	+					6.8	6.9
SE	1.3	2.1	1.4	.6						5.4	7.1
SSE	.6	1.1	1.0	.9	.2	.1	+			3.9	9.6
S	.5	.9	1.4	1.6	.6	.2	.1			5.3	12.4
SSW	.3	.9	.8	1.0	.1	+				3.0	10.2
SW	.5	1.1	1.2	1.1	.2		+			4.1	9.7
WSW	.6	2.6	4.4	3.5	1.0	.1	+	+		12.1	11.4
W	.6	1.7	2.9	3.2	.9	.4	+			9.7	12.3
WNW	.4	1.6	3.8	5.4	2.7	1.2	.1			15.2	14.9
NW	.7	.8	2.1	3.8	1.5	.3	+			9.2	13.7
NNW	.4	.9	1.5	1.6	.6	+				5.1	11.8
CALM	1.0									1.0	
TOTAL	12.5	23.7	27.5	25.7	7.9	2.3	.3	+		100	10.7

C OCCURRENCES OF PRECIPITATION AMOUNTS:

FREQUENCY OF OCCURRENCE FOR EACH HOUR OF THE DAY

INTENSITIES	A.M. 1	2	3	4	5	6	7	8	9	10	11	NOON	P.M. 1	2	3	4	5	6	7	8	9	10	11	MID	NO OF DAYS WITH
TRACE	85	84	81	81	84	80	73	76	81	80	74	64	62	73	74	70	63	61	66	64	59	73	74	77	79
.01 IN.	21	22	22	31	28	26	32	28	20	20	19	22	22	19	18	20	24	26	24	25	21	16	19	16	14
.02 TO .09 IN.	24	29	32	30	32	36	33	25	25	25	24	24	23	22	25	29	24	25	24	23	30	27	20	28	65
.10 TO .24 IN.	1	1	2	2	3	3	1	3	3	2	3	3	2	2	3	2	4	3	1	3	2	3	2	3	39
.25 TO .49 IN.																									28
.50 TO .99 IN.																									16
[illegible] .99 IN.																									4
2.00 IN. AND OVER																									
TOTAL	131	136	137	144	14[illegible]	145	139	132	129	127	120	113	109	116	120	121	115	115	115	1[illegible]5	112	119	115	124	245

D PERCENTAGE FREQUENCIES OF CEILING–VISIBILITY:

VISIBILITY (MILES)	CEILING (FEET) [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	OVER [illegible]	TOT
0 TO 1/8	.1	+	+	+	+					.2
3/16 TO 3/8	+	.2	.1	.1	+		+	+		.5
1/2 TO 3/4		.1	.3	1.9	1.3	.4	.1		.1	4.1
1 TO 2 1/2		+	.6	1.7	4.7	3.1	1.1	.3	.5	11.9
3 TO 6		+	.3	1.4	4.0	6.8	5.8	2.0	6.7	27.0
7 TO 15				.2	1.9	7.8	11.4	5.5	29.4	56.2
20 TO 30										
35 OR MORE										
TOTAL	.1	.4	1.3	5.4	11.9	18.1	10.4	7.7	36.7	100

E PERCENTAGE FREQUENCIES OF SKY COVER, WIND, AND RELATIVE HUMIDITY:

HOUR OF DAY	CLOUDS SCALE 0-10: 0-3	4-7	8-10	WIND SPEED (M.P.H.): 0-3	4-12	13-24	25 & OVER	RELATIVE HUMIDITY (%): 0-29	30-49	50-69	70-79	80-89	90-100
00	21	5	74	15	53	28	3		1	19	32	30	19
01	20	7	72	12	55	32	1		2	19	27	34	18
02	19	10	71	15	55	28	2		1	18	27	35	19
03	21	6	72	16	53	28	4		1	17	24	37	21
04	18	8	74	16	53	28	2		1	18	22	40	20
05	20	8	72	16	55	26	2		1	14	28	36	21
06	19	11	71	17	53	28	2		+	15	28	36	21
07	16	9	75	16	56	25	3		+	15	26	37	20
08	16	11	73	14	59	24	3		1	17	31	33	17
09	17	12	71	15	48	33	4		2	23	30	29	17
10	19	14	67	11	47	39	3		5	31	25	24	14
11	16	12	72	10	47	39	4		6	39	24	20	12
12	15	12	73	11	41	43	5		6	41	23	18	12
13	16	9	76	5	44	47	4		8	44	19	17	12
14	16	12	72	7	41	48	3		7	42	20	15	15
15	14	14	72	5	44	48	2		9	38	19	18	16
16	17	11	71	7	49	42	2		6	39	20	22	13
17	18	11	71	9	53	37	1		3	36	24	22	15
18	20	11	69	13	55	30	2		2	33	26	24	15
19	22	10	69	15	53	30	2		3	27	28	25	16
20	22	11	66	14	53	30	3		2	26	31	25	17
21	21	10	69	13	56	28	3		1	23	31	29	16
22	24	8	69	14	52	31	2		2	23	30	28	17
23	22	9	69	14	52	32	2		2	21	32	26	18
AVG	19	10	71	13	51	34	3		3	27	26	27	17

SYRACUSE, NEW YORK
Hancock AP

MARCH
7440 Obs.

A TEMPERATURE AND WIND SPEED-RELATIVE HUMIDITY OCCURRENCES:

WIND	0-4 MPH						5-14 MPH						15-24 MPH						25 M.P.H. AND OVER						TOTAL OBS
REL. HUMID. % / TEMP °F	Under 30	30-49	50-69	70-79	80-89	90-100	Under 30	30-49	50-69	70-79	80-89	90-100	Under 30	30-49	50-69	70-79	80-89	90-100	Under 30	30-49	50-69	70-79	80-89	90-100	
69/ 65		1						8						3	2										14
64/ 60			3					3	5	4				6	11						7	1			45
59/ 55			5	3			1	23	9	5	13			9	12	22	11	2			3				118
54/ 50	3	7	10	1	1	3	2	61	47	16	12	5	1	18	19	17	6	1		3	6	5	1	2	247
49/ 45	3	8	23	13	5	7		63	96	39	18	18	3	19	43	13	8	5		1	8	6	1	2	402
44/ 40	2	15	31	25	21	21	2	38	152	74	82	78	2	20	78	51	36	14			7	3	1	1	754
39/ 35		13	43	58	70	57	2	30	204	163	211	171	1	9	89	57	52	43		2	10	6	3	2	1296
34/ 30		4	85	56	132	160		27	232	194	226	270		18	140	98	65	83		4	14	12	2	1	1823
29/ 25		5	58	47	50	56		20	228	154	174	85		16	163	86	71	20			11	15	6	3	1268
24/ 20		12	50	35	20	4		11	165	87	113	14		22	95	49	33	30		1	17	7	18	8	791
19/ 15		3	48	36	13			10	80	69	42	9		14	48	14	15			2	4	3	6		416
14/ 10		1	27	35	4			5	57	28	15	1		1	8	2	5						1		190
09/ 05			11	10	2			5	27	2							1						1		59
04/ 00			3	4	4				1	1															13
-01/-05			1	2	1																				4
TOTAL	8	69	398	325	323	308	7	309	1303	836	906	651	7	155	708	409	303	198		13	87	58	40	19	7440

B PERCENTAGE FREQUENCIES OF WIND DIRECTION AND SPEED:

DIRECTION	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	47 & OVER	TOTAL	AV SPEED
N	.6	.9	.8	.5	.1					2.9	8.0
NNE	.3	.5	.4	.1						1.3	6.6
NE	.6	.7	.5	.1						1.9	6.1
ENE	.5	1.4	1.3	.7	+					4.0	8.4
E	1.2	3.1	2.9	1.9	.2	+	+			9.2	8.8
ESE	1.0	1.9	1.7	1.3	.2	+	+			6.1	9.0
SE	1.2	1.6	.8	.9	.3	.1	+			4.9	8.7
SSE	.4	.7	.8	.7	.3	.1		+		3.2	11.0
S	.6	1.1	.8	1.0	.3	.1	.1	+	+	4.0	11.2
SSW	.3	.7	.7	.7	.1					2.5	9.8
SW	.7	1.6	1.1	.6	.2	+				4.1	8.3
WSW	.9	3.3	4.5	2.4	.8	.3	+			12.2	10.5
W	.8	2.6	3.6	3.4	1.0	.4	+			11.8	11.6
WNW	.6	2.2	3.5	5.5	2.3	1.0	.2	.1		15.5	14.3
NW	.5	1.8	2.4	3.9	1.2	.2	+			10.1	12.7
NNW	.4	1.0	1.5	1.6	.4	.1	+			5.0	11.5
CALM	1.3									1.3	
TOTAL	11.9	25.0	27.4	25.3	7.4	2.4	.4	.1	+	100	10.6

C OCCURRENCES OF PRECIPITATION AMOUNTS:

INTENSITIES	A.M. 1	2	3	4	5	6	7	8	9	10	11	NOON	P.M. 1	2	3	4	5	6	7	8	9	10	11	MID	NO. OF DAYS WITH
TRACE	69	71	56	71	71	69	74	71	78	73	72	59	64	72	86	76	74	59	59	60	61	70	61	59	66
.01 IN	18	16	23	21	20	28	32	21	15	23	19	16	13	17	15	17	17	18	19	16	20	19	24	18	30
.02 TO .09 IN	20	21	31	26	29	24	21	24	22	25	23	21	20	18	13	15	22	18	16	15	18	15	14	21	62
.10 TO .24 IN	3	5	1	4	2	4	2		4	4	2	2	3		4	3	2	4	1	5	3	4	3	2	42
.25 TO .49 IN					2				1			1												1	24
.50 TO .99 IN																			1						14
1.00 TO 1.99 IN																									5
2.00 IN AND OVER																									
TOTAL	110	113	111	122	124	125	129	116	120	125	116	99	100	107	118	111	115	99	96	96	102	108	102	101	243

D PERCENTAGE FREQUENCIES OF CEILING-VISIBILITY:

VISIBILITY (MILES)	CEILING (FEET) 0	100-200	300-400	500-900	1000-1900	2000-2900	3000-4900	5000-9500	OVER 9500	TOT
0 TO 1/8	.1	.1	+		+					.2
3/16 TO 3/8		.1	.1	.1	+				+	.4
1/2 TO 3/4		.1	.2	.7	.7	.3	+	+	+	2.2
1 TO 2 1/2		.1	.5	1.6	2.7	1.7	.5	.3	.4	7.8
3 TO 6		+	.3	1.3	4.7	5.5	3.1	1.9	4.9	21.7
7 TO 15			+	.3	2.4	6.9	11.5	8.6	38.0	67.8
20 TO 30										
35 OR MORE										
TOTAL	.1	.4	1.2	4.1	10.5	14.4	15.1	10.6	43.3	100

E PERCENTAGE FREQUENCIES OF SKY COVER, WIND, AND RELATIVE HUMIDITY

HOUR OF DAY	CLOUDS SCALE 0-10: 0-3	4-7	8-10	WIND SPEED (M.P.H.): 0-3	4-12	13-24	25 & OVER	RELATIVE HUMIDITY (%): 0-29	30-49	50-69	70-79	80-89	90-100
00	31	7	61	13	59	26	2		2	27	27	26	18
01	30	8	62	13	59	26	2		2	28	25	27	18
02	28	9	62	14	60	23	3		1	25	27	26	21
03	29	10	61	13	61	24	2		1	24	27	27	21
04	29	9	63	12	62	25	1		2	24	23	30	22
05	28	9	63	14	56	28	2		1	21	26	28	24
06	24	13	63	17	57	25	2		1	21	26	27	25
07	23	13	65	18	54	26	2		1	24	23	28	24
08	22	10	68	16	50	32	2		2	30	24	23	22
09	21	12	67	13	50	32	5		5	36	22	23	15
10	17	15	68	11	47	38	4	+	11	38	20	17	14
11	19	11	70	9	48	37	5	+	13	43	18	14	11
12	18	14	68	7	44	45	4	+	18	43	15	14	9
13	17	14	69	5	39	50	5	1	20	41	15	14	10
14	19	11	71	6	40	49	4	1	19	40	17	13	10
15	18	11	70	4	40	52	3	2	19	40	16	11	12
16	17	15	67	5	44	46	5	2	19	42	16	11	11
17	22	13	65	5	52	40	3	1	16	41	15	16	11
18	25	11	64	9	57	31	3	1	8	44	20	14	14
19	29	12	60	15	56	25	3		5	43	19	20	13
20	29	8	62	18	52	28	2		4	36	26	21	13
21	27	7	66	17	56	25	2		3	34	25	25	13
22	28	10	62	16	56	26	2		2	33	25	25	15
23	32	7	60	16	56	24	2		2	30	25	28	15
AVG	24	11	65	12	52	33	3	+	7	34	22	21	16

SYRACUSE, NEW YORK
Hancock AP

APRIL
7200 Obs.

A TEMPERATURE AND WIND SPEED-RELATIVE HUMIDITY OCCURRENCES:

WIND	0-4 MPH						5-14 MPH						15-24 MPH						25 MPH AND OVER						TOTAL OBS.
REL HUMID. / TEMP °F	UNDER 30	30-49	50-69	70-79	80-89	90-100	UNDER 30	30-49	50-69	70-79	80-89	90-100	UNDER 30	30-49	50-69	70-79	80-89	90-100	UNDER 30	30-49	50-69	70-79	80-89	90-100	
89/ 85							3							2											5
84/ 80		2	1					8	3				1	7	1										23
79/ 75			8				7	22	17				3	17	1					1					76
74/ 70	1	4	9	4			15	31	32	4	1		18	36	16	2				1	1				175
69/ 65	2	9	15	7	5		14	72	72	18			23	44	39	8			4	3	6	1			342
64/ 60	4	15	21	4	10	17	19	97	78	49	36	13	16	71	60	14	4	5	2	8	2	1		1	547
59/ 55	6	21	25	18	12	21	21	126	144	59	51	20	13	83	52	45	22	3	2	8	6	4	1		763
54/ 50	3	24	52	30	22	59	6	100	166	74	75	63	8	75	76	38	20	10	1	4	5	1		1	913
49/ 45		39	46	51	48	52	3	95	185	142	148	121	3	66	114	42	58	22		4	8	2	1	1	1251
44/ 40	1	11	43	39	73	42	2	69	250	141	177	147	1	27	146	66	54	30		7	7	4	4	2	1343
39/ 35		3	34	42	42	68	4	24	124	113	142	118	2	19	77	59	67	30		3	5	4	4	2	986
34/ 30		4	22	34	34	28		4	82	92	87	77		6	37	30	12	12			12	2			575
29/ 25		2	19	17	14	2		2	16	16	17	6			2	8	9	6							136
24/ 20		1	3	2	6			3	8	1	1			5	2	2	1				1	1			37
19/ 15			1						5		2			6	2	2	2			1	2				23
14/ 10									5																5
TOTAL	17	135	299	248	266	289	94	653	1187	709	737	565	88	464	625	316	249	118	9	40	55	20	10	7	7200

B PERCENTAGE FREQUENCIES OF WIND DIRECTION AND SPEED:

DIRECTION	HOURLY OBSERVATIONS OF WIND SPEED (IN MILES PER HOUR) 0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	47 & OVER	TOTAL	AV. SPEED
N	.5	1.0	1.2	.6	.1					3.5	8.7
NNE	.4	.6	.7	.3						1.9	7.9
NE	.6	.8	.7	.1						2.2	6.5
ENE	.2	1.1	1.4	.6	+					3.3	8.9
E	1.3	2.0	2.3	2.0	.2					7.8	9.2
ESE	.8	2.1	2.0	1.6	.1	+				6.6	9.1
SE	1.0	1.6	1.3	.8	.2					4.9	8.2
SSE	.6	1.1	1.0	1.3	.3	+				4.3	10.6
S	.8	1.1	1.2	1.7	.8	.3				5.9	12.2
SSW	.4	.8	1.0	1.3	.3	.1				3.8	11.4
SW	.6	1.1	1.3	1.2	.1	+				4.4	9.7
WSW	.8	2.8	4.2	3.6	.5	.1	+	+		12.1	10.6
W	.7	2.0	3.0	3.1	1.0	.2	.1			10.0	11.8
WNW	.6	1.4	3.6	5.0	2.2	.9	.1	+		13.9	14.2
NW	.8	1.4	2.4	3.1	1.3	.2	+			9.3	12.6
NNW	.4	.8	1.6	1.7	.5	+				5.0	11.8
CALM	1.2									1.2	
TOTAL	11.5	21.8	28.9	28.1	7.8	1.8	.2	+		100	10.8

C OCCURRENCES OF PRECIPITATION AMOUNTS:

INTENSITIES	FREQUENCY OF OCCURRENCE FOR EACH HOUR OF THE DAY — A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	NOON	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	MID	NO. OF DAYS WITH
TRACE	43	39	44	48	54	40	47	42	60	54	55	40	32	44	48	45	38	38	38	42	40	44	39	42	48
.01 IN	7	8	12	15	14	22	9	10	9	11	13	12	13	10	15	7	17	14	16	10	14	13	12	10	16
.02 TO .09 IN	25	20	17	17	12	12	14	17	15	12	6	12	13	14	13	21	18	17	18	17	16	14	21	21	63
.10 TO .24 IN	3	2	2	1	3	2	3	3	3	1	1		2	3	2	2	3	3	2	3	4	6	5	6	32
.25 TO .49 IN														1			2	2		1		1		1	30
.50 TO .99 IN																1									16
1.00 TO 1.99 IN																									1
2.00 IN AND OVER																									
TOTAL	78	69	75	81	83	76	73	72	87	78	75	64	60	72	78	76	78	74	74	73	74	78	77	80	206

D PERCENTAGE FREQUENCIES OF CEILING-VISIBILITY:

VISIBILITY (MILES)	CEILING (FEET) 0	100-200	300-400	500-900	1000-1900	2000-2900	3000-4900	5000-9900	10000 & OVER	TOT.
0 TO 1/8	.1	+		+			+		.1	.2
3/16 TO 5/16		+	+	+					.1	.1
1/2 TO 3/4		+	.1	.3	.1	+	+		+	.6
1 TO 2 1/2		+	.4	.6	.7	.3	.2	.2	.4	2.7
3 TO 6			.2	2.3	2.4	2.8	2.4	2.2	5.3	17.5
7 TO 15			+	.4	2.7	6.5	9.6	11.2	48.5	78.9
20 TO 30										
35 OR MORE										
TOTAL	.1	.1	.7	3.6	5.9	9.6	12.1	13.5	54.4	100

E PERCENTAGE FREQUENCIES OF SKY COVER, WIND, AND RELATIVE HUMIDITY:

HOUR OF DAY	CLOUDS SCALE 0-10: 0-3	4-7	8-10	WIND SPEED (M.P.H.): 0-3	4-12	13-24	25 & OVER	RELATIVE HUMIDITY (%): 0-29	30-49	50-69	70-79	80-89	90-100
00	33	11	56	15	59	24	.1	+	5	30	23	21	20
01	31	14	55	14	60	24	2		4	28	24	24	19
02	33	10	56	14	61	24	1		4	25	25	27	19
03	29	12	59	17	61	22	1		3	19	27	28	23
04	32	12	56	14	63	22	1		2	23	22	26	26
05	29	12	59	18	59	22	1		2	20	23	32	24
06	29	10	61	16	59	24	+		3	21	24	27	24
07	31	8	61	15	53	31	1		5	26	25	24	20
08	28	11	61	13	48	37	2		8	42	20	15	15
09	24	13	62	11	45	42	2	1	18	44	12	15	11
10	23	14	63	8	43	46	3	1	30	36	14	11	9
11	22	17	61	6	40	49	5	3	34	33	13	12	5
12	20	15	65	6	38	53	3	8	35	30	12	11	5
13	21	16	63	5	36	56	4	10	36	30	9	10	5
14	20	19	62	4	40	51	5	11	35	29	12	8	5
15	20	17	63	5	36	55	3	12	34	27	13	9	5
16	24	13	63	7	35	54	4	10	36	27	10	11	6
17	27	11	61	5	38	55	2	8	36	27	10	11	8
18	25	16	59	6	53	40	1	3	32	34	11	11	10
19	27	13	60	11	61	28		+	25	37	13	15	9
20	33	10	57	15	57	27	1	1	18	34	19	16	12
21	33	11	56	17	59	22	2	+	13	35	22	16	14
22	35	10	56	17	58	24	1	+	7	33	24	20	15
23	31	14	55	17	54	28	1		6	33	24	20	17
AVG	28	19	60	11	51	36	2	3	18	30	18	18	14

TABLE B2-1 (cont.)
WIND SPEED AND DIRECTION DATA
FOR SYRACUSE AIRPORT YEARS 1951-1960

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

SYRACUSE, NEW YORK
Hancock AP

MAY
7440 Obs.

A TEMPERATURE AND WIND SPEED–RELATIVE HUMIDITY OCCURRENCES:

WIND	0-4 MPH						5-14 MPH						15-24 MPH						25 MPH. AND OVER						TOTAL OBS
RH / TEMP °F	0-29	30-49	50-69	70-79	80-89	90-100	0-29	30-49	50-69	70-79	80-89	90-100	0-29	30-49	50-69	70-79	80-89	90-100	0-29	30-49	50-69	70-79	80-89	90-100	
89/ 85	1	2	1				6	15	1				1	3	2										32
84/ 80	4	10	7	1			12	53	43				9	32	20				1	3					195
79/ 75	3	23	17	5	3		40	101	98	19			11	24	31	1				4					380
74/ 70	3	21	32	11	5	1	40	126	115	55	21	5	14	44	40	12	3			3	2		1		554
69/ 65	9	43	55	34	41	19	15	155	144	88	66	26	20	98	52	15	10	1	1	4	3	3			902
64/ 60	2	21	73	23	56	55	14	110	190	94	96	50	18	110	54	12	8	6	1	4	2	1			1000
59/ 55	1	18	72	36	51	62	17	120	173	96	147	91	10	84	80	30	22	18	3	3	2	1	1		1138
54/ 50		23	57	45	58	65	6	104	218	113	166	132	20	59	88	29	16	16		2	4	1			1222
49/ 45		15	64	75	99	63	4	62	136	115	171	175	1	23	43	45	32	14			1				1138
44/ 40		5	47	48	67	35		9	109	74	54	51		3	25	15	18	18			1	2	1		577
39/ 35			21	28	33	14		3	25	42	42	13		4	13	7	3	2							250
34/ 30			2	1	4	7		2	8	17	1	1													49
29/ 25									2	1															3
TOTAL	23	181	448	313	412	321	154	860	1262	714	764	544	104	484	448	166	112	75	6	23	15	8	3		7440

B PERCENTAGE FREQUENCIES OF WIND DIRECTION AND SPEED:

DIRECTION	HOURLY OBSERVATIONS OF WIND SPEED IN MILES PER HOUR 0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	47 & OVER	TOTAL	AV SPEED
N	.7	1.0	.8	.6	.1					3.3	8.2
NNE	.5	.6	.3	.1	+					1.5	6.1
NE	.7	.7	.4	.1						1.8	5.6
ENE	.4	1.1	1.0	.4	+					2.9	7.9
E	1.2	2.2	2.0	.7	+					6.1	7.5
ESE	1.2	2.4	1.3	.3	.1	+				5.3	6.6
SE	1.7	2.5	1.6	.7	.1	+				6.7	7.3
SSE	1.1	1.6	1.4	1.0	.2	+				5.3	8.6
S	1.3	1.5	2.1	1.6	.6	.1				7.3	10.1
SSW	.5	1.2	1.4	1.1	.2	+	+			4.5	9.8
SW	1.0	1.8	1.4	.9	+					5.2	7.7
WSW	.9	2.4	3.8	1.9	.2					9.1	9.3
W	.9	2.3	3.6	2.2	.3					9.3	9.6
WNW	.5	2.0	4.0	4.6	1.4	.3	+			12.8	12.5
NW	.7	1.7	3.0	4.4	1.2	.1	+			11.1	12.5
NNW	.5	1.2	1.6	2.1	.6	+				6.0	11.6
CALM	1.9									1.9	
TOTAL	15.8	26.0	29.7	22.8	5.0	.7	.1			100	9.4

C OCCURRENCES OF PRECIPITATION AMOUNTS:

INTENSITIES	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	NOON	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	MID	NO. OF DAYS WITH
TRACE	40	25	31	38	39	30	36	38	42	34	27	31	32	35	33	41	37	31	32	43	35	33	43	40	53
.01 IN	10	14	9	8	7	16	10	10	7	10	7	10	9	10	13	6	9	11	13	10	5	9	6	7	11
.02 TO .09 IN	14	14	16	11	17	14	18	18	10	11	12	11	11	8	10	14	14	15	16	12	13	10	8	11	52
.10 TO .24 IN	6	2	4	4	3	1	3	3	2	1	4	1	1	3	3	1	3	5		2	4	4	7	8	28
.25 TO .49 IN		1											1		2	1	1	1			1	1			24
.50 TO .99 IN				1																					15
1.00 TO 1.99 IN																			1						2
2.00 IN AND OVER																									1
TOTAL	70	56	60	62	66	61	67	69	61	56	50	53	54	56	61	63	64	63	62	67	58	57	64	66	186

D PERCENTAGE FREQUENCIES OF CEILING–VISIBILITY:

VISIBILITY (MILES)	CEILING (FEET) 0	100-200	300-400	500-900	1000-1900	2000-2900	3000-4900	5000-9900	OVER 9900	TOT
0 TO 1/8	+	+							+	.1
3/16 TO 3/8	+	.1	+						+	.1
1/2 TO 3/4		+		+				+	+	.1
1 TO 2 1/2		.1	.3	.5	.3	.2	.2	.1	.3	2.0
3 TO 6		+	.4	1.7	1.9	1.0	1.8	2.1	5.3	15.1
7 TO 15			+	.6	2.2	3.4	6.9	11.2	58.1	82.5
20 TO 30										
35 OR MORE										
TOTAL	.1	.3	.8	2.8	4.4	5.5	9.0	13.5	63.7	100

E PERCENTAGE FREQUENCIES OF SKY COVER, WIND, AND RELATIVE HUMIDITY:

HOUR OF DAY	CLOUDS SCALE 0-10 0-3	4-7	8-10	WIND SPEED (M.P.H.) 0-3	4-12	13-24	25- & OVER	RELATIVE HUMIDITY (%) 0-29	30-49	50-69	70-79	80-89	90-100
00	45	10	45	24	60	16	+		6	26	25	27	15
01	43	13	44	24	60	16	+		5	25	23	29	18
02	42	12	46	22	64	13	1		3	21	23	34	19
03	42	13	45	24	60	16			2	18	22	35	23
04	36	12	52	23	65	12			2	14	24	29	30
05	34	13	53	22	67	11			3	13	24	32	28
06	31	16	53	25	61	14			2	23	25	30	21
07	31	13	55	18	61	21			5	30	30	21	14
08	30	15	56	16	56	27	+		15	43	18	11	12
09	28	15	57	12	58	30		1	24	44	11	11	9
10	26	17	57	10	53	36	+	2	31	41	7	11	8
11	23	16	61	7	45	47	1	6	37	35	6	8	8
12	23	21	56	6	43	50	1	7	45	26	9	7	5
13	24	19	57	4	41	53	2	11	41	27	8	7	5
14	26	16	57	5	42	49	3	15	41	25	8	7	4
15	29	16	55	8	40	49	3	15	43	23	7	8	4
16	26	18	55	7	39	52	2	16	39	23	6	9	6
17	30	17	54	6	49	44	1	12	43	21	10	7	7
18	30	18	52	7	59	32	1	5	42	27	10	7	8
19	30	15	55	15	65	21	+	1	32	36	11	12	7
20	32	20	48	21	65	14		1	18	44	14	12	11
21	38	11	51	21	65	13		1	8	46	19	15	11
22	41	13	46	24	59	16	1		7	38	22	19	14
23	45	8	48	25	58	15	2	+	5	32	24	25	14
AVG	33	15	52	16	56	28	1	4	21	29	16	17	13

TABLE B2-1 (cont.)
WIND SPEED AND DIRECTION DATA
FOR SYRACUSE AIRPORT YEARS 1951-1960

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

SYRACUSE, NEW YORK
Hancock AP

JUNE
7200 Obs.

A TEMPERATURE AND WIND SPEED–RELATIVE HUMIDITY OCCURRENCES:

WIND	0-4 MPH						5-14 MPH						15-24 MPH						25 MPH AND OVER						TOTAL OBS
RH / TEMP °F	Under 30	30-49	50-69	70-79	80-89	90-100	Under 30	30-49	50-69	70-79	80-89	90-100	Under 30	30-49	50-69	70-79	80-89	90-100	Under 30	30-49	50-69	70-79	80-89	90-100	
99/ 95								7						4											11
94/ 90		4	4					23	13					9	6										59
89/ 85	2	15	14				2	126	70	1				26	19	1									276
84/ 80	2	33	40	10			4	159	161	18			2	59	42	7				1	1				539
79/ 75		23	70	28	14	1	8	187	228	64	16		3	56	99	27				4	2		1		831
74/ 70		36	97	45	64	54	11	156	308	105	92	30	2	67	124	26	15			5	1	2		1	1241
69/ 65		19	116	81	86	74	10	86	267	185	119	73	8	62	122	24	13	7	3	5	4	1			1365
64/ 60		7	77	80	118	64		28	195	175	158	104	1	34	64	34	17	11		3	9				1180
59/ 55		2	31	58	97	76		8	92	174	190	127		12	24	26	31	23		6	2	1	1		981
54/ 50		1	12	20	62	42		1	45	81	127	63		5	22	17	10	10		2	1	1			522
49/ 45			1	23	24	36			10	21	31	16			10	7	1								180
44/ 40					2	5					6	2													15
TOTAL	4	140	462	345	467	352	35	781	1389	824	739	415	16	334	532	169	87	51	4	26	20	5	2	1	7200

B PERCENTAGE FREQUENCIES OF WIND DIRECTION AND SPEED:

DIRECTION	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	47 & OVER	TOTAL	AV SPEED
N	.6	.8	.7	.4	.1					2.7	8.0
NNE	.3	.5	.4	.1	+					1.3	7.3
NE	.5	.7	.5	.1						1.7	6.3
ENE	.5	.7	.7	.1	+					2.1	7.0
E	1.0	2.2	1.3	.5	+					5.0	7.1
ESE	1.3	2.1	1.3	.4	.1					5.3	6.8
SE	1.8	3.1	1.3	.4	+					6.6	6.0
SSE	1.4	2.2	1.3	1.0	.1					6.0	7.7
S	1.8	2.3	2.1	2.3	.4	+				8.9	9.2
SSW	.7	1.5	1.6	1.3	.2					5.2	9.3
SW	1.3	1.9	2.1	.8	.1					6.2	7.7
WSW	1.1	2.4	4.2	1.7	.2					9.6	9.1
W	1.0	2.3	4.0	2.3	.1	+				9.6	9.5
WNW	.5	1.8	3.9	5.1	1.3	.4	.1			13.2	13.0
NW	.8	1.4	3.0	3.7	1.1	.2				10.1	12.4
NNW	.3	1.0	1.5	1.6	.2	+				4.6	10.8
CALM	2.0									2.0	
TOTAL	16.8	27.0	29.9	21.7	3.8	.7	.1			100	9.1

C OCCURRENCES OF PRECIPITATION AMOUNTS:

INTENSITIES	AM 1	AM 2	AM 3	AM 4	AM 5	AM 6	AM 7	AM 8	AM 9	AM 10	AM 11	NOON	PM 1	PM 2	PM 3	PM 4	PM 5	PM 6	PM 7	PM 8	PM 9	PM 10	PM 11	MID	NO. OF DAYS WITH
TRACE	27	19	19	21	23	20	27	18	21	26	19	14	16	15	20	19	18	20	17	17	20	26	23	27	52
.01 IN	6	7	2	4	7	5	6	3	5	5	2	6	5	4		1	3	4	6	4	4	6	4	7	12
.02 TO .09 IN	9	8	8	12	7	9	4	13	5	3	1	9	6	11	9	6	7	11	7	9	9	4	6	7	30
.10 TO .24 IN	2	2	5	2	2	1	2	1	3	1	4	2	3	4	3	5	5	4	1	2	6	3	4	1	27
.25 TO .49 IN						1	1		1					2	2	2	1		2	1		1	2		15
.50 TO .99 IN		1												1	1			1					1	1	16
1.00 TO 1.99 IN																									
2.00 IN AND OVER																									6
TOTAL	44	37	34	39	39	36	40	35	35	35	32	31	30	37	35	33	34	40	33	33	39	40	40	43	150

D PERCENTAGE FREQUENCIES OF CEILING–VISIBILITY:

VISIBILITY (MILES)	CEILING (FEET) 0	100-200	300-400	500-900	1000-1900	2000-2900	3000-4900	5000-8000	OVER 8000	TOT
0 TO 1/8	+	+							+	.1
3/16 TO 3/8										
1/2 TO 3/4			.1	+	+				+	.1
1 TO 2 1/2			.1	.3	.2	.3	.3	.1	.5	1.7
3 TO 6			.1	.2	1.5	2.0	2.0	2.4	10.4	19.2
7 TO 15				.2	1.5	3.2	6.5	8.2	59.2	78.8
20 TO 30										
35 OR MORE										
TOTAL	+	+	.3	1.2	3.1	5.5	8.8	10.8	70.2	100

E PERCENTAGE FREQUENCIES OF SKY COVER, WIND, AND RELATIVE HUMIDITY:

HOUR OF DAY	CLOUDS SCALE 0-10: 0-3	4-7	8-10	WIND SPEED (M.P.H.): 0-3	4-12	13-24	25 & OVER	RELATIVE HUMIDITY (%): 0-29	30-49	50-69	70-79	80-89	90-100
00	48	13	40	25	59	17			1	21	29	34	16
01	47	13	40	26	60	13			+	18	27	35	20
02	49	10	41	26	61	13	+		+	14	27	34	24
03	44	16	39	24	65	11				13	23	37	28
04	36	21	43	24	66	11				11	19	39	31
05	33	18	49	23	65	12				10	18	42	30
06	33	17	50	28	58	14				15	28	38	19
07	33	13	54	23	57	19	+		+	28	36	25	11
08	34	13	53	20	55	25	1		3	53	23	15	6
09	33	17	50	16	50	32	1		10	60	15	11	4
10	32	18	50	11	53	35	1		24	53	13	7	4
11	29	21	50	8	54	37	1	1	35	45	11	5	3
12	29	22	50	7	49	43	2	2	39	41	10	4	4
13	28	24	49	5	45	48	2	2	46	38	8	3	3
14	27	26	47	6	44	47	3	2	50	34	6	4	3
15	28	23	49	6	45	47	2	4	49	32	7	5	3
16	31	21	48	3	49	45	3	5	47	30	11	3	4
17	37	20	43	7	51	41	1	3	45	35	8	4	6
18	35	20	44	7	65	27	1	2	40	38	9	6	5
19	34	20	45	13	69	18			25	50	11	8	6
20	40	20	40	21	64	15	+		9	54	20	10	7
21	44	17	39	22	63	15	+		1	49	24	16	10
22	49	15	37	27	60	13	+		1	36	31	19	12
23	48	14	38	25	60	15	1		1	24	35	26	14
AVG	37	18	45	17	57	26	1	1	18	33	19	18	11

SYRACUSE, NEW YORK
Hancock AP

JULY
7440 Obs.

A TEMPERATURE AND WIND SPEED--RELATIVE HUMIDITY OCCURRENCES:

WIND	0-4 MPH						5-14 MPH						15-24 MPH						25 MPH AND OVER						TOTAL OBS
RH / TEMP	0-29	30-49	50-69	70-79	80-89	90-100	0-29	30-49	50-69	70-79	80-89	90-100	0-29	30-49	50-69	70-79	80-89	90-100	0-29	30-49	50-69	70-79	80-89	90-100	
99/ 95		1						5						1											7
94/ 90		10	1				1	70	6					26	6					1					121
89/ 85	2	22	14				9	185	122				4	87	30										475
84/ 80	2	40	65	13			3	271	328	21				58	106	6	1				1				915
79/ 75		40	122	48	12	3	4	220	390	190	50	4	1	80	82	32	6	3		3	3		1		1294
74/ 70		20	131	113	94	44	1	122	326	198	253	109		60	69	17	11	8			3	1			1580
69/ 65		4	100	100	155	149		16	219	211	207	181		39	63	21	15	8		1	2				1491
64/ 60		1	29	83	132	107			101	182	166	141		2	28	23	5	2			1	1			1004
59/ 55			3	37	74	39			13	82	126	66			2	3		6							451
54/ 50				3	26	19			1	12	32	6													99
49/ 45						3																			3
TOTAL	4	138	465	397	493	364	18	889	1506	896	834	507	5	353	386	102	36	27		5	10	2	1		7440

B PERCENTAGE FREQUENCIES OF WIND DIRECTION AND SPEED:

DIRECTION	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	47 & OVER	TOTAL	AV. SPEED
	HOURLY OBSERVATIONS OF WIND SPEED (IN MILES PER HOUR)										
N	.5	.8	.8	.3	+					2.5	7.7
NNE	.4	.6	.5	.1						1.6	6.0
NE	.5	.6	.5	.1						1.7	6.4
ENE	.5	1.1	.6	.1						2.2	6.5
E	1.0	1.7	1.0	.1	+					3.9	6.2
ESE	1.2	2.1	.8	.1						4.2	5.9
SE	2.1	2.9	1.0	.2	+					6.2	5.5
SSE	1.7	2.5	.7	.3	.1					5.2	5.9
S	1.7	2.6	1.9	1.8	.3	+				8.4	8.5
SSW	.6	2.1	1.5	1.2	.1					5.6	8.6
SW	1.3	2.7	3.0	1.1	.1					8.1	8.0
WSW	.9	3.8	5.0	1.6	.1	+				11.3	8.6
W	.8	2.5	4.2	1.7	.1		+			9.4	9.2
WNW	.6	2.1	4.4	4.4	.8	.1	+			12.5	11.6
NW	.9	1.7	3.6	3.4	.4	.1				10.0	11.1
NNW	.5	1.0	2.1	1.5	.1					5.1	9.9
CALM	2.1									2.1	
TOTAL	17.1	30.9	31.6	18.0	2.1	.2	+			100	8.4

C OCCURRENCES OF PRECIPITATION AMOUNTS:

INTENSITIES	FREQUENCY OF OCCURRENCE FOR EACH HOUR OF THE DAY																								NO. OF DAYS WITH
	A.M. HOUR ENDING AT												P.M. HOUR ENDING AT												
	1	2	3	4	5	6	7	8	9	10	11	NOON	1	2	3	4	5	6	7	8	9	10	11	MID	
TRACE	23	18	23	26	23	23	19	21	16	18	17	20	19	17	25	18	14	16	15	19	16	17	23	23	37
.01 IN	6	7	5	8	8	5	7	5	6	5	7	4	4	7	1	3	1	2	7	5	3	3	3	10	14
.02 TO .09 IN	4	4	8	8	4	11	9	11	11	10	10	10	7	7	11	6	6	6	10	5	8	7	5	4	30
.10 TO .24 IN	1	1	1	2	5	4	2	2	3	3	1	2	3	5	2	4	4	4	2	1	3	2	4	1	35
.25 TO .49 IN	1				2		2		1	1		1		1		1	1	2		1					15
.50 TO .99 IN						1				1		1			2		1					1	1		12
1.00 TO 1.99 IN					1			1											1						4
2.00 IN AND OVER																									3
TOTAL	35	30	37	44	43	44	39	40	37	38	35	38	33	37	41	32	27	30	35	31	30	30	36	38	150

D PERCENTAGE FREQUENCIES OF CEILING-VISIBILITY:

VISIBILITY (MILES)	CEILING (FEET) 0	100-200	300-400	500-900	1000-1900	2000-2900	3000-4900	5000-9500	OVER 9500	TOT
0 TO 1/8	+	+		+					+	.1
3/16 TO 3/8		+		+		+			+	.1
1/2 TO 3/4		+		+	+				+	.1
1 TO 2 1/2		+	.1	.2	.3	.3	.2	.1	.6	1.8
3 TO 6			.3	1.0	1.0	1.4	2.2	1.7	12.9	20.4
7 TO 15			+	.1	.0	2.3	5.4	7.2	61.7	77.5
20 TO 30										
35 OR MORE										
TOTAL	+	.1	.4	1.4	2.0	4.0	7.8	9.1	75.2	100

E PERCENTAGE FREQUENCIES OF SKY COVER, WIND, AND RELATIVE HUMIDITY:

HOUR OF DAY	CLOUDS SCALE 0-10: 0-3	4-7	8-10	WIND SPEED (M.P.H.): 0-3	4-12	13-24	25- & OVER	RELATIVE HUMIDITY (%): 0-29	30-49	50-69	70-79	80-89	90-100
00	53	15	33	25	67	8			1	13	33	36	17
01	52	12	36	25	66	8	+		+	11	30	38	21
02	47	14	38	26	67	7			+	9	28	37	25
03	48	15	37	26	68	6			+	10	21	40	29
04	41	21	38	26	69	5				7	18	45	30
05	42	20	38	24	70	6				6	19	40	35
06	43	14	44	29	63	7	1			11	28	37	24
07	39	18	43	23	61	15	+			26	35	27	13
08	38	15	47	22	59	19			1	48	30	14	8
09	35	14	51	16	59	25	+		6	64	15	8	7
10	31	21	48	12	61	28			20	56	11	6	6
11	31	23	46	9	57	33			33	49	9	5	4
12	27	28	45	8	54	37	1		42	43	7	4	5
13	27	31	42	5	52	43	+	1	51	37	5	4	3
14	27	29	43	5	50	45	1	1	57	29	5	5	3
15	32	25	43	5	49	45	1	2	58	27	5	5	[illegible]
16	35	22	43	5	50	45	1	3	53	32	6	4	[illegible]
17	40	20	40	4	58	37	+	2	53	32	6	3	4
18	42	18	40	7	71	22		1	43	41	6	5	4
19	40	20	40	11	77	11	+		22	59	8	6	5
20	44	20	36	23	68	9			6	60	18	9	7
21	49	17	34	27	65	7	+		1	47	31	11	10
22	52	14	34	26	66	8			1	29	40	19	11
23	56	15	29	21	73	6			+	18	37	31	13
AVG	40	19	40	17	63	20	+	+	19	32	19	18	12

SYRACUSE, NEW YORK
Hancock AP

AUGUST
7440 Obs.

A TEMPERATURE AND WIND SPEED—RELATIVE HUMIDITY OCCURRENCES

WIND / TEMP °F	0-4 MPH						5-14 MPH						15-24 MPH						25 MPH AND OVER						TOTAL OBS.
99/ 95								2					2	1											5
94/ 90		2					5	51	13				1	19	3										94
89/ 85	1	14	12				1	100	88					22	24						2				264
84/ 80		40	55	2	1		4	210	247	14			1	61	63	3					2				703
79/ 75		47	86	47	13		5	235	389	187	32	8	1	43	89	21	10				1	1			1215
74/ 70		21	115	88	85	64	2	177	321	243	215	89		47	73	28	15	12			4		3		1603
69/ 65		6	60	114	147	154		64	238	163	247	214	1	30	39	15	7	11							1511
64/ 60		1	45	72	134	135		11	118	141	208	137		12	22	11	6	4							1059
59/ 55			8	52	129	105			29	98	163	79			5	3	3	8							682
54/ 50			3	11	65	71			1	17	65	17				1	2								253
49/ 45					14	28					4	4													50
44/ 40						1																			1
TOTAL	1	131	384	386	588	558	17	850	1444	863	934	548	6	235	318	82	45	35			9	1	3		27440

B PERCENTAGE FREQUENCIES OF WIND DIRECTION AND SPEED:

DIRECTION	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	47 & over	TOTAL	AV. SPEED
N	.9	1.1	1.4	.5						3.9	7.5
NNE	.5	.7	.5	.1	+					1.8	6.3
NE	.5	.9	.6	.1	+	.1				2.2	7.1
ENE	.6	1.2	.9	.1						2.8	6.7
E	1.3	2.3	.9	.1	+					4.5	5.7
ESE	1.1	2.7	1.1	.2	+					5.1	6.1
SE	2.3	3.5	.9	.3						7.0	5.4
SSE	1.5	2.8	1.1	.7	.1	+				6.2	6.8
S	2.0	2.2	1.7	1.8	.6	.1				8.3	9.2
SSW	.9	2.1	2.3	1.1	+					6.5	8.2
SW	1.1	2.4	2.4	.7	+					6.6	7.5
WSW	1.0	3.6	5.0	1.3	+					11.0	8.4
W	1.2	2.4	3.3	1.2	.1					8.2	8.3
WNW	.8	2.2	3.4	2.9	.4	+				9.6	10.5
NW	.8	1.9	3.3	2.3	.2	-				8.5	10.0
NNW	.4	1.5	2.1	1.7	.3					5.9	10.5
CALM	1.9									1.9	
TOTAL	18.8	33.2	31.0	15.1	1.7	.2				100	8.0

C OCCURRENCES OF PRECIPITATION AMOUNTS:

FREQUENCY OF OCCURRENCE FOR EACH HOUR OF THE DAY

INTENSITIES	A.M. 1	2	3	4	5	6	7	8	9	10	11	NOON	P.M. 1	2	3	4	5	6	7	8	9	10	11	MID.	NO. OF DAYS WITH
TRACE	21	18	17	22	15	16	18	22	18	16	22	24	21	14	15	20	11	10	21	19	21	22	18	18	46
.01 IN	3		8	4	2	3	3	3	5	5	3	3	4	4	4	2	2	6	1	3	1	5	7	6	6
.02 TO .09 IN	8	7	7	7	12	11	9	7	12	6	6	8	7	8	5	5	13	6	6	12	12	7	4	11	36
.10 TO .24 IN	1	3		3	5	3	2		5	2	2	1	2	4	3	4	2	5	5	4	6	2	1	1	13
.25 TO .49 IN	2	2	1		1	2	1	1		2		1			1	2	1	1	2		2	2	3	2	29
.50 TO .99 IN	1														1	1		1			1	1	2	2	8
1.00 TO 1.99 IN															1				2						7
2.00 IN AND OVER																									5
TOTAL	36	30	33	36	35	35	33	33	36	31	33	37	34	30	30	34	29	29	35	38	41	37	35	40	150

D PERCENTAGE FREQUENCIES OF CEILING-VISIBILITY:

VISIBILITY (MILES)	CEILING (FEET) 0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOTAL
0 TO 1/8	+	+				+			+	.1
3/16 TO 3/8									+	+
1/2 TO 3/4		+	.1	.1	+	.1	+	+	.1	.3
1 TO 2 1/2		+	.1	.5	.1	.2	.2	.2	.6	2.2
3 TO 6			.1	.5	1.3	1.6	1.9	2.0	14.2	22.4
7 TO 15			+	.2	.4	2.6	5.0	7.6	57.7	75.0
15 TO 20										
25 OR MORE										
TOTAL	+	.1	.5	1.7	2.6	4.7	7.5	10.1	72.7	100

E PERCENTAGE FREQUENCIES OF SKY COVER, WIND, AND RELATIVE HUMIDITY:

HOUR OF DAY	CLOUDS SCALE 0-10: 0-3	4-7	8-10	WIND SPEED (M.P.H.): 0-3	4-12	13-24	25 & OVER	RELATIVE HUMIDITY (%): 0-29	30-49	50-69	70-79	80-89	90-100
00	49	15	36	26	60	6			1	12	26	40	22
01	49	16	35	25	66	8			1	9	24	41	26
02	49	13	30	31	62	7			1	7	18	42	32
03	47	13	39	28	65	7			+	6	18	39	36
04	42	21	30	26	66	7			+	5	15	38	42
05	38	19	44	29	64	7				6	12	37	45
06	35	21	45	28	67	5				6	16	44	35
07	35	14	51	29	62	8				11	25	44	20
08	37	14	49	26	60	13	+		2	29	36	22	12
09	35	20	45	18	62	20			6	32	24	12	6
10	33	21	45	12	65	23	1		17	55	15	10	3
11	29	25	46	10	63	26	1		27	54	10	7	2
12	25	26	49	10	57	32	+	+	38	44	11	5	2
13	26	27	47	9	56	36	1	1	47	37	10	3	2
14	29	27	43	5	57	39		2	53	32	8	4	2
15	31	27	42	4	56	40		2	55	31	6	3	3
16	37	21	41	5	58	36		2	51	34	5	5	4
17	42	17	40	5	65	29	1	1	46	39	5	5	8
18	42	16	42	6	70	17	+		31	51	8	5	6
19	45	16	39	15	77	7	+		11	56	10	6	8
20	46	19	35	24	70	8	1		2	42	26	16	9
21	46	19	33	30	62	8			1	33	34	20	12
22	47	13	37	26	67	7			1	23	32	30	15
23	49	18	33	24	67	9			1	14	32	33	21
AVG	39	18	43	10	64	17	+	+	16	29	18	21	15

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SEPTEMBER
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A TEMPERATURE AND WIND SPEED–RELATIVE HUMIDITY OCCURRENCES:

WIND	0-4 M.P.H.						5-14 M.P.H.						15-24 M.P.H.						25 M.P.H. AND OVER						TOTAL OBS.
REL. HUMID. / TEMP. °F	UNDER 30%	30-49%	50-69%	70-79%	80-89%	90-100%	UNDER 30%	30-49%	50-69%	70-79%	80-89%	90-100%	UNDER 30%	30-49%	50-69%	70-79%	80-89%	90-100%	UNDER 30%	30-49%	50-69%	70-79%	80-89%	90-100%	
99/ 95		1						2					1	4											8
94/ 90	1	5					1	25	11					3											46
89/ 85		9	12				4	63	39				1	15	22						1				166
84/ 80	1	7	24	1			3	50	105	14				25	48	2				2					282
79/ 75	2	19	25	14	7		3	75	160	65	19			11	77	19						2	1		499
74/ 70		15	46	27	31	16	3	101	230	92	56	24		43	76	36	4			3	4				807
69/ 65		16	57	31	38	52		111	276	145	122	91		43	99	29	17	4			4	2			1137
64/ 60		11	67	52	80	86		59	206	165	187	140		34	91	30	25	6			2	3	3		1247
59/ 55		4	35	58	114	122		39	152	181	252	259		23	52	17	8	19		1	2			1	1339
54/ 50		2	20	47	94	119		26	101	129	179	145		18	32	16	12	3		1					944
49/ 45			8	37	62	63		2	29	68	122	56		1	7	1	6	1				1			464
44/ 40			5	13	26	32			3	25	61	25			2	2	1								195
39/ 35				3	19	14					17	12													65
34/ 30						1																			1
TOTAL	4	89	299	283	471	505	14	553	1312	884	1015	752	2	220	506	152	73	33		7	13	8	4	1	7200

B PERCENTAGE FREQUENCIES OF WIND DIRECTION AND SPEED:

DIRECTION	HOURLY OBSERVATIONS OF WIND SPEED (IN MILES PER HOUR) 0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	47 & OVER	% TOTAL	AV. SPEED
N	.8	1.0	.9	.3	.1					3.1	7.0
NNE	.4	.5	.3	+						1.2	5.7
NE	.5	.8	.6	.1						1.9	6.4
ENE	.5	1.0	.9	.2						2.5	6.9
E	1.2	2.6	1.7	.3	+					5.9	6.7
ESE	1.1	3.1	1.2	.2						5.6	6.2
SE	1.6	3.9	1.2	.2	+					6.9	6.0
SSE	1.4	2.6	1.5	1.3	.2					7.2	7.9
S	1.4	2.8	3.4	3.7	1.0	.3				12.5	11.0
SSW	.7	2.4	2.7	1.8	.3	+				8.0	9.7
SW	1.0	2.0	1.9	.8	+					5.7	7.9
WSW	.5	3.2	4.0	1.6	.1					9.5	9.0
W	.7	1.8	3.5	1.7	.2	+				7.9	9.6
WNW	.4	1.6	3.0	2.7	.5	.1	+			8.3	11.2
NW	.6	1.8	2.8	2.3	.5	.1				8.1	10.8
NNW	.4	1.0	1.4	1.1	.2					4.1	10.1
CALM	1.6									1.6	
TOTAL	14.9	32.1	31.1	18.4	3.1	.4	+			100	8.7

C OCCURRENCES OF PRECIPITATION AMOUNTS:

INTENSITIES	FREQUENCY OF OCCURRENCE FOR EACH HOUR OF THE DAY — A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	NOON	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	MID.	NO. OF DAYS WITH
TRACE	19	22	23	28	24	18	16	16	23	19	24	25	20	25	22	21	21	23	25	16	21	22	20	18	40
.01 IN.	6	9	9	6	7	7	8	3	4	5	6	4	3	4	12	7	7	8	8	6	3	7	8	9	12
.02 TO .09 IN.	8	6	9	13	8	12	10	11	10	12	9	9	13	12	4	8	11	12	10	8	7	9	11	6	28
.10 TO .24 IN.	2	2	2		3		2	3	3		1	2	3		1	2	3	3	2	3	5	2	3	1	27
.25 TO .49 IN.					1	1		2					1	1		1	1	1		2	1	1		2	22
.50 TO .99 IN.							1								1			1							14
1.00 TO 1.99 IN.																2									3
2.00 IN. AND OVER																									
TOTAL	35	39	43	47	43	38	37	35	40	36	40	40	40	40	40	41	43	40	45	35	37	41	42	36	146

D PERCENTAGE FREQUENCIES OF CEILING–VISIBILITY:

VISIBILITY (MILES)	CEILING (FEET) 0	100-200	300-400	500-900	1000-1900	2000-2900	3000-4900	5000-7500	OVER 7500	TOT.
0 TO 1/8		+				+			+	+
3/16 TO 3/8		+	+							+
1/2 TO 3/4		+	+			+	+	+	+	.1
1 TO 2 1/2		+	.2	.3	.1	.2	.1	.1	.6	1.5
3 TO 6		+	.3	1.1	1.5	1.7	1.6	1.9	10.4	18.4
7 TO 15			+	.5	1.8	3.7	8.3	9.0	55.0	79.9
20 TO 30										
35 OR MORE										
TOTAL		.1	.5	1.6	3.4	5.5	10.0	11.0	66.0	100

E PERCENTAGE FREQUENCIES OF SKY COVER, WIND, AND RELATIVE HUMIDITY:

HOUR OF DAY	CLOUDS SCALE 0-10: 0-3	4-7	8-10	WIND SPEED (M.P.H.): 0-3	4-12	13-24	25 & OVER	RELATIVE HUMIDITY (%): 0-29	30-49	50-69	70-79	80-89	90-100
00	48	11	40	16	72	11	1		+	15	23	36	26
01	51	12	37	17	73	10	+		+	13	20	40	26
02	51	12	37	17	73	10			1	11	18	39	31
03	49	12	40	20	70	10				10	18	35	37
04	49	11	40	20	69	12				8	18	32	42
05	44	13	43	18	71	11				8	17	33	42
06	35	18	47	22	67	10	+			8	17	32	44
07	36	16	48	26	63	11	+		+	10	20	37	33
08	38	15	47	18	64	17	1		1	26	29	28	16
09	33	21	47	16	57	26	1		5	49	23	15	8
10	31	23	46	11	56	33			15	55	15	9	6
11	29	23	48	11	48	40	+		23	57	8	7	5
12	28	25	47	8	54	37	1		34	49	6	7	5
13	25	27	48	5	52	42	1	1	39	41	9	6	5
14	29	25	46	4	58	37	1	2	45	36	7	5	5
15	29	27	44	5	52	43	1	2	47	34	6	6	5
16	35	23	43	4	58	37	1	1	38	40	9	6	5
17	39	18	43	7	61	32			29	46	11	8	7
18	43	14	43	12	72	15	+		8	56	19	11	6
19	47	13	40	20	66	14	+		3	45	31	11	9
20	47	14	38	23	63	14	+		1	31	35	20	12
21	44	14	42	22	64	13	1		1	24	31	30	14
22	50	9	41	19	66	15				20	28	32	20
23	49	12	39	19	66	15				18	26	35	21
AVG	40	17	43	15	63	21	+	+	12	30	18	22	10

SYRACUSE, NEW YORK
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A TEMPERATURE AND WIND SPEED–RELATIVE HUMIDITY OCCURRENCES:

WIND / TEMP °F	0-4 MPH 0-29	0-4 MPH 30-49	0-4 MPH 50-69	0-4 MPH 70-79	0-4 MPH 80-89	0-4 MPH 90-100	5-14 MPH 0-29	5-14 MPH 30-49	5-14 MPH 50-69	5-14 MPH 70-79	5-14 MPH 80-89	5-14 MPH 90-100	15-24 MPH 0-29	15-24 MPH 30-49	15-24 MPH 50-69	15-24 MPH 70-79	15-24 MPH 80-89	15-24 MPH 90-100	25 MPH AND OVER 0-29	25 MPH AND OVER 30-49	25 MPH AND OVER 50-69	25 MPH AND OVER 70-79	25 MPH AND OVER 80-89	25 MPH AND OVER 90-100	TOTAL OBS.
89/ 85		1						3						2											6
84/ 80		4	2				9	6	7						8										36
79/ 75	1	10	6				2	22	36	6				11	14	5					1	1			115
74/ 70	4	6	17	4	2	2	3	52	55	40	23	1	4	19	29	19	5				4	1	2		292
69/ 65	2	13	26	6	20	22	7	86	101	31	47	24	7	29	34	11	4	7		1	8				486
64/ 60		20	46	22	21	47	13	102	170	82	41	56	4	48	66	36	23	13		2	2	1	2		817
59/ 55	1	17	48	31	55	45	9	106	228	92	92	141	2	63	107	20	39	17			1	4	2		1120
54/ 50		14	58	63	59	75	4	108	275	157	136	103	3	39	109	41	16	13			3		2	2	1280
49/ 45		8	50	38	89	110	1	41	225	203	171	148	1	23	73	57	38	27		3	1		3		1313
44/ 40			31	48	77	133		16	157	202	158	132		9	47	33	39	17			2				1101
39/ 35			8	27	73	68		1	73	79	118	57			31	13	13	14			4		1	1	581
34/ 30			5	11	41	31			20	40	69	24			3	5	6	11			1			1	268
29/ 25					4	2				2	14					1		2							25
TOTAL	8	93	29[illegible]	25[illegible]	441	535	48	543	1347	934	869	686	21	243	521	241	183	121		6	27	10	12	4	7440

B PERCENTAGE FREQUENCIES OF WIND DIRECTION AND SPEED:

DIRECTION	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	47 & OVER	TOTAL	AV. SPEED
N	.6	.9	1.2	.7	.1	+				3.5	8.7
NNE	.2	.5	.4	.1						1.2	6.5
NE	.5	.7	.3	.1						1.6	5.8
ENE	.3	1.3	1.3	.7	+					3.6	8.4
E	1.2	3.6	2.6	1.1	.1	+				8.6	7.7
ESE	1.2	2.9	2.0	.7	.3	.1	.1			7.4	8.3
SE	1.8	3.7	1.2	.5	.1					7.2	6.4
SSE	.9	2.1	1.3	1.1	.2	+			+	5.7	8.6
S	1.0	1.7	2.3	2.3	.6	.1	+			7.9	10.8
SSW	.6	1.5	2.0	1.5	.2	.1				5.8	10.0
SW	1.1	1.7	1.7	.9	.1					5.5	8.1
WSW	.6	2.0	4.1	3.2	.4	.1				10.3	10.7
W	.7	1.6	2.9	2.2	.7	+				8.1	10.8
WNW	.7	1.6	2.6	3.1	1.2	.2				9.4	12.3
NW	.5	1.6	2.1	2.2	.5	.1				7.0	11.0
NNW	.4	1.4	2.1	1.4	.3					5.6	10.3
CALM	1.5									1.5	
TOTAL	13.8	28.9	30.1	21.7	4.7	.7	.1		+	100	9.4

C OCCURRENCES OF PRECIPITATION AMOUNTS:

FREQUENCY OF OCCURRENCE FOR EACH HOUR OF THE DAY

INTENSITIES	A.M. 1	2	3	4	5	6	7	8	9	10	11	NOON	P.M. 1	2	3	4	5	6	7	8	9	10	11	MID.	NO. OF DAYS WITH
TRACE	40	34	28	22	23	28	37	35	36	34	31	33	33	30	26	30	34	41	34	29	32	29	24	31	57
.01 IN	8	10	9	8	8	10	10	10	11	4	9	8	4	5	6	5	11	3	7	10	10	6	13	8	9
.02 TO .09 IN	9	15	17	22	19	14	14	14	10	18	13	13	11	14	16	18	15	16	17	14	14	19	15	15	28
.10 TO .24 IN	4	1	4	3	3	2		1	3	2	1	2	3	1	3	3	1	3	2	1	1	2	3	5	34
.25 TO .49 IN		1	1	1	1	1	1	1	2	2	1			1		1							1	1	19
.50 TO .99 IN					1		1	1	1																12
1.00 TO 1.99 IN																									2
2.00 IN AND OVER																									3
TOTAL	61	61	59	56	55	55	63	62	63	60	57	56	52	53	51	57	61	63	60	54	57	56	56	60	164

D PERCENTAGE FREQUENCIES OF CEILING–VISIBILITY:

VISIBILITY (MILES)	CEILING (FEET) 0	100-200	300-400	500-900	1000-1900	2000-2900	3000-4900	5000-9900	OVER 10000	TOT
0 TO 1/8	.1	.1			+				.2	.4
3/16 TO 3/8					+	+	+		.1	.1
1/2 TO 3/4	+		+	+		+			.2	.3
1 TO 2 1/2		+	.2	.6	.3	.3	.2	.2	1.2	3.0
3 TO 6			.2	1.2	1.8	1.9	2.0	1.7	9.3	18.0
7 TO 15			+	.3	1.9	4.3	11.9	10.6	48.9	78.2
20 TO 30										
35 OR MORE										
TOTAL	.2	.1	.4	2.2	4.0	6.5	14.0	12.7	59.9	100

E PERCENTAGE FREQUENCIES OF SKY COVER, WIND, AND RELATIVE HUMIDITY:

HOUR OF DAY	CLOUDS SCALE 0-10: 0-3	4-7	8-10	WIND SPEED (M.P.H.) 0-3	4-12	13-24	25 & OVER	RELATIVE HUMIDITY (%) 0-29	30-49	50-69	70-79	80-89	90-100
00	41	13	46	16	65	18	1		3	22	24	27	25
01	41	11	47	16	67	17	+	+	2	18	24	31	24
02	38	14	48	18	63	18	+	+	2	16	23	32	27
03	39	14	47	16	65	19		+	2	15	22	32	29
04	39	15	46	15	66	18		+	1	15	17	33	34
05	41	12	47	17	64	19			2	14	17	31	36
06	30	19	51	15	68	16	1		2	12	16	34	36
07	30	15	55	21	61	19		+	2	11	17	36	33
08	32	15	54	18	60	21		+	2	18	27	29	24
09	28	16	56	15	55	30	+		6	37	26	16	14
10	27	16	57	9	54	36	1	1	12	50	18	10	10
11	30	15	55	10	50	39	1	1	23	48	13	7	8
12	29	17	55	9	46	42	1	2	32	42	11	7	6
13	29	18	53	7	48	44	1	2	37	40	8	6	6
14	29	20	51	6	46	47	1	5	39	33	12	5	6
15	31	18	50	5	50	42	3	5	35	32	7	9	7
16	34	14	53	7	34	38	+	4	33	38	11	6	9
17	35	15	50	12	57	30	1	2	19	50	12	9	9
18	38	16	45	14	65	20	1	+	9	50	20	10	11
19	43	12	45	17	62	20	2	+	5	41	27	15	11
20	43	13	44	21	59	19	1	+	4	31	34	18	13
21	42	13	45	18	61	19	1		4	27	28	26	15
22	43	13	44	16	61	22	1		5	24	24	29	18
23	42	13	46	14	66	20	1		4	24	24	27	21
AVG	36	15	50	14	59	26	1	1	12	29	19	20	18

SYRACUSE, NEW YORK
Hancock AP

NOVEMBER
7200 Obs.

A TEMPERATURE AND WIND SPEED--RELATIVE HUMIDITY OCCURRENCES:

WIND	0-4 MPH						5-14 MPH						15-24 MPH						25 MPH AND OVER						TOTAL OBS
RL. HUMID / TEMP	UNDER 30	30-49	50-69	70-79	80-89	90-100	UNDER 30	30-49	50-69	70-79	80-89	90-100	UNDER 30	30-49	50-69	70-79	80-89	90-100	UNDER 30	30-49	50-69	70-79	80-89	90-100	
79/ 75		1	1					2	2																6
74/ 70							2	7	3	1				1	3										17
69/ 65		1	2		1		2	11	8	7	6	1		19	23	13	3	1		1					99
64/ 60		3	7	2	9	6	1	19	38	37	16	15		31	37	22	2	1		1	10	3			260
59/ 55		7	19	7	6	16	3	30	92	22	23	27		15	48	31	18	4		1	10	4	3		386
54/ 50		7	14	18	21	28	7	46	214	72	76	66	1	29	68	36	29	13		7	12	1	2	2	769
49/ 45		12	30	31	22	42	3	63	217	97	87	103		47	123	50	33	21		4	5	1	4		995
44/ 40		11	44	37	52	37		43	262	222	176	95		23	128	73	35	23		2	7	2	1		1273
39/ 35		13	49	42	63	70		19	210	179	165	108		17	135	63	47	46		2	14	2	5	3	1252
34/ 30		7	43	59	57	38		23	196	174	188	173		9	84	74	50	69		4	2	3	1		1254
29/ 25			12	27	26	19		4	104	99	91	45		2	57	23	26	15			1	4			555
24/ 20			2	16	29	1		1	19	38	43	2		3	28	14	5	3							204
19/ 15			2	9	6				11	20	7	2			25	5	2	2			1		1		93
14/ 10				5	1					6	8			1	4	1	3	3						1	33
09/ 05				3													1								4
TOTAL		62	225	256	293	257	18	268	1376	974	886	637	1	197	763	405	254	201		22	62	20	17	6	7200

B PERCENTAGE FREQUENCIES OF WIND DIRECTION AND SPEED:

DIRECTION	HOURLY OBSERVATIONS OF WIND SPEED (IN MILES PER HOUR) 0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	47 & OVER	TOTAL	AV SPEED
N	.3	.6	.6	.5	+					2.0	8.8
NNE	.3	.2	.1	+						.6	5.5
NE	.4	.3	.3	+						1.0	5.7
ENE	.4	1.0	.9	.2	+					2.6	7.5
E	.9	2.3	2.6	1.0	+	.1	+			7.0	8.6
ESE	.7	2.8	1.9	.7	+	+				6.1	7.7
SE	1.0	2.6	1.8	.7	.1					6.3	7.6
SSE	.8	1.8	1.6	1.6	.4	.1	+	+		6.3	10.3
S	1.0	2.2	2.6	3.1	1.1	.4	.1			10.5	12.0
SSW	.4	1.6	2.5	2.2	.3	+				7.1	10.8
SW	.6	1.5	2.5	1.8	.3	+				6.7	10.4
WSW	.6	2.2	4.6	5.1	1.3	.1	+			13.9	12.1
W	.5	1.5	3.0	3.8	1.1	.2				10.0	12.5
WNW	.4	1.5	2.8	3.7	1.4	.4	.1	+		10.2	13.4
NW	.5	.9	1.3	2.4	.5	.1				5.7	12.2
NNW	.4	.4	1.2	.8	.2	.1				3.2	10.9
CALM	.7									.7	
TOTAL	9.8	23.7	30.2	27.6	6.9	1.5	.2	.1		100	10.7

C OCCURRENCES OF PRECIPITATION AMOUNTS:

FREQUENCY OF OCCURRENCE FOR EACH HOUR OF THE DAY

INTENSITIES	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	NOON	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	MID	NO. OF DAYS (ATT)
TRACE	51	49	47	56	48	47	56	62	64	60	61	53	52	57	49	43	44	62	66	64	61	56	60	65	69
.01 IN	16	8	14	17	14	15	18	12	17	9	14	14	16	15	15	12	17	11	12	14	19	16	11	7	17
.02 TO .09 IN	15	22	18	17	21	25	21	22	12	23	18	20	17	14	19	25	18	17	10	9	12	13	18	19	55
.10 TO .24 IN	6		4	4	5	1	5	5	8	2	4	2	2	3	2	3	3	2	2	3	1	1		2	42
.25 TO .49 IN		1																					1		19
.50 TO .99 IN																									13
1.00 TO 1.99 IN																									4
2.00 IN AND OVER																									
TOTAL	88	80	83	94	88	88	100	101	101	94	97	89	87	89	85	83	82	92	90	90	93	86	90	93	219

D PERCENTAGE FREQUENCIES OF CEILING--VISIBILITY:

VISIBILITY (MILES)	CEILING (FEET) 0	100-200	300-400	500-900	1000-1900	2000-2900	3000-4900	5000-9500	OVER 9500	TOT
0 TO 1/8	.2	.1	+					+	+	.3
3/16 TO 3/8	+	+	+	.1					+	.2
1/2 TO 3/4		+	.1	.4	.5	.1	+	+	.1	1.2
1 TO 2 1/2		.1	.5	1.1	1.3	.7	.3	.2	.5	4.6
3 TO 6		+	.1	.9	2.6	3.4	3.2	2.2	7.5	20.0
7 TO 15			+	.5	1.7	7.8	15.2	15.1	33.3	73.7
20 TO 30										
35 OR MORE										
TOTAL	.2	.3	.8	3.0	6.0	12.0	18.8	17.5	41.5	100

E PERCENTAGE FREQUENCIES OF SKY COVER, WIND, AND RELATIVE HUMIDITY:

HOUR OF DAY	CLOUDS SCALE 0-10: 0-3	4-7	8-10	WIND SPEED (M.P.H.): 0-3	4-12	13-24	25 & OVER	RELATIVE HUMIDITY (%): 0-29	30-49	50-69	70-79	80-89	90-100
00	24	9	67	13	57	29	1		3	31	24	27	16
01	25	9	66	16	55	28	2		4	26	25	26	19
02	20	10	69	13	58	27	1		3	25	28	24	20
03	19	12	69	11	63	25	1		2	25	26	26	21
04	20	10	70	11	60	28	1		2	25	26	27	20
05	22	9	69	12	62	25	1		2	22	28	25	23
06	20	9	71	12	61	25	2		2	22	27	27	22
07	16	11	73	9	61	28	2		2	22	27	27	22
08	13	13	74	11	58	29	1		2	26	28	22	22
09	15	13	73	9	51	39	1		3	35	24	21	16
10	16	13	71	11	41	45	3		5	46	20	14	15
11	14	14	72	9	40	49	2	1	11	46	19	12	11
12	13	13	74	8	35	53	4	1	18	46	13	13	10
13	14	11	75	7	43	47	3	1	20	42	13	15	9
14	14	13	72	5	43	50	2	1	22	42	12	12	10
15	15	16	69	5	50	43	3	1	21	42	13	12	10
16	16	14	69	6	53	40	1	1	16	44	15	13	12
17	18	13	69	10	57	31	2		10	43	19	16	12
18	21	14	65	10	58	31	1		8	38	25	15	13
19	24	12	64	10	56	32	2		7	34	29	18	12
20	24	12	64	10	56	33	1		5	32	27	24	11
21	20	13	66	11	57	30	1		5	32	30	19	14
22	24	8	68	9	58	30	2		4	31	29	23	13
23	25	8	67	8	59	31	1		4	31	25	27	13
AVG	19	12	69	10	54	35	2	+	8	34	23	20	15

SYRACUSE, NEW YORK
Hancock AP

DECEMBER
7440 Obs.

A TEMPERATURE AND WIND SPEED–RELATIVE HUMIDITY OCCURRENCES:

WIND / TEMP °F	0-4 MPH						5-14 MPH						15-24 MPH						25 MPH AND OVER						TOTAL OBS
69/ 65																1									1
64/ 60			1		1		3	1	7	3				3	1	12	9					1			42
59/ 55			2					3	12	17	8	6		8	11	26	10	1				4	1		109
54/ 50			3		2	8	1	9	36	18	23	12		3	18	18	8	2			2	1			164
49/ 45		4	11		12	14	2	31	80	46	28	22		12	38	20	12	6				1	1		340
44/ 40		3	37	34	21	31		34	136	88	46	43	1	17	81	39	14	15			3	1			644
39/ 35		1	23	47	30	54		10	156	164	162	139		8	119	90	52	26			11	7	2	2	1103
34/ 30		2	20	46	64	88		21	223	242	281	252		4	125	108	76	69			8	5	1	2	1637
29/ 25			29	51	46	23		9	150	182	214	51		1	90	67	59	10			5	3	2		992
24/ 20			23	33	64	10			145	147	177	18		1	79	60	63	10			3	2			835
19/ 15		1	34	47	27	6		6	106	143	132	20		5	47	65	37	7			3	4	1		691
14/ 10			24	47	36		1	3	85	95	42	1		4	33	30	19	1		1	3	1	1	1	427
09/ 05		1	18	31	43			2	29	38	36			6	27	7	2								240
04/ 00			25	27	16				24	17	22				3		1								135
-01/-05		1	14	12	4			2	11	8	11														63
-06/-10	1			1			1		1	2	2														7
-11/-15		2	2																						4
-16/-20	1	4	1																						6
TOTAL	2	19	267	376	366	234	6	1311	2011	2101	184	564	1	72	672	543	362	147		1	38	30	9	5	7440

B PERCENTAGE FREQUENCIES OF WIND DIRECTION AND SPEED:

DIRECTION	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	47 OVER	TOTAL	AV SPEED
N	.7	.7	.8	.4	.1					2.6	7.4
NNE	.3	.4	.1							.9	5.0
NE	.7	.6	.2	.1	+					1.6	5.1
ENE	.5	1.7	1.5	.5	+					4.3	7.8
E	1.5	3.1	3.4	1.2	+					9.2	7.8
ESE	1.1	3.6	2.2	.5	+					7.4	7.0
SE	1.0	2.1	1.3	.6	+					5.1	7.2
SSE	.6	.9	1.1	1.0	.4	.1				4.1	10.4
S	.7	1.4	2.0	2.2	.5	.1	+			7.0	11.2
SSW	.3	1.4	2.7	2.3	.4					7.0	11.1
SW	.5	1.5	2.7	2.5	.3					7.4	10.8
WSW	.4	1.6	4.2	5.6	1.4	.2	+			13.4	12.9
W	.5	1.3	2.5	4.0	1.2	.1	+			9.7	13.0
WNW	.5	1.5	2.2	3.6	1.1	.4	+			9.2	13.3
NW	.6	1.2	1.6	2.3	.9	.1	+			6.7	12.4
NNW	.3	.8	1.4	.8	.2	+				3.6	10.2
CALM	.9									.9	
TOTAL	11.1	23.9	29.8	27.5	6.5	1.0	.1			100	10.4

C OCCURRENCES OF PRECIPITATION AMOUNTS:

INTENSITIES	A.M. 1	2	3	4	5	6	7	8	9	10	11	NOON	P.M. 1	2	3	4	5	6	7	8	9	10	11	MID	NO. OF DAYS WITH
TRACE	97	103	100	104	98	93	88	97	90	87	88	86	86	85	84	83	77	66	85	93	85	86	91	97	68
.01 IN	26	20	23	27	31	26	30	21	19	19	23	16	21	22	21	26	27	29	18	20	22	23	22	25	25
.02 TO .09 IN	22	18	21	17	16	19	21	17	22	23	22	26	24	20	25	23	20	27	27	25	25	29	30	27	84
.10 TO .24 IN	1	1	2	1	3	1	2	2	4	1			1	1	2	5	4	3	2		3	2	1	2	44
.25 TO .49 IN		1	1																	1					27
.50 TO .99 IN																									9
1.00 TO 1.99 IN																									4
2.00 IN AND OVER																									
TOTAL	146	143	147	149	148	139	141	137	135	130	133	128	132	128	132	135	128	125	132	139	135	142	144	152	261

FREQUENCY OF OCCURRENCE FOR EACH HOUR OF THE DAY (A.M. HOUR ENDING AT / P.M. HOUR ENDING AT)

D PERCENTAGE FREQUENCIES OF CEILING–VISIBILITY:

VISIBILITY (MILES)	CEILING (FEET) 0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	OVER [illegible]	TOT
0 TO 1/8		.1	+	+						.1
3/16 TO 3/8		+	.1	.1	+	+			+	.3
1/2 TO 3/4		+	.1	1.0	.7	.2	+			2.0
1 TO 2 1/2		.2	.6	1.2	3.0	2.7	1.2	.1	.3	9.1
3 TO 6			.3	1.3	3.7	5.5	5.3	1.7	4.7	22.5
7 TO 15			+	.2	2.7	8.0	16.4	9.7	29.0	36.0
20 TO 30										
35 OR MORE										—
TOTAL		.3	1.1	3.8	10.1	16.3	22.0	11.5	34.0	100

E PERCENTAGE FREQUENCIES OF SKY COVER, WIND, AND RELATIVE HUMIDITY

HOUR OF DAY	CLOUDS SCALE 0-10: 0-3	4-7	8-10	WIND SPEED (M.P.H.): 0-3	4-12	13-24	25 & OVER	RELATIVE HUMIDITY (%): 0-29	30-49	50-69	70-79	80-89	90-100
00	17	11	71	9	56	33			3	23	27	33	14
01	17	9	74	9	58	31	2		3	25	29	29	14
02	16	10	74	11	59	30	+		2	22	29	33	14
03	14	10	77	11	60	28	1		2	20	29	32	17
04	15	6	78	13	57	30	1	+	1	21	32	30	15
05	16	7	77	11	59	29	1		2	21	32	30	15
06	16	7	76	15	53	32	+		2	22	33	29	15
07	11	12	77	13	55	32	1		2	23	32	27	15
08	10	9	81	13	54	32	1		1	22	32	30	15
09	11	11	78	13	51	37			2	25	29	31	12
10	13	11	76	12	48	39	1	+	2	34	31	22	11
11	11	16	73	10	47	41	1		4	40	27	21	9
12	10	15	75	9	46	43	2	+	3	45	24	18	9
13	12	12	75	8	46	44	1	+	4	45	25	16	9
14	13	11	76	7	49	42	2	+	5	46	21	19	9
15	10	13	76	7	50	40	3	+	5	43	25	18	9
16	11	10	78	11	54	34	1	+	4	40	27	19	11
17	14	12	74	13	56	30	1	+	3	33	29	25	11
18	16	8	76	13	57	28	2		4	27	32	24	13
19	16	10	74	12	52	34	2		3	28	29	29	12
20	17	9	74	12	53	35	1		3	27	31	25	14
21	16	8	75	12	55	32	1		4	25	31	26	15
22	19	9	72	12	57	30	1	+	4	27	30	24	15
23	20	10	70	10	55	33	1		3	21	32	29	14
AVG	14	10	75	11	54	34	1	+	3	29	29	26	13

SYRACUSE, NEW YORK
Hancock AP

ANNUAL
87,672 Obs.

A TEMPERATURE AND WIND SPEED–RELATIVE HUMIDITY OCCURRENCES:

WIND / RH / TEMP °F	0-4 MPH						5-14 MPH						15-24 MPH						25 MPH AND OVER						TOTAL OBS
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
99/ 95								2					+	1											3
94/ 90	+	2	1				1	17	4		1		+	6	2	+				+					32
89/ 85	1	6	5				3	49	32	+			1	16	10	+					+				122
84/ 80	1	14	19	3	+		4	76	89	7			1	24	29	2	+		+	1	+				269
79/ 75	1	16	34	14	5	+	7	86	132	53	12	1	2	24	39	11	2	+		1	1	+	+		442
74/ 70	1	12	45	29	28	18	8	77	139	74	66	26	4	32	43	14	5	2		1	2	+	1	+	627
69/ 65	1	11	43	37	49	47	5	61	133	85	81	61	6	37	47	14	7	4	1	2	3	1		+	735
64/ 60	1	8	37	34	56	52	5	44	112	93	91	66	4	35	44	20	10	5	+	2	4	1	1	+	723
59/ 55	1	7	25	30	54	49	5	46	96	83	107	82	3	30	42	24	17	10	1	2	3	2	1	+	717
54/ 50	1	8	23	24	41	49	3	47	112	70	90	61	3	26	46	24	13	7	+	2	4	2	1	1	656
49/ 45	+	9	24	27	38	43	1	36	102	76	81	68	1	20	48	27	21	10		1	3	2	2	+	641
44/ 40	+	5	27	25	35	35	+	22	120	90	83	63	+	11	57	33	23	12		1	3	2	1	+	651
39/ 35		4	22	30	43	48	1	11	104	99	108	82	+	7	58	39	31	20		1	5	3	2	1	720
34/ 30		2	24	32	47	60		10	105	114	122	132		5	50	44	35	39		1	5	3	1	1	830
29/ 25		1	23	28	30	18		6	84	79	90	39		31	52	37	33	14		+	4	4	2	1	547
24/ 20		2	16	19	28	3		3	64	57	76	14		3	38	25	26	9		+	4	2	3	1	392
19/ 15		1	18	[illegible]	17	1		3	47	53	41	9		4	22	18	15	7		+	2	2	1	1	282
14/ 10			14	19	11	+		2	34	40	24	2		1	15	11	10	2		+	1	1	2	1	190
09/ 05			9	11	10			3	16	16	15			1	5	5	6					1	2		102
04/ 00		1	10	9	6			1	10	7	7	+		+	1	+	3						+		55
-01/-05		1	3	3	4			2	3	4	4			+			1								23
-06/-10	+			1	1			1	+	+	+														5
-11/-15	+							+	+																2
-16/-20			+					1	+																2
-21/-25			+						+																+
TOTAL	7	110	424	397	502	424	41	505	1538	1098	1097	705	25	286	649	346	257	140	2	15	44	27	21		88767

In Tables A and C, occurrences are for the average year (10-year total divided by 10). Values are rounded to the nearest whole number, but not adjusted to make their sums exactly equal to column or row totals. "+" indicates more than 0 but less than 0.5.

B PERCENTAGE FREQUENCIES OF WIND DIRECTION AND SPEED:

DIRECTION	HOURLY OBSERVATIONS OF WIND SPEED (IN MILES PER HOUR) 0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	47 & OVER	TOTAL	AV SPEED
N	.7	.9	.9	.5	.1	+				3.1	7.7
NNE	.4	.5	.3	.1	+					1.3	6.2
NE	.6	.7	.4	.1	+	+				1.7	6.0
ENE	.5	1.2	1.1	.4	+					3.3	7.7
E	1.3	2.7	2.3	.9	.1	+	+			7.3	7.7
ESE	1.1	2.6	1.6	.6	.1	+	+			6.0	7.3
SE	1.5	2.6	1.2	.5	.1	+	+			6.0	6.7
SSE	1.0	1.7	1.1	1.0	.2	+	+	+	+	5.0	8.7
S	1.1	1.8	1.9	2.1	.6	.2	+	+	+	7.7	10.7
SSW	.5	1.4	1.7	1.4	.2	+	+			5.3	10.0
SW	.8	1.7	1.9	1.1	.1	+	+			5.7	8.7
WSW	.8	2.7	4.3	2.9	.6	.1	+	+		11.3	10.5
W	.8	2.0	3.3	2.7	.6	.1	+			9.5	10.9
WNW	.6	1.8	3.3	4.1	1.4	.4	.1	+		11.7	13.0
NW	.7	1.5	2.6	3.1	.9	.2	+			8.9	12.0
NNW	.4	1.0	1.6	1.5	.3	+	+			4.9	10.6
CALM	1.4									1.4	
TOTAL	14.1	27.0	29.5	22.9	5.3	1.2	.1	+	+	100	9.7

C OCCURRENCES OF PRECIPITATION AMOUNTS:

INTENSITIES	FREQUENCY OF OCCURRENCE FOR EACH HOUR OF THE DAY — A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	NOON	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	MID	NO. OF DAYS WITH
TRACE	63	59	57	62	60	56	59	61	63	60	59	55	54	55	56	56	51	51	55	56	58	58	57	60	70
.01 IN	15	15	17	18	18	19	20	15	15	15	15	15	14	14	15	13	17	16	16	14	14	14	16	16	19
.02 TO .09 IN	18	19	22	22	21	22	20	20	17	19	17	18	17	16	16	19	19	19	10	18	19	19	18	19	61
.10 TO .24 IN	3	2	3	3	4	2	3	2	4	2	3	2	3	3	3	3	3	4	2	3	4	3	4	3	42
.25 TO .49 IN	+	1	+	+	1	1	1	+	1	1	+	+	+	1	1	1	1	1	+	1	+	1	1	1	20
.50 TO .99 IN	+	+		+	+	+	+	+	+	+	1	+		+	1	+	+	+	+		+	+	+	+	15
1.00 TO 1.99 IN					+			+						+	+				+						4
2.00 IN AND OVER																									1
TOTAL	99	96	98	104	103	101	103	99	100	96	93	89	87	89	91	92	90	91	92	91	92	94	96	99	240

D PERCENTAGE FREQUENCIES OF CEILING–VISIBILITY:

VISIBILITY (MILES)	CEILING (FEET) 0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	OVER [illegible]	TOT
0 TO 1/8	.1	+	+	+	+	+	+	+	+	.2
3/16 TO 3/8	+	+	+	+	+	+	+	+	+	.2
1/2 TO 3/4	+	+	.1	.4	.4	.1	+	+	.1	1.1
1 TO 2 1/2		.1	.3	.8	1.5	1.1	.5	.2	.5	5.0
3 TO 6		+	.2	1.3	2.6	3.5	3.1	2.0	8.2	20.9
7 TO 15			+	.3	2.0	5.3	9.9	9.4	45.7	72.6
20 TO 30										
35 OR MORE										
TOTAL	.1	.2	[illegible]	2.9	6.4	10.1	13.5	11.6	54.5	100

E PERCENTAGE FREQUENCIES OF SKY COVER, WIND, AND RELATIVE HUMIDITY:

HOUR OF DAY	CLOUDS SCALE 0-10: 0-3	4-7	8-10	WIND SPEED (M.P.H.): 0-3	4-12	13-24	25- & OVER	RELATIVE HUMIDITY (%): 0-29	30-49	50-69	70-79	80-89	90-100
00	36	11	53	18	61	20	1	+	2	22	27	31	18
01	35	11	53	18	62	20	1	+	2	20	25	32	20
02	34	11	55	19	62	19	1	+	1	18	25	33	22
03	33	12	55	19	63	18	1	+	1	16	24	33	25
04	31	12	56	18	63	18	1	+	1	16	22	34	27
05	30	12	58	18	63	18	1		1	15	23	33	28
06	28	13	59	20	60	19	1		[illegible]	16	24	33	25
07	26	13	61	19	58	22	1	+	2	21	27	31	20
08	26	12	62	17	56	25	1	+	3	31	27	23	15
09	24	15	61	14	53	31	1	+	8	41	22	19	11
10	23	16	60	11	52	36	2	+	15	44	18	14	10
11	22	17	61	9	49	40	2	1	21	43	16	12	8
12	21	18	61	8	47	43	2	2	26	41	14	10	7
13	21	19	60	6	46	46	2	2	30	38	13	10	7
14	22	19	59	6	47	45	2	3	32	35	13	10	7
15	23	18	59	6	47	45	2	4	32	34	13	10	7
16	25	16	59	6	50	42	2	4	29	35	14	11	8
17	28	15	57	8	55	36	1	2	25	36	15	13	9
18	30	15	56	10	62	27	1	1	19	39	18	13	10
19	31	13	55	14	63	23	1	+	12	40	21	16	10
20	33	14	53	18	59	21	1	+	6	38	26	19	12
21	33	12	54	19	60	20	1	+	4	33	28	22	13
22	36	11	53	19	59	21	1	+	3	29	29	25	15
23	36	11	53	17	60	21	1	+	2	24	29	28	16
AVG	29	14	57	14	56	28	1	1	12	30	21	21	15

TABLE B2-2
LOCAL CLIMATOLOGICAL SUMMARIES
FOR SYRACUSE AND ROCHESTER 1974

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

Meteorological Data For The Current Year

Station: SYRACUSE, NEW YORK HANCOCK INTERNATIONAL AIRPORT Standard time used: EASTERN Latitude: 43° 07' N Longitude: 76° 07' W Elevation (ground): 410 feet Year: 1974

Month	Temperature °F Averages Daily maximum	Daily minimum	Monthly	Extremes Highest	Date	Lowest	Date	Degree days Base 65 °F Heating	Cooling	Precipitation in inches Water equivalent Total	Greatest in 24 hrs.	Date	Snow, Ice pellets Total	Greatest in 24 hrs.	Date	Relative humidity, pct. Hour 01 (Local time)	Hour 07	Hour 13	Hour 19	Wind Resultant Direction	Speed m.p.h.	Average speed m.p.h.	Fastest mile Speed m.p.h.	Direction	Date	Percent of possible sunshine	Average sky cover, tenths, sunrise to sunset	Number of days Sunrise to sunset Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Ice pellets 1.0 inch or more	Thunderstorms	Heavy fog, visibility ¼ mile or less	Temperature °F Maximum (b) 90° and above	32° and below	Minimum 32° and below	0° and below	Average station pressure mb Elev. 408 feet m.s.l.
JAN	33.3	18.6	26.0	57	31	-5	18	1200	0	2.08	0.78	28-29	15.5	5.1	9	87	84	76	82	24	4.4	10.9	60	W	27	35	8.3	3	6	22	23	7	0	0	0	16	27	2	1004.4
FEB	29.6	13.6	21.6	59	22	-4	8	1206	0	1.70	0.82	22-23	23.7	7.6	1	81	82	70	77	27	4.4	10.9	43	W	23	49	7.9	2	7	19	14	6	0	0	0	17	26	4	1000.0
MAR	39.6	25.0	32.3	63	5	11	29	1004	0	4.34	1.34	30-31	31.2	9.6	30-31	75	76	64	69	27	5.2	13.1	38	NW	10	45	7.5	5	7	19	17	6	0	0	0	5	24	0	999.3
APR	59.5	38.0	48.8	85	28	22	10	493	14	3.09	0.74	30	7.8	5.9	8-9	73	73	48	60	26	5.5	11.4	42	W	14	50	6.9	6	7	17	13	2	4	0	0	0	8	0	999.3
MAY	64.1	44.0	54.1	85	14	30	2	339	6	5.78	1.09	12-13	T	T	7	76	79	60	61	25	3.8	10.2	47	W	22	47	7.4	2	13	16	16	0	4	1	0	0	2	0	998.6
JUN	75.8	55.3	65.6	94	10	45	13	52	77	4.67	1.49	10	0.0	0.0		85	84	59	66	19	1.5	7.8	30	SW	15	50	7.1	3	12	15	12	0	5	2	1	0	0	0	999.0
JUL	80.2	57.9	69.1	92	4	49	17	16	148	9.52	4.07	2-3	0.0	0.0		86	82	57	67	27	3.3	8.4	30	NW	27	63	5.8	9	11	11	13	0	12	0	3	0	0	0	1000.7
AUG	79.3	58.4	68.9	87	21	48	16	3	128	4.60	1.52	27-28	0.0	0.0		91	90	63	73	21	1.7	6.9	35	SW	27	59	6.3	5	14	12	7	0	4	0	0	0	0	0	1003.1
SEP	68.8	49.3	59.1	83	13	36	24	202	31	4.45	1.88	3	0.0	0.0		91	91	67	80	23	2.9	8.2	35	SW	29	46	7.0	4	13	13	12	0	3	1	0	0	0	0	1002.4
OCT	56.2	36.8	46.5	77	6	25	28	565	1	1.58	0.56	14-15	2.8	2.4	2-3	81	87	60	74	26	3.8	8.6	30	SW	14	33	7.2	5	7	19	10	2	0	0	0	0	8	0	1007.1
NOV	47.3	33.8	40.6	74	1	14	27	726	0	4.95	1.27	12-13	4.8	2.1	25-26	86	87	72	81	26	3.4	9.4	26	W	16	22	8.7	2	2	26	15	1	3	3	0	3	11	0	1001.4
DEC	35.8	25.0	30.4	51	8	6	5	1069	0	3.47	1.00	7-8	26.2	7.9	15-16	92	94	88	92	24	2.8	9.7	30	SW	18	10	9.2	1	2	28	18	7	0	1	0	6	28	0	1001.0
YEAR	55.8	38.0	46.9	94	JUN 10	-5	JAN 18	6875	405	50.23	4.07	JUL 2-3	112.0	9.6	MAR 30-31	84	84	65	74	25	3.4	9.6	60	W	JAN 27	44	7.4	47	101	217	170	31	35	8	4	47	134	6	1001.4

Normals, Means, And Extremes

Month	Temperatures °F Normal Daily maximum	Daily minimum	Monthly	Extremes Record highest	Year	Record lowest	Year	Normal Degree days Base 65 °F Heating	Cooling	Precipitation in inches Water equivalent Normal	Maximum monthly	Year	Minimum monthly	Year	Maximum in 24 hrs.	Year	Snow, Ice pellets Maximum monthly	Year	Maximum in 24 hrs.	Year	Relative humidity pct. Hour 01 (Local time)	Hour 07	Hour 13	Hour 19	Wind Mean speed m.p.h.	Prevailing direction	Fastest mile Speed m.p.h.	Direction	Year	Pct. of possible sunshine	Mean sky cover, tenths, sunrise to sunset	Mean number of days Sunrise to sunset Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Ice pellets 1.0 inch or more	Thunderstorms	Heavy fog, visibility ¼ mile or less	Temperatures °F Max. (b) 90° and above	32° and below	Min. 32° and below	0° and below	Average station pressure mb. Elev. 408 feet m.s.l.
(a)				11		11					25		25		25		25		25		11	11	11	11	25	14	25	25		25	25	25	25	25	25	25	25	25	11	11	11	11	2
J	31.4	15.8	23.6	70	1967	-26	1966	1283	0	2.68	4.59	1959	1.02	1970	1.47	1958	71.0	1966	24.5	1966	75	75	68	73	10.8	WSW	60	W	1974	35	7.9	3	7	21	19	8	*	1	0	16	28	5	1003.2
F	32.7	16.5	24.6	59	1974	-22	1967	1131	0	2.79	5.38	1951	1.10	1968	1.99	1961	72.6	1958	21.4	1961	75	77	66	72	11.3	WNW	62	W	1967	40	7.8	3	6	19	16	8	*	1	0	15	26	3	1003.1
M	41.5	24.8	33.2	77	1968	-5	1967	986	0	3.03	6.84	1955	1.08	1969	1.34	1974	37.2	1971	14.7	1971	77	78	62	69	11.1	WNW	56	SE	1956	46	7.5	5	6	20	17	5	1	1	0	7	24	*	1000.5
A	56.5	36.4	46.5	85	1974	9	1972	555	0	3.08	6.91	1973	1.57	1950	2.42	1970	8.4	1961	5.9	1974	75	76	52	59	10.9	WNW	52	NW	1957	51	6.8	6	7	17	14	1	2	1	0	*	13	0	998.7
M	67.6	46.0	56.8	92	1971	25	1966	272	18	3.02	6.19	1972	1.05	1962	3.13	1969	1.2	1973	1.2	1973	78	75	56	60	9.6	WNW	50	NW	1964	56	6.6	6	10	15	13	*	3	1	*	0	1	0	997.8
J	77.7	56.1	66.9	94	1974	35	1966	46	103	3.09	12.30	1972	1.10	1962	3.88	1972	0.0		0.0		82	78	56	63	8.6	WNW	49	NW	1961	62	6.1	8	10	12	10	0	6	1	1	0	0	0	999.4
J	82.0	61.0	71.5	96	1966	45	1965	11	212	3.08	9.52	1974	0.90	1969	4.07	1974	0.0		0.0		83	79	56	63	8.4	WNW	47	NW	1951	66	5.7	8	13	10	11	0	7	1	3	0	0	0	1000.4
A	80.2	59.2	69.7	97	1965	40	1965	18	164	3.50	8.41	1956	1.77	1969	4.27	1954	0.0		0.0		85	84	57	68	8.2	WSW	43	NW	1958	63	5.9	8	11	12	10	0	6	1	2	0	0	0	1002.4
S	73.3	52.3	62.8	93	1973	28	1965	120	54	2.71	4.89	1958	0.75	1964	3.09	1960	0.0		0.0		84	86	61	75	8.6	S	52	W	1962	57	6.0	8	10	12	10	0	3	1	1	0	*	0	1002.9
O	62.4	42.5	52.5	87	1963	20	1965	392	0	3.09	8.29	1955	0.21	1963	3.60	1955	4.4	1952	2.4	1974	92	84	60	75	9.2	WSW	63	SE	1954	46	6.5	7	8	16	11	*	1	1	0	0	5	0	1004.9
N	48.3	33.6	41.0	76	1971	10	1967	720	0	3.25	6.79	1972	1.68	1960	2.09	1967	22.1	1958	12.1	1973	81	82	69	77	10.4	WSW	59	E	1950	25	8.3	2	6	22	16	3	1	1	0	2	14	0	1000.7
D	35.0	21.2	28.1	70	1966	-7	1973	1144	0	3.09	5.01	1959	1.73	1958	2.18	1952	52.5	1969	15.5	1969	81	82	74	79	10.5	WSW	52	W	1962	25	8.4	2	5	24	19	8	*	1	0	12	26	1	1001.9
YR	57.4	38.8	48.1	97	AUG 1965	-26	JAN 1966	6678	551	36.41	12.30	JUN 1972	0.21	OCT 1963	4.27	AUG 1954	72.6	FEB 1958	24.5	JAN 1966	80	80	61	70	9.8	WNW	63	SE	OCT 1954	50	7.0	66	99	200	167	32	29	9	7	51	138	10	1001.3

Means and extremes above are from existing and comparable exposures. Annual extremes have been exceeded at other sites in the locality as follows: Highest temperature 102 in July 1936; maximum monthly precipitation 15.92 in June 1922; minimum monthly precipitation 0.19 in May 1920; maximum precipitation in 24 hours 4.79 in June 1922; maximum snowfall in 24 hours 27.2 in January 1925; fastest mile wind 69 SW in December 1921.

(a) Length of record, years, through the current year unless otherwise noted, based on January data.
(b) 70° and above at Alaskan stations.
* Less than one half.
T Trace.

NORMALS - Based on record for the 1941-1970 period.
DATE OF AN EXTREME - The most recent in cases of multiple occurrence.
PREVAILING WIND DIRECTION - Record through 1963.
WIND DIRECTION - Numerals indicate tens of degrees clockwise from true north. 00 indicates calm.
FASTEST MILE WIND - Speed is fastest observed 1-minute value when the direction is in tens of degrees.

Request C5

Furnish information on type, quantity, and yield (kg/m^2) of crops grown.

Response C5

Table C5-1 furnishes the requested information (refs. 20 and 21).

TABLE C5-1
CROP PRODUCTION WITHIN 50 MILE RADIUS

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

Type	Quantity (kg/yr)	Yield (kg/m²)
Fruit	1.3×10^{8}	1.3
Potatoes	6.2×10^{7}	2.9
Fresh Vegetables	8.9×10^{7}	2.4
Processed Vegetables	3.5×10^{7}	0.68
Grain	1.9×10^{8}	0.41

Request C6

Provide information on grazing season (give dates), feeding regimes for cattle (such as grazing practices, green chop feeding, corn and grass sileage feeding, and hay feeding), pasture grass density (kg/m^2), and yield statistics (kg/m^2) for harvested forage crops for beef and dairy cattle feeding.

Response C6

A six month grazing season is conservatively assumed for the Nine Mile Point Nuclear Station Unit 2 analysis. The season is assumed to extend from the first of April to the first of October. The deposition rates for the grazing period are given in Tables B5-10, B5-11, and B5-12. Dairy cows are conservatively assumed to rely solely on pasture grass during this period. During the remainder of the year, dairy cows feed on sileage and hay. A 0.75 kg/m^2 yield was assumed for pasture grass and 2 kg/m^2 for stored feed based on page C-10 of Regulatory Guide 1-AA (ref. 6).

Request C7

Determine and indicate in tabular format the present and projected commercial fish and shellfish catch (in lbs/yr) from contiguous waters within 50 miles of the plant discharge. Report the catch by total landings and by principal species, indicating the relative amounts used as human food. Indicate the location of principal fishing areas and ports of landing associated with these contiguous waters, and relate these locations to harvest by species. Indicate the relative amounts consumed locally. Determine and tabulate the present and projected recreational fish and shellfish harvest from these waters in the same format also indicating principal fishing areas and their yield by species. As above, indicate the relative amounts consumed locally. Include any harvest and use of seaweed, other aquatic life, or any vegetation used as human food from these waters. Identify and describe any fish farms or similar aquatic activity within the 50 mile area utilizing water that may reasonably be affected by the power plant discharge. Indicate the species and production from each of these facilities, and indicate the relative amounts consumed locally.

Response C7

A total commercial fish catch for Lake Ontario of 3.2×10^6 pounds is reported for 1970 on page 2.2-3 of the Nine Mile Point Nuclear Station Unit 2 (NMP2) Environmental Report Construction Permit Stage (ref. 2). For the purposes of this analysis, the catch was increased by a factor of four for conservatism (to 1.3×10^7 lbs) to reflect sport fishing and growth in commercial fishing over the life of NMP2.

Freshwater invertebrates are not considered plentiful enough to warrant consideration in determination of population man-rem exposure in this vicinity of Lake Ontario.

Recent surveys indicate that the total Lake Ontario commercial fish catch for 1973 and 1974 was 2.7×10^6 pounds per year.

Total fish catch (commercial and sports fishing) within a 50 mile radius of the NMP2 site by species is not available.

Request C8

Identify any additional exposure pathways specific to the region around the site which could contribute 10 percent or more to either individual or population doses.

Response C8

The Response to Request C9 describes the contributions to individual and population doses. These are considered to include all potentially significant pathways.

Request C9

Annual Population Doses - Calculate, using the information provided in response to questions 1-8 above and any other necessary supporting data, the annual total-body man-rem and the annual man thyroid-rem to the population expected to reside in the 50 mile region at the midpoint of plant operation as well as the annual total body man-rem and the annual man thyroid-rem received by the U.S. population at the same time from all liquid and gaseous exposure pathways. Provide as an appendix to your response a description of the models and assumptions used in these calculations.

Response C9

Table C9-1 summarizes a comparison of calculated annual doses to individuals with the design objective contained in Section II, Paragraphs A, B, and C of Appendix I to 10CFR50.

The doses to individuals in the adult, teen, child, and infant age groups resulting from gaseous releases are reported in Tables C9-2 through C9-8.

The doses to individuals in the adult, teen, child, and infant age groups resulting from liquid releases are reported in Tables C9-9 through C9-12.

The calculated annual total body man-rem and annual man thyroid-rem to the population expected to reside in the 50 mile region at the midpoint of plant operation are summarized in Table C9-13.

Total 50 mile population doses of 0.10 man-rem-whole body and 1.6 man thyroid-rem are calculated to result from liquid effluents. Total 50 mile population doses of 0.67 man-rem-whole body and 4.4 man thyroid-rem are calculated to result from gaseous effluents.

Table C9-14 provides a summary of the population doses from ingestion of potable water and fish. These data are given in terms of adult, teen, and child age groups. A brief statement of the basis is also given in the table. Similar data are presented in Table C9-15 for the fishing and boating doses. The only substantial contributions to the 50 mile population dose from swimming and shoreline recreation are at the Lakeview Summer Camp, Selkirk State Park, and in the case of swimming, the vicinity of the mixing zone. The contributions of activity at each of these locations are reported in Tables C9-16 and C9-17. Due to the large dilution in Lake Ontario, doses due to swimming and

shoreline recreation at more distant locations are deemed to be negligible in comparison.

Table C9-18 summarizes the contributions to the 50 mile population dose from gaseous effluents. These data are based on the usage factors and dose factors reported in Regulatory Guide 1.AA (ref. 6).

The total U.S. population is not provided. The cost benefit analysis is based on the 50 mile population dose as directed by Regulatory Guide 1.FF (ref.).

Appendix C9-1 describes the models and assumptions used in all of the above referenced calculations.

Appendix C9-2 describes the Liquid Radwaste System used in these analyses. The gaseous effluents are described in Response to Request D4. Liquid effluent concentrations are described in Response to Request A3.

The potential dose from the ingestion of aquatic invertebrates is considered in computing doses to individuals (See Tables C9-9, 10, and 11). However, this is considered to be an inconsequential pathway relative to large population groups and is not considered in the population man-rem calculations. It is a small fraction of the fish contribution which has been shown to be an extremely small population dose consideration.

As can be seen from the above tables, potential pathways have been considered which result in dose contributions which are much lower than the ten percent of either the individual or population doses as requested in Request C8. No significant additional exposure pathways specific to the region around the site are known to exist.

Average Temperature

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
1935	21.5	24.5	37.6	44.4	52.6	66.2	75.4	71.0	60.2	52.6	42.2	23.3	47.6
1936	23.3	19.2	39.0	43.5	61.0	68.2	73.0	71.4	64.2	53.2	36.2	33.2	48.8
1937	33.8	29.8	28.6	45.5	59.4	67.2	73.4	75.4	61.4	50.4	41.5	28.9	49.6
1938	25.0	29.6	40.2	49.8	57.3	68.2	74.0	74.2	58.9	54.2	43.0	31.4	50.4
1939	25.6	28.2	31.2	43.1	60.8	68.4	72.6	74.2	64.6	52.0	36.8	30.4	49.0
*1940	17.2	24.4	27.2	43.0	58.4	66.1	71.3	69.4	60.0	47.3	39.2	30.3	46.1
1941	22.6	21.7	26.3	50.4	57.8	68.7	73.0	67.0	63.6	52.7	43.3	31.0	48.2
1942	24.2	20.4	37.3	50.1	60.0	67.4	70.8	68.6	62.0	52.1	39.8	23.6	48.0
1943	19.2	25.6	32.0	38.9	56.8	70.6	72.3	68.6	60.0	48.6	37.2	24.8	46.2
1944	26.0	24.5	28.8	41.2	63.2	66.6	72.2	72.2	62.4	49.6	40.6	23.8	47.6
1945	14.4	26.3	44.4	50.8	52.6	64.8	70.6	69.4	64.7	49.9	40.5	22.6	47.6
1946	25.4	23.1	43.9	44.4	55.9	65.0	69.6	65.7	63.4	54.9	44.5	30.6	48.9
1947	27.9	20.4	30.8	44.7	55.5	65.6	71.2	74.2	63.4	57.8	37.2	25.8	47.9
1948	17.6	21.3	33.0	48.6	54.2	65.8	71.9	70.0	63.0	48.8	46.7	31.2	47.7
*1949	29.4	30.6	35.4	46.8	58.4	73.2	74.6	72.8	60.0	56.2	38.0	31.6	50.6
1950	33.2	22.4	27.1	42.5	57.9	65.7	70.3	69.2	58.8	53.3	40.9	24.8	47.2
1951	26.7	25.4	35.1	46.5	58.0	65.5	71.	67.6	61.6	53.1	35.2	30.2	48.0
1952	26.8	27.5	33.2	49.5	54.2	67.3	74.7	69.9	63.8	48.2	42.5	31.8	49.1
1953	30.4	29.5	36.8	45.7	58.4	67.7	72.2	69.7	63.6	53.0	43.9	34.9	50.9
1954	20.4	33.0	33.3	48.1	56.2	68.4	70.9	67.7	61.9	55.4	40.9	27.6	48.7
1955	21.2	25.5	33.5	51.4	60.4	68.3	76.7	[illegible]	61.7	54.0	38.4	21.7	48.9
1956	22.8	27.0	28.9	42.9	53.4	67.0	68.2	69.2	58.8	52.7	41.2	33.3	47.1
1957	18.8	30.4	35.1	48.4	56.0	70.4	70.4	67.1	62.6	50.1	42.0	34.2	48.8
1958	21.4	19.9	34.9	48.3	54.5	62.5	70.3	69.1	61.9	50.4	41.9	19.4	46.1
1959	21.0	21.8	31.1	47.6	60.0	67.6	73.5	74.1	67.3	52.3	38.6	[illegible]	48.8
1960	24.7	27.0	24.4	49.5	59.8	66.6	69.4	68.7	63.8	50.0	43.8	[illegible]	47.4
1961	18.8	25.9	33.2	42.9	55.5	66.6	71.8	70.4	69.5	55.8	40.7	29.1	48.3
1962	24.1	21.5	34.8	47.5	62.3	68.3	69.2	69.1	59.7	51.2	35.5	24.5	47.3
*1963	20.8	18.4	34.2	45.6	54.7	68.6	71.7	66.1	57.2	56.3	44.9	20.8	46.4
1964	25.9	23.7	35.1	46.5	61.6	66.0	73.2	67.5	61.6	49.5	43.6	29.6	48.6
1965	20.5	24.6	30.3	42.3	59.4	63.7	67.5	69.1	62.8	47.9	38.7	32.1	46.6
1966	19.0	23.1	34.4	42.6	51.2	65.7	71.1	70.4	59.5	49.5	42.9	29.2	46.6
1967	30.6	19.2	31.6	44.9	50.2	69.5	67.7	66.6	60.7	51.8	37.6	32.7	46.9
1968	18.5	21.1	33.2	48.1	53.6	64.9	69.9	68.8	64.8	52.5	40.0	27.2	46.9
1969	24.3	23.6	30.4	46.9	55.7	64.5	69.9	71.3	63.9	51.1	40.4	23.8	47.1
1970	16.1	24.1	31.7	47.2	57.5	63.5	69.7	68.0	61.4	52.3	41.7	25.4	46.5
1971	18.5	26.9	31.2	42.8	55.8	67.9	69.0	67.1	65.6	56.6	36.9	33.2	47.6
1972	26.4	22.9	29.4	40.9	58.5	64.5	72.9	69.2	63.5	46.5	37.0	30.8	46.9
1973	28.4	21.4	42.6	46.8	54.3	69.6	72.7	73.5	62.0	53.7	40.7	29.5	49.6
1974	26.0	21.6	32.3	48.8	54.1	65.6	69.1	68.9	59.1	46.5	40.6	30.4	46.9
RECORD MEAN	24.2	23.9	33.3	45.4	56.8	66.3	71.2	69.2	62.4	51.6	40.1	28.2	47.7
MAX	31.9	31.8	41.2	54.5	66.7	76.2	81.0	78.9	71.9	60.6	47.0	34.9	56.4
MIN	16.4	16.0	25.4	36.2	46.8	56.3	61.3	59.5	52.8	42.5	33.1	21.5	39.0

Heating Degree Days

SYRACUSE, NY

Season	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Total
1954-55	4	34	138	331	[illegible]	[illegible]	1354	1099	970	400	193	22	6414
1955-56	0	6	141	361	790	1333	1307	1095	1123	636	386	49	7227
1956-57	21	9	225	373	710	979	1428	965	920	507	300	37	6474
1957-58	10	38	131	437	683	949	1345	1265	943	496	390	114	6761
1958-59	7	17	133	431	683	1408	1357	1201	1045	516	222	66	7106
1959-60	0	4	115	393	788	1045	1241	1096	1255	468	176	47	6626
1960-61	11	12	83	460	630	1273	1427	1091	977	656	317	44	6981
1961-62	14	13	70	292	724	1107	1262	1211	937	552	172	25	6370
*1962-63	6	16	185	422	875	1350	1364	1300	948	575	319	70	7330
1963-64	14	43	240	276	597	1365	1205	1190	922	546	180	39	6647
1964-65	2	30	154	475	636	1087	1370	1125	1069	676	215	132	6971
1965-66	27	30	144	521	782	1011	1422	1168	945	663	429	80	7264
1966-67	6	7	188	473	692	1104	1059	1275	1030	595	493	13	6833
1967-68	24	35	156	407	812	995	1438	1266	979	501	345	83	7038
1968-69	27	41	54	391	745	1163	1256	1152	1083	530	306	103	6837
1969-70	22	20	134	425	730	1269	1508	1139	1027	536	244	115	7169
1970-71	7	27	150	388	692	1222	1437	1069	1040	658	295	50	7035
1971-72	13	51	96	256	840	980	1189	1216	1098	731	286	86	6758
1972-73	9	23	98	567	833	1053	1128	1217	687	547	325	31	6518
1973-74	2	12	164	344	723	1096	1200	1206	1004	493	359	52	6633
1974-75	16	3	202	365	726	1069							

Cooling Degree Days

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1969	0	0	0	0	22	96	183	222	102	1	0	0	624
1970	0	0	0	8	22	74	160	127	51	3	0	0	445
1971	0	0	0	0	17	145	145	124	117	4	0	0	552
1972	0	0	0	0	9	78	262	160	61	0	0	0	570
1973	0	0	0	7	0	177	249	281	79	2	0	0	795
1974	0	0	0	14	6	77	148	128	31	1	0	0	405

Snowfall

Season	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Total
1935-36	0.0	0.0	0.0	T	[illegible]	31.3	26.4	15.5	8.8	3.5	0.0	0.0	87.0
1936-37	0.0	0.0	0.0	T	14.3	10.8	10.9	12.4	25.0	6.4	0.0	0.0	79.8
1937-38	0.0	0.0	0.0	T	3.7	10.0	15.0	11.7	9.1	11.2	0.0	0.0	60.7
1938-39	0.0	0.0	0.0	0.0	9.8	[illegible]	30.9	12.5	16.8	5.4	0.0	0.0	102.5
1939-40	0.0	0.0	0.0	T	2.8	8.4	32.2	34.3	29.3	5.3	0.0	0.0	112.7
*1940-41	0.0	0.0	0.0	0.3	12.9	8.6	23.5	15.6	32.4	0.4	0.0	0.0	93.7
1941-42	0.0	0.0	0.0	T	0.5	19.0	9.5	33.2	14.8	7.7	0.0	0.0	84.7
1942-43	0.0	0.0	0.0	1.5	8.7	13.4	18.4	19.3	8.6	6.1	0.5	0.0	76.5
1943-44	0.0	0.0	0.0	0.0	7.4	[illegible]	16.3	18.6	12.6	1.5	0.0	0.0	66.5
1944-45	0.0	0.0	0.0	T	25.4	[illegible]	39.8	14.7	1.3	0.2	1.0	0.0	128.7
1945-46	0.0	0.0	0.0	T	7.8	7.7	26.3	22.2	1.4	2.4	0.0	0.0	67.8
1946-47	0.0	0.0	0.0	0.6	0.9	25.8	11.1	26.6	38.6	5.3	1.7	0.0	110.6
1947-48	0.0	0.0	0.0	0.0	6.6	21.1	21.3	13.4	12.5	0.6	T	0.0	75.5
1948-49	0.0	0.0	0.0	T	1.8	23.1	22.2	12.5	17.0	T	0.0	0.0	76.6
*1949-50	0.0	0.0	0.0	0.0	6.5	8.9	20.2	44.1	33.9	4.4	0.0	0.0	118.0
1950-51	0.0	0.0	0.0	0.0	8.1	33.8	21.2	17.5	12.2	T	0.0	0.0	92.8
1951-52	0.0	0.0	0.0	T	15.2	30.2	14.5	21.0	11.6	T	0.0	0.0	100.5
1952-53	0.0	0.0	0.0	4.4	4.2	11.1	17.5	31.0	9.2	0.1	0.0	0.0	77.5
1953-54	0.0	0.0	0.0	0.0	7.0	19.4	22.3	19.2	18.4	3.6	0.0	0.0	85.9
1954-55	0.0	0.0	0.0	0.1	6.9	[illegible]	20.0	26.8	27.5	0.1	0.0	[illegible]	101.4
1955-56	0.0	0.0	0.0	0.8	7.8	38.2	20.2	31.6	36.0	6.2	T	0.0	140.8
1956-57	0.0	0.0	0.0	0.0	7.7	16.8	25.2	6.7	12.7	7.0	T	0.0	76.1
1957-58	0.0	0.0	0.0	T	5.0	13.5	35.6	72.6	12.5	1.9	0.0	0.0	141.1
1958-59	0.0	0.0	0.0	T	22.1	22.5	48.8	17.8	26.0	T	0.0	0.0	137.2
1959-60	0.0	0.0	0.0	T	18.8	11.6	31.6	50.5	22.9	1.6	0.0	0.0	136.8
1960-61	0.0	0.0	0.0	2.0	2.7	27.9	37.3	25.8	26.5	8.4	T	0.0	130.5
1961-62	0.0	0.0	0.0	T	9.5	22.3	13.6	25.0	1.2	5.7	0.0	0.0	77.3
1962-63	0.0	0.0	0.0	2.8	11.0	33.4	22.2	28.3	15.8	1.8	0.8	0.0	116.5
1963-64	0.0	0.0	0.0	T	4.0	28.4	18.8	16.1	15.2	1.3	0.0	0.0	83.8
1964-65	0.0	0.0	0.0	0.3	4.0	18.3	31.8	24.9	13.3	4.7	0.0	0.0	97.3
1965-66	0.0	0.0	0.0	1.8	2.7	7.1	71.0	27.0	7.8	0.5	0.9	0.0	118.8
1966-67	0.0	0.0	0.0	0.0	T	33.0	18.3	21.0	10.4	0.3	T	0.0	83.0
1967-68	0.0	0.0	0.0	T	14.4	14.4	18.5	23.2	10.7	T	0.0	0.0	81.2
1968-69	0.0	0.0	0.0	0.8	16.5	29.4	24.5	21.3	9.4	T	0.0	0.0	97.9
1969-70	0.0	0.0	0.0	1.7	9.7	52.5	21.7	23.8	12.7	1.2	0.2	0.0	123.5
1970-71	0.0	0.0	0.0	0.8	7.0	51.9	30.3	25.2	37.2	4.9	0.0	0.0	157.2
1971-72	0.0	0.0	0.0	0.0	16.7	18.3	18.2	50.0	22.7	7.8	0.0	0.0	133.7
1972-73	0.0	0.0	0.0	0.3	15.8	29.8	11.9	13.3	3.6	5.3	1.2	0.0	81.2
1973-74	0.0	0.0	0.0	T	20.6	24.4	15.5	23.7	31.2	7.8	T	0.0	123.2
1974-75	0.0	0.0	0.0	2.8	4.8	26.2							
RECORD MEAN	0.0	0.0	0.0	0.7	9.6	25.4	25.5	27.6	17.6	3.0	0.1	0.0	109.5

Precipitation

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
1935	3.46	2.25	2.63	3.51	2.48	4.38	6.14	2.59	2.86	2.73	2.24	3.79	39.06
1936	3.18	1.90	5.97	2.85	1.63	0.57	0.67	2.44	3.01	3.44	3.80	[illegible]	31.35
1937	3.68	3.14	2.68	3.51	3.23	6.59	2.85	5.83	1.39	6.83	2.66	2.74	45.13
1938	2.01	2.36	2.02	3.09	4.36	2.56	4.02	5.05	4.90	0.36	2.74	[illegible]	36.59
1939	2.74	2.86	2.67	2.59	0.35	2.21	3.08	1.40	1.58	2.79	1.18	3.15	[illegible]
*1940	1.72	5.22	5.47	3.98	4.08	3.27	2.32	1.23	1.91	1.89	3.32	3.70	[illegible]
1941	2.25	1.95	2.85	1.97	2.90	2.96	5.41	2.81	2.28	3.63	1.93	2.96	33.93
1942	1.59	3.55	4.57	2.43	3.71	2.09	2.72	2.40	3.32	2.99	3.44	6.35	39.31
1943	2.09	2.59	2.70	4.65	3.88	4.63	1.91	7.26	0.51	3.44	2.93	1.25	[illegible]
1944	1.75	2.35	2.90	3.65	3.19	5.89	1.43	2.65	2.18	1.92	4.23	3.00	[illegible]
1945	4.26	2.56	3.08	3.50	3.47	3.92	2.55	2.02	6.74	6.53	4.83	0.85	[illegible]
1946	2.56	2.72	1.57	2.14	2.43	3.85	3.24	2.61	2.85	4.78	2.20	3.14	[illegible]
1947	4.23	2.12	4.18	3.20	5.34	3.94	5.41	3.70	2.14	0.82	3.15	2.32	[illegible]
1948	1.93	2.19	2.63	4.10	3.87	3.89	2.05	2.53	1.02	1.87	4.34	3.28	[illegible]
*1949	3.29	2.04	2.34	3.60	2.37	3.08	3.10	[illegible]	4.38	1.36	2.32	2.32	34.08
1950	4.25	4.12	5.19	1.57	2.43	2.48	2.05	[illegible]	4.22	3.41	3.91	3.39	39.65
1951	2.73	5.38	4.69	3.79	1.97	4.21	5.22	3.33	3.17	1.86	3.76	4.34	[illegible]
1952	3.45	2.00	2.39	2.57	3.88	1.18	4.36	2.05	1.52	2.88	2.36	3.75	31.39
1953	2.91	2.71	3.79	2.07	4.35	1.51	1.93	2.39	2.11	1.64	1.74	2.61	29.72
1954	2.43	3.74	3.48	4.79	3.17	3.66	1.12	7.19	3.06	1.99	4.84	4.03	43.46
1955	1.61	3.32	6.84	1.81	1.90	2.43	2.85	3.80	1.87	8.29	2.69	2.53	39.94
1956	2.28	3.90	4.63	3.35	3.03	1.71	3.75	8.41	4.27	1.28	2.38	3.02	42.01
1957	2.19	1.76	2.01	2.60	2.88	4.18	8.13	3.45	2.28	0.93	1.86	2.90	33.17
1958	4.46	5.28	1.31	3.36	3.70	5.24	3.63	2.06	4.89	3.37	3.76	1.73	42.79
1959	4.59	2.22	2.93	2.51	1.97	2.53	2.54	4.48	0.93	7.15	4.34	5.01	41.20
1960	3.11	4.90	2.49	2.94	3.96	1.86	1.03	2.69	2.93	2.77	1.68	1.86	32.21
1961	2.30	4.14	4.22	3.74	2.40	3.68	5.08	1.78	1.21	3.59	2.99	2.45	37.58
1962	2.87	2.96	1.96	3.57	1.05	1.10	2.74	4.63	1.99	3.30	2.22	2.25	30.64
1963	1.89	2.05	2.79	2.27	2.84	2.49	1.21	3.39	0.85	0.21	5.45	2.06	27.81
1964	2.18	1.13	3.89	3.68	2.31	1.41	2.15	3.09	0.79	1.32	2.20	2.87	27.10
1965	2.28	2.82	1.63	3.53	1.61	2.04	1.34	1.95	3.60	2.70	2.97	1.92	28.39
1966	3.98	2.96	2.27	3.05	1.79	2.73	2.09	2.04	4.75	0.90	2.05	3.93	33.14
1967	1.47	1.49	1.34	2.11	3.33	1.56	6.33	5.00	2.73	3.32	4.48	2.66	36.02
1968	2.08	1.10	3.13	2.40	3.48	6.14	3.77	4.17	7.43	3.81	4.07	4.67	44.23
1969	3.37	1.49	1.08	3.93	4.34	3.74	0.90	1.77	1.13	2.30	4.56	3.42	32.05
1970	1.02	1.84	2.45	3.68	2.79	2.93	4.42	4.07	4.33	2.84	3.53	3.33	38.23
1971	1.90	4.07	2.90	2.19	3.40	3.26	6.49	4.01	2.56	1.02	3.52	3.26	39.18
1972	1.10	2.87	2.49	4.03	6.19	12.30	3.45	3.76	4.12	4.36	6.79	3.95	55.41
1973	1.85	1.71	3.49	6.91	5.58	7.07	3.62	2.97	[illegible]	3.81	6.73	4.38	52.65
1974	2.08	1.70	4.34	3.09	5.78	4.67	9.52	4.60	4.45	1.38	4.95	3.47	50.23
RECORD MEAN	2.69	2.60	3.11	3.05	3.00	3.37	3.39	3.27	2.84	2.97	2.93	2.61	36.33

* Indicates a station move or relocation of instruments. See Station location tables

Record mean values above are means through the current year for the period beginning in 1902 for temperature and precipitation, 1950 for snowfall. Data are from City Office locations through 8-14-40

TABLE B2-2 (cont'd)
LOCAL CLIMATOLOGICAL SUMMARIES
FOR SYRACUSE AND ROCHESTER 1974

TABLE B2-2 (cont'd)
LOCAL CLIMATOLOGICAL SUMMARIES
FOR SYRACUSE AND ROCHESTER 1974

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

Meteorological Data For The Current Year

Station: ROCHESTER, NEW YORK ROCHESTER-MONROE COUNTY AP Standard time used: EASTERN Latitude: 43° 07' N Longitude: 77° 40' W Elevation (ground): 547 feet Year: 1974

Month	Temperature °F Averages Daily maximum	Daily minimum	Monthly	Extremes Highest	Date	Lowest	Date	Degree days Base 65 °F Heating	Cooling	Precipitation in inches Water equivalent Total	Greatest in 24 hrs.	Date	Snow, Ice pellets Total	Greatest in 24 hrs.	Date
JAN	35.2	19.0	27.1	62	27	0	18	1167	0	1.75	0.55	28	14.4	6.5	9
FEB	30.6	14.3	22.5	57	22	-3	5	1187	0	2.06	0.80	22	26.6	6.2	6-7
MAR	41.1	24.9	33.0	69	4	4	25	983	0	3.61	0.81	17	22.3	10.5	17-18
APR	61.1	37.7	49.4	86	28	16	10	475	13	2.60	0.55	7	8.2	4.7	9
† MAY	64.4	43.3	53.9	94	14	29	8	352	14	6.62	3.85	16-17	T	† T	7
JUN	76.0	55.4	65.7	89	10	46	2	59	88	2.59	0.85	21	0.0	0.0	
JUL	82.9	59.7	71.3	94	14	48	21	1	204	2.82	1.19	29-30	0.0	0.0	
AUG	81.5	59.7	70.6	91	21	52	25	1	181	3.64	2.35	3-4	0.0	0.0	
SEP	69.5	48.8	59.2	83	13	35	24	209	40	3.48	1.14	3	0.0	0.0	
OCT	58.9	36.3	47.6	80	6	21	21	535	0	1.34	0.53	14	0.3	0.3	20
NOV	46.7	32.3	39.5	74	1	10	26	755	0	3.23	0.88	20	4.6	2.2	25
DEC	35.5	27.2	31.4	47	23	17	5	1034	0	2.86	0.75	2	26.5	7.5	2-3
YEAR	57.0	38.2	47.6	94	JUL 14	-3	FEB 5	6758	540	36.60	3.85	MAY 16-17	102.9	10.5	MAR 17-18

Month	Relative humidity, pct. Hour 01 (Local time)	Hour 07	Hour 13	Hour 19	Wind Resultant Direction	Speed m.p.h.	Average speed m.p.h.	Fastest mile Speed m.p.h.	Direction	Date	Percent of possible sunshine	Average sky cover, tenths, sunrise to sunset	Number of days Sunrise to sunset Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Ice pellets 1.0 inch or more	Thunderstorms	Heavy fog, visibility ¼ mile or less	Temperature °F Maximum (b) 90° and above	32° and below	Minimum 32° and below	0° and below	Average station pressure mb Elev. 555 feet m.s.l.
JAN	85	82	72	80	25	5.3	10.4	45	SW	27	30	8.5	2	5	24	20	6	0	1	0	14	27	1	999.0
FEB	78	79	66	74	27	3.8	10.5	41	SW	23	35	8.5	1	6	21	14	9	0	0	0	16	25	3	995.3
MAR	73	74	61	67	27	5.0	12.3	43	W	17	41	7.8	4	6	21	16	6	0	2	0	5	24	0	994.9
APR	73	72	52	63	25	6.6	11.6	44	SW	15	55	7.1	7	3	20	15	2	4	0	0	2	11	0	994.9
† MAY	79	78	58	64	25	5.2	10.1	38	W	1	57	7.1	5	9	17	16	0	3	1	1	0	4	0	993.9
JUN	85	83	59	66	23	3.5	8.3	30	SW	11	58	7.1	4	11	15	11	0	6	0	0	0	0	0	994.6
JUL	78	81	53	59	26	5.2	9.0	28	W	2	70	6.1	8	11	12	6	0	6	0	5	0	0	0	996.6
AUG	88	90	59	71	23	3.8	6.8	33	S	2	67	6.5	5	12	14	9	0	5	0	1	0	0	0	998.6
SEP	89	90	64	75	24	4.7	8.7	33	W	29	52	6.8	6	8	16	12	0	3	1	0	0	0	0	998.0
OCT	76	81	57	70	25	5.6	9.4	32	W	17	50	7.2	5	9	17	10	0	1	0	0	0	9	0	1002.7
NOV	84	85	73	81	25	4.2	10.0	35	SW	14	27	8.6	2	3	25	16	2	1	1	0	5	15	0	995.6
DEC	85	84	80	84	24	4.9	10.2	31	NE	2	22	8.6	2	4	25	19	9	0	0	0	7	27	0	995.3
YEAR	81	82	63	71	25	4.7	9.8	45	SW	JAN 27	50	7.5	51	87	227	164	34	29	6	7	49	142	4	996.6

† DATA CORRECTED AFTER PUBLICATION OF THE MONTHLY ISSUE.

Normals, Means, And Extremes

Month	Temperatures °F Normal Daily maximum	Daily minimum	Monthly	Extremes Record highest	Year	Record lowest	Year	Normal Degree days Base 65 °F Heating	Cooling	Precipitation in inches Water equivalent Normal	Maximum monthly	Year	Minimum monthly	Year	Maximum in 24 hrs.	Year	Snow, Ice pellets Maximum monthly	Year	Maximum in 24 hrs.	Year
(a)				11		11					34		34		34		34		34	
J	31.3	16.7	24.0	68	1967	-11	1968	1271	0	2.25	4.10	1966	0.81	1946	1.64	1966	60.2	1966	18.2	1966
F	32.6	16.9	24.8	64	1965	-8	1970	1126	0	2.42	5.07	1950	0.74	1968	2.43	1950	64.8	1958	18.7	1960
M	41.1	24.9	33.0	79	1966	-2	1967	992	0	2.57	5.42	1942	0.47	1958	2.21	1942	40.3	1959	17.6	1959
A	56.0	36.1	46.1	93	1970	14	1970	567	0	2.74	4.90	1944	1.28	1971	1.99	1943	8.2	1974	6.4	1972
M	67.2	45.7	56.5	94	1974	26	1970	285	22	2.80	6.62	1974	0.50	1965	3.85	1974	2.0	1945	2.0	1945
J	78.0	55.8	66.9	96	1964	36	1972	46	103	2.54	6.56	1972	0.22	1963	2.86	1950	0.0		0.0	
J	82.2	60.2	71.2	98	1966	42	1963	9	202	2.89	9.70	1947	0.98	1955	2.94	1947	0.0		0.0	
A	80.1	58.5	69.3	96	1965	36	1965	26	159	2.97	5.95	1968	0.76	1951	2.39	1968	T	1965	T	1965
S	73.1	51.5	62.3	95	1973	30	1963	126	45	2.35	5.21	1945	0.28	1960	2.61	1959	T	1956	T	1956
O	62.4	42.2	52.3	86	1971	20	1972	398	5	2.62	7.85	1955	0.23	1963	2.52	1945	1.4	1960	1.4	1960
N	47.9	33.1	40.5	79	1971	5	1971	735	0	2.83	5.51	1950	0.73	1960	3.13	1945	16.9	1972	11.2	1953
D	34.9	21.7	28.3	68	1966	-5	1969	1138	0	2.35	5.05	1944	0.62	1958	1.59	1944	44.2	1970	17.8	1944
YR	57.2	38.6	47.9	98	JUL 1966	-11	JAN 1968	6719	536	31.33	9.70	JUL 1947	0.22	JUN 1963	3.85	MAY 1974	64.8	FEB 1958	18.7	FEB 1960

Month	Relative humidity pct. Hour 01 (Local time)	Hour 07	Hour 13	Hour 19	Wind Mean speed m.p.h.	Prevailing direction	Fastest mile Speed m.p.h.	Direction	Year	Pct. of possible sunshine	Mean sky cover, tenths, sunrise to sunset	Mean number of days Sunrise to sunset Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Ice pellets 1.0 inch or more	Thunderstorms	Heavy fog, visibility ¼ mile or less	Temperatures °F Max. (b) 90° and above	32° and below	Min. 32° and below	0° and below	Average station pressure mb. Elev. 555 feet m.s.l.
(a)	11	11	11	11	34	23	34	34		34	34	34	34	34	34	34	34	34	11	11	11	11	2
J	74	74	67	72	11.7	WSW	73	W	1950	37	8.1	2	7	22	17	7	*	1	0	16	29	3	998.2
F	74	75	65	71	11.6	WSW	66	W	1956	43	7.9	2	7	19	15	7	*	1	0	14	26	2	998.4
M	75	77	62	69	11.1	WSW	65	W	1956	50	7.3	5	8	18	15	4	1	1	0	7	24	*	995.8
A	74	76	53	60	10.6	WSW	59	W	1946	55	6.7	6	8	16	13	1	2	1	*	*	11	0	994.1
M	77	76	54	59	9.3	WSW	63	SW	1950	59	6.6	6	10	15	12	*	4	1	*	0	1	0	992.9
J	81	78	54	60	8.4	SW	61	SW	1949	67	5.9	7	12	11	10	0	5	1	3	0	0	0	994.8
J	82	81	52	59	7.9	SW	56	W	1956	70	5.6	8	13	10	9	0	6	1	5	0	0	0	996.1
A	86	87	55	66	7.6	SW	59	NE	1955	68	5.7	8	13	10	9	0	6	1	2	0	0	0	997.8
S	86	87	59	73	8.0	SW	59	SW	1949	61	5.9	7	12	11	10	0	3	1	1	0	0	0	998.3
O	80	83	59	73	8.7	SW	50	NW	1941	51	6.4	7	9	15	11	*	1	2	0	0	4	0	1000.2
N	80	81	69	78	10.2	WSW	59	E	1950	32	8.2	2	6	22	15	2	*	1	0	2	15	0	995.5
D	80	81	75	79	10.7	WSW	56	W	1949	31	8.3	2	5	24	17	6	*	1	0	10	25	1	996.5
YR	79	80	60	68	9.6	WSW	73	W	JAN 1950	54	6.9	62	110	193	154	27	29	13	11	49	135	6	996.6

Means and extremes above are from existing and comparable exposures. Annual extremes have been exceeded at other sites in the locality as follows: Highest temperature 102 in July 1936; lowest temperature -22 in February 1934; minimum monthly precipitation 0.08 in October 1924; maximum precipitation in 24 hours 4.19 in August 1893; maximum snowfall in 24 hours 29.8 in March 1900.

(a) Length of record, years, through the current year unless otherwise noted, based on January data.
(b) 70° and above at Alaskan stations.
* Less than one half.
T Trace.

NORMALS - Based on record for the 1941-1970 period.
DATE OF AN EXTREME - The most recent in cases of multiple occurrence.
PREVAILING WIND DIRECTION - Record through 1963.
WIND DIRECTION - Numerals indicate tens of degrees clockwise from true north. 00 indicates calm.
FASTEST MILE WIND - Speed is fastest observed 1-minute value when the direction is in tens of degrees.

Average Temperature

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
1935	23.2	24.4	37.4	44.4	52.6	65.8	73.6	70.3	60.4	52.4	42.0	24.4	47.8
1936	23.8	18.8	37.3	41.9	60.2	67.3	72.7	70.6	64.8	52.4	35.0	34.2	48.2
1937	33.2	29.2	28.4	44.8	58.1	66.8	72.8	74.2	61.2	48.9	40.2	28.2	48.8
1938	24.8	29.6	40.4	47.8	56.9	67.8	73.6	73.6	59.5	54.4	42.7	31.0	50.2
1939	26.0	27.1	31.2	42.0	59.8	67.6	72.2	73.4	64.6	52.0	37.9	31.8	48.6
#1940	18.4	24.8	27.4	42.4	57.8	66.0	72.0	70.0	61.6	47.3	38.9	30.8	46.4
1941	22.8	22.4	25.2	49.7	58.2	66.7	73.9	67.4	64.1	52.8	43.1	31.8	48.2
1942	24.4	20.4	35.6	50.1	59.8	67.8	71.0	69.2	62.9	52.4	39.4	24.4	48.1
1943	20.4	26.4	31.8	38.6	56.2	70.8	71.8	68.4	60.6	48.6	37.0	25.4	46.3
1944	28.6	24.0	29.7	40.2	63.2	67.0	72.6	72.5	62.6	49.4	40.7	23.2	47.8
1945	15.2	25.1	43.6	50.4	51.2	64.6	70.2	69.3	64.5	50.0	40.6	23.8	47.3
1946	26.2	23.4	43.2	44.4	55.6	65.2	70.5	65.8	64.0	56.8	43.7	30.6	49.1
1947	29.2	21.6	30.0	44.5	54.2	66.2	70.0	73.0	65.8	59.4	37.4	28.7	48.2
1948	18.4	23.1	34.1	49.0	53.4	65.3	72.2	70.2	64.1	49.0	46.2	31.2	48.0
1949	30.2	30.6	34.2	48.0	58.6	73.0	74.0	72.0	58.8	55.8	37.4	31.8	50.2
1950	33.3	26.4	27.6	44.8	57.1	65.9	69.6	68.6	59.9	54.0	39.6	30.5	47.8
1951	27.6	28.1	35.4	49.7	58.1	66.3	70.8	67.9	61.6	55.9	34.2	30.0	48.1
1952	27.7	28.6	35.1	48.8	54.3	68.1	73.8	70.7	64.5	47.1	42.8	33.4	49.6
1953	30.6	30.5	36.8	44.6	57.5	68.2	72.1	69.7	63.0	55.0	43.9	34.0	50.3
1954	22.6	32.1	32.1	47.0	56.9	68.1	69.9	66.9	61.3	54.1	41.3	27.7	48.2
1955	23.5	25.8	33.1	50.8	59.6	67.5	75.4	73.9	61.0	53.5	37.7	24.4	48.9
1956	23.1	26.9	28.7	42.2	52.4	66.6	68.2	68.2	58.0	53.8	41.0	32.7	46.8
1957	19.4	29.9	34.4	48.4	55.4	69.4	69.9	66.6	61.2	49.4	40.7	34.2	48.3
1958	23.9	19.4	33.6	47.9	54.3	61.4	70.4	68.2	61.9	51.2	41.5	21.4	46.2
1959	21.9	22.6	30.8	46.6	59.4	67.5	72.5	74.5	66.6	51.9	37.9	30.9	48.5
1960	24.6	26.1	22.4	48.6	58.7	65.6	68.5	67.7	64.9	50.2	43.2	23.5	[illegible]
1961	19.4	27.5	34.5	41.7	53.9	65.4	70.6	69.9	68.9	55.5	40.6	29.6	48.1
1962	22.9	21.4	33.5	45.7	62.4	66.0	67.6	68.9	58.9	51.8	36.9	26.0	46.8
#1963	19.5	17.9	35.7	46.2	54.3	67.1	70.9	65.5	56.7	57.3	44.3	21.7	46.4
1964	28.3	24.0	34.4	47.2	60.3	65.8	73.8	66.2	61.2	48.7	42.3	29.6	48.5
1965	21.6	25.7	29.9	41.5	60.1	64.4	67.5	68.4	63.8	48.8	39.8	34.6	47.1
1966	22.6	25.5	36.6	44.4	53.0	67.6	73.0	68.9	59.2	50.1	43.5	30.8	48.0
1967	31.1	21.4	32.9	46.4	49.1	70.4	69.4	67.6	60.4	52.1	36.3	32.3	47.6
1968	19.8	20.8	36.0	49.5	53.2	64.7	70.7	69.4	64.8	53.8	41.2	27.7	47.6
1969	25.2	26.0	32.0	47.6	55.6	65.0	70.7	72.0	63.6	50.9	40.1	25.1	47.8
1970	18.0	23.7	30.8	48.6	59.5	68.1	72.2	70.1	63.0	53.9	41.4	25.5	47.9
1971	19.5	26.9	28.5	41.1	54.0	67.5	68.8	68.8	67.4	59.0	38.4	30.9	47.6
1972	26.0	23.4	30.5	42.2	60.4	65.2	73.0	69.8	64.3	47.6	37.0	33.1	47.7
1973	28.7	22.2	42.5	48.0	56.1	70.7	73.4	73.0	62.5	55.0	43.0	31.2	50.5
1974	27.1	22.5	35.0	49.4	53.9	65.7	71.3	70.6	59.2	47.6	39.5	31.4	47.6
RECORD MEAN	24.6	24.5	32.7	45.0	56.6	66.5	71.3	69.3	62.7	51.5	39.7	29.0	47.8
MAX	31.7	31.8	40.2	55.9	66.4	76.5	81.1	78.8	72.3	60.3	46.4	35.2	56.2
MIN	17.9	17.1	25.1	36.1	46.8	56.4	61.4	59.7	53.1	42.7	33.8	22.8	39.3

Heating Degree Days

ROCHESTER, NY

Season	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Total
954-55	9	37	157	359	701	1152	1282	1092	986	420	205	33	6433
1955-56	0	9	169	357	812	1251	1296	1101	1118	677	407	72	7269
1956-57	19	27	239	242	715	993	1408	979	944	520	311	48	6545
1957-58	17	49	198	477	721	948	1266	1260	965	509	337	131	6869
1958-59	5	31	139	428	760	1344	1327	1182	1072	548	233	67	7075
1959-60	0	3	126	407	806	1032	1244	1122	1313	491	212	56	6832
1960-61	22	24	83	452	647	1280	1410	1045	965	602	366	64	7030
1961-62	28	[illegible]	82	302	728	1092	1296	1219	969	589	181	52	6535
#1962-63	10	21	209	409	836	1202	1412	1309	902	556	352	31	7249
1963-64	24	82	253	267	615	1335	1132	1181	990	526	187	98	6559
1964-65	3	48	169	300	676	1090	1337	1096	1095	706	102	116	7024
1965-66	26	33	122	496	748	937	1307	1098	871	612	388	87	6787
1966-67	0	16	190	458	639	1053	1046	1216	908	531	486	8	6661
1967-68	83	28	166	401	856	1003	1309	1273	896	483	337	78	6943
1968-69	13	36	67	309	719	1180	1289	1057	1013	517	308	66	6581
1969-70	18	10	180	437	737	1231	1446	1169	1033	500	206	49	6973
1970-71	3	11	126	349	690	1218	1405	1059	1128	707	348	69	7000
1971-72	17	33	76	196	702	1048	1200	1199	1071	677	161	78	6544
1972-73	7	24	92	326	835	982	1118	1189	890	519	270	17	6286
1973-74	2	14	162	205	652	1040	1167	1187	982	475	332	39	6309
1974-75	1	1	209	335	795	1034							

Cooling Degree Days

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1969	0	0	0	0	18	94	202	233	92	7	0	0	646
1970	0	0	0	16	47	148	233	176	69	13	0	0	704
1971	0	0	0	0	10	133	143	139	155	15	0	0	615
1972	0	0	0	0	24	94	261	179	79	0	0	0	637
1973	0	0	0	12	6	196	267	269	90	4	0	0	831
1974	0	0	0	12	14	88	206	181	40	0	0	0	540

Snowfall

Season	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Total
1935-36	0.0	0.0	0.0	T	[illegible]	28.6	28.0	11.9	19.2	2.8	0.0	0.0	90.0
1936-37	0.0	0.0	0.0	T	9.2	12.2	7.6	6.1	30.0	1.0	0.0	0.0	65.9
1937-38	0.0	0.0	0.0	0.2	5.7	8.1	12.7	16.9	4.8	0.3	0.0	0.0	54.7
1938-39	0.0	0.0	0.0	0.0	7.2	8.3	34.6	11.7	13.0	3.9	0.0	0.0	79.1
1939-40	0.0	0.0	0.0	T	0.1	2.6	9.3	23.0	15.8	3.7	0.0	0.0	54.5
#1940-41	0.0	0.0	0.0	T	13.8	7.0	13.0	20.2	19.6	0.4	0.0	0.0	73.7
1941-42	0.0	0.0	0.0	T	0.2	3.9	3.0	31.8	18.4	5.3	0.0	0.0	66.3
1942-43	0.0	0.0	0.0	T	5.5	18.5	17.2	17.6	10.7	1.1	T	0.0	70.6
1943-44	0.0	0.0	0.0	T	5.2	[illegible]	4.0	21.0	7.6	3.2	0.0	0.0	46.1
1944-45	0.0	0.0	0.0	T	7.7	41.8	23.5	13.9	5.6	0.6	2.0	0.0	96.7
1945-46	0.0	0.0	0.0	0.0	10.9	11.0	6.7	19.5	0.9	0.5	0.0	0.0	40.5
1946-47	0.0	0.0	0.0	T	0.1	13.6	18.6	17.8	20.7	5.3	0.2	0.0	75.5
1947-48	0.0	0.0	0.0	0.0	2.0	15.3	18.8	14.5	12.0	0.2	0.5	0.0	63.6
1948-49	0.0	0.0	0.0	T	T	12.3	14.0	10.6	13.7	T	0.0	0.0	50.6
1949-50	0.0	0.0	0.0	0.0	6.1	9.4	14.2	26.4	22.6	3.2	0.0	0.0	81.7
1950-51	0.0	0.0	0.0	0.0	10.6	19.1	27.6	10.2	8.2	T	0.0	0.0	75.8
1951-52	0.0	0.0	0.0	T	16.3	25.6	13.9	16.1	5.9	T	0.0	0.0	78.8
1952-53	0.0	0.0	0.0	T	T	7.5	11.8	17.3	3.0	2.1	0.0	0.0	41.7
1953-54	0.0	0.0	0.0	0.8	11.9	10.2	19.8	11.2	23.0	1.6	T	0.0	77.5
1954-55	0.0	0.0	0.0	T	0.1	29.4	9.1	14.5	10.4	5.7	0.0	0.0	69.2
1955-56	0.0	0.0	0.0	T	10.1	24.8	21.1	24.7	33.3	7.6	T	0.0	121.6
1956-57	0.0	0.0	T	0.0	10.0	17.7	25.6	8.0	11.7	6.2	T	0.0	79.2
1957-58	0.0	0.0	0.0	1.6	9.9	6.9	37.9	64.8	8.8	1.1	T	0.0	130.8
1958-59	0.0	0.0	0.0	0.0	13.5	12.4	46.8	27.6	40.2	0.2	T	0.0	140.6
1959-60	0.0	0.0	0.0	T	11.6	25.4	32.7	50.3	33.0	0.7	0.0	0.0	161.7
1960-61	0.0	0.0	0.0	1.4	2.8	17.9	33.6	18.8	19.5	5.6	T	0.0	89.4
1961-62	0.0	0.0	0.0	0.0	7.5	8.0	11.7	28.2	4.6	7.6	T	0.0	67.6
1962-63	0.0	0.0	0.0	0.8	6.0	14.2	23.7	22.9	6.7	1.1	1.0	0.0	76.4
1963-64	0.0	0.0	0.0	0.0	6.4	34.6	20.2	13.1	16.1	3.6	0.0	0.0	92.0
1964-65	0.0	0.0	0.0	T	5.1	11.6	26.6	19.3	15.0	1.9	0.0	0.0	71.1
1965-66	0.0	T	0.0	0.9	8.0	6.0	60.2	21.8	6.2	0.9	T	0.0	103.2
1966-67	0.0	0.0	0.0	0.0	3.0	14.4	12.7	27.6	16.0	T	0.3	0.0	74.0
1967-68	0.0	0.0	0.0	T	10.8	4.9	26.2	20.6	13.2	T	0.0	0.0	76.7
1968-69	0.0	0.0	0.0	T	8.6	22.2	23.6	17.8	4.6	1.0	0.0	0.0	78.8
1969-70	0.0	0.0	0.0	T	9.8	48.0	37.9	27.7	4.9	1.8	T	0.0	119.6
1970-71	0.0	0.0	0.0	0.2	3.0	44.2	30.1	29.7	29.7	1.2	0.0	0.0	138.7
1971-72	0.0	0.0	0.0	0.0	11.2	15.8	18.1	35.7	19.0	9.3	0.0	0.0	109.1
1972-73	0.0	0.0	0.0	0.2	16.9	22.7	8.9	18.6	4.4	1.5	T	0.0	73.0
1973-74	0.0	0.0	0.0	0.0	4.2	23.4	14.4	26.8	22.3	8.2	T	0.0	90.1
1974-75	0.0	0.0	0.0	0.3	4.6	26.5							
RECORD MEAN	0.0	T	T	0.2	6.9	18.0	21.3	22.4	16.7	2.9	0.1	0.0	88.1

Precipitation

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
1935	2.01	2.40	1.76	1.48	2.54	3.31	3.51	2.75	2.30	2.13	1.01	3.35	29.65
1936	2.88	1.57	6.55	1.83	1.87	2.30	1.24	1.25	3.16	2.31	2.19	2.93	30.08
1937	3.12	1.38	2.83	3.62	2.37	3.76	1.92	4.71	0.30	4.21	2.05	2.15	33.03
1938	1.37	3.09	1.35	2.39	2.18	1.56	3.62	4.89	5.27	0.14	2.10	1.84	29.10
1939	3.39	2.07	2.38	2.59	0.64	3.28	1.91	1.05	2.54	1.53	0.46	1.97	25.19
#1940	1.26	3.08	2.92	3.30	2.75	2.52	1.82	1.28	2.33	1.52	2.98	2.84	28.60
1941	1.95	1.50	2.20	1.51	1.22	1.76	3.05	2.04	2.09	3.32	1.05	2.24	24.02
1942	1.28	4.51	5.42	2.60	3.53	1.03	2.84	1.66	2.72	3.22	3.40	4.48	36.67
1943	2.06	2.05	2.59	4.81	5.45	4.22	2.90	3.31	1.62	4.51	1.91	0.77	36.40
1944	1.18	2.91	2.17	4.90	2.64	3.48	1.78	2.71	1.90	1.17	2.29	5.08	32.07
1945	2.50	2.31	3.87	2.16	4.45	2.40	8.08	1.43	5.21	4.39	5.10	2.00	44.10
1946	0.81	2.70	0.77	1.41	2.82	3.21	2.01	3.02	2.71	3.79	2.36	2.01	29.62
1947	4.04	1.05	2.92	4.34	5.06	4.08	9.70	2.42	2.84	0.36	2.59	2.02	41.46
1948	2.37	2.30	2.91	3.26	3.39	2.76	2.36	1.82	1.54	2.66	2.92	1.63	30.12
1949	2.86	1.68	1.89	2.11	2.08	1.41	2.94	2.93	2.77	0.77	3.30	1.95	26.39
1950	3.71	5.07	4.28	1.87	2.81	4.00	3.53	2.50	1.81	3.08	5.51	1.97	40.34
1951	2.89	2.78	3.09	3.59	1.82	4.43	4.08	0.76	2.26	1.78	3.77	3.16	36.21
1952	2.47	2.53	2.70	2.60	3.43	0.81	2.69	1.43	2.90	1.37	2.39	1.82	27.14
1953	2.47	1.60	3.38	1.50	4.16	1.70	1.61	4.19	3.35	1.46	2.85	1.97	30.38
1954	1.55	2.47	4.09	2.75	1.59	2.03	1.41	3.74	1.93	4.53	2.51	3.38	31.98
1955	1.03	1.71	4.25	3.06	1.51	1.09	0.98	5.27	1.63	7.85	1.92	1.73	32.03
1956	2.09	3.23	3.41	4.14	3.83	0.97	2.91	5.67	3.58	0.94	1.47	2.16	34.40
1957	2.02	1.56	1.79	2.77	2.98	3.03	2.24	0.96	2.46	0.97	1.81	1.92	25.67
1958	2.92	4.20	0.47	3.10	1.89	4.58	4.17	2.56	3.55	4.95	2.79	0.62	35.80
1959	3.67	2.70	2.28	1.91	2.21	2.06	1.63	2.30	2.72	4.07	1.84	4.64	32.23
1960	2.82	4.46	1.64	1.87	3.72	3.05	1.39	4.05	0.26	1.72	0.73	1.03	26.76
1961	1.10	3.21	2.70	4.07	2.96	3.76	2.41	3.09	0.39	1.58	3.99	1.43	30.91
1962	1.64	2.87	1.29	2.62	2.70	3.02	1.89	3.53	4.01	1.95	1.99	1.58	29.23
1963	1.24	1.43	2.51	2.74	2.33	0.22	2.72	3.26	1.17	0.23	4.32	1.90	24.09
1964	1.90	0.89	2.89	3.36	2.77	1.13	1.32	2.76	0.38	0.76	1.60	2.04	22.45
1965	3.05	2.24	2.07	1.85	0.50	0.66	1.46	2.94	1.98	2.82	3.40	2.21	25.16
1966	4.10	2.51	1.42	2.04	1.26	1.65	2.77	2.14	2.47	0.68	3.12	1.75	26.11
1967	0.94	1.67	1.31	1.69	2.74	1.37	2.68	4.64	3.04	4.35	2.09	1.52	29.04
1968	1.91	0.74	2.34	1.33	2.64	2.84	1.42	5.93	1.80	2.89	4.28	3.31	31.75
1969	2.48	0.91	1.16	3.48	2.25	4.69	1.83	1.82	1.77	1.69	3.42	3.66	29.16
1970	1.80	2.28	1.49	2.38	3.03	3.74	4.91	3.08	2.40	3.96	3.50	4.12	37.78
1971	2.66	4.21	3.49	1.28	1.71	3.32	3.59	3.16	1.79	1.34	1.96	3.69	34.16
1972	1.30	3.96	2.19	2.68	3.32	6.56	1.43	3.14	3.84	2.25	4.83	2.58	38.28
1973	1.28	1.70	2.92	3.21	2.68	2.84	1.14	1.94	1.41	2.67	3.82	3.02	29.23
1974	1.79	2.06	3.61	2.60	6.02	2.59	2.02	3.64	3.48	1.34	3.25	2.86	36.60
RECORD MEAN	2.40	2.41	2.63	2.98	2.93	2.98	3.09	2.83	2.66	2.75	2.70	2.56	32.62

# Indicates a station move or relocation of instruments. See Station Location table.

Record mean values above are means through the current year for the period beginning in 1872 for temperature, 1829 for precipitation and 1941 for snowfall. Data are from City Office locations through September 1940 except through October 1940 for Precipitation and Snowfall.

TABLE B2-2 (cont'd)
LOCAL CLIMATOLOGICAL SUMMARIES
FOR SYRACUSE AND ROCHESTER 1974

FIGURE B2-1
MEAN SPRING MIXING HEIGHTS

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

(meters x 100)

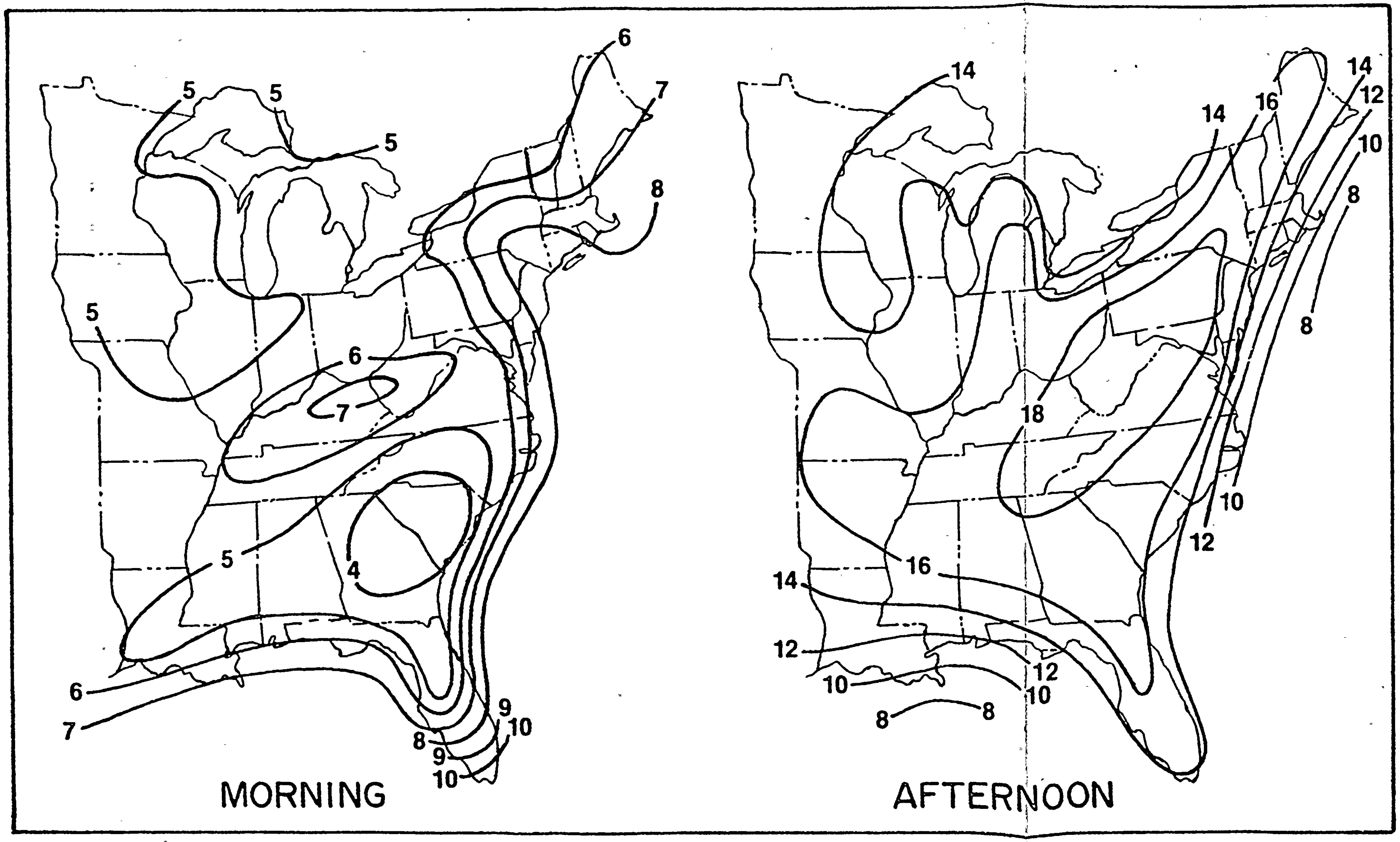


FIGURE B2-2
MEAN SUMMER MIXING HEIGHTS

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

(meters x 100)

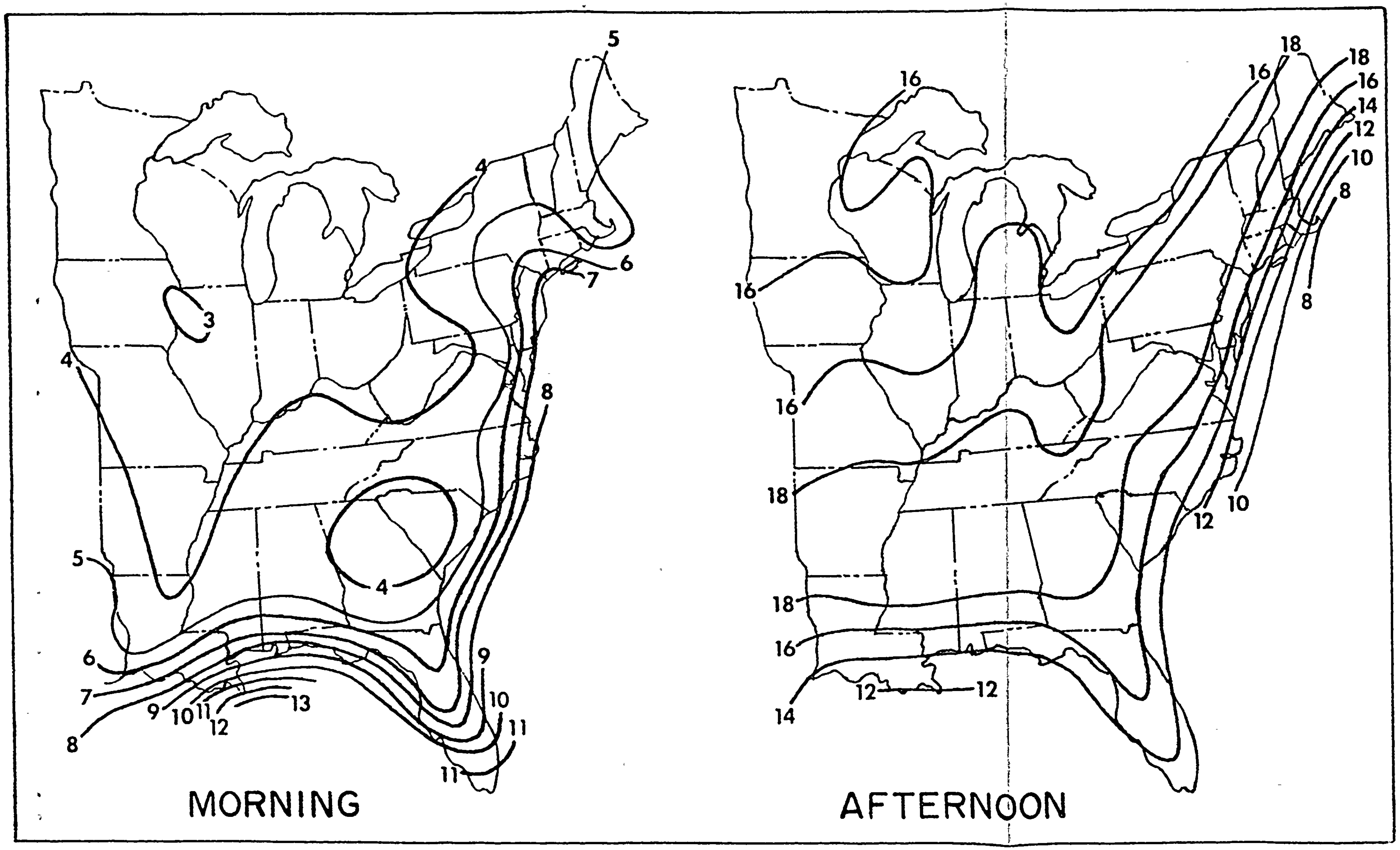


FIGURE B2-3
MEAN AUTUMN MIXING HEIGHTS

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

(meters x 100)

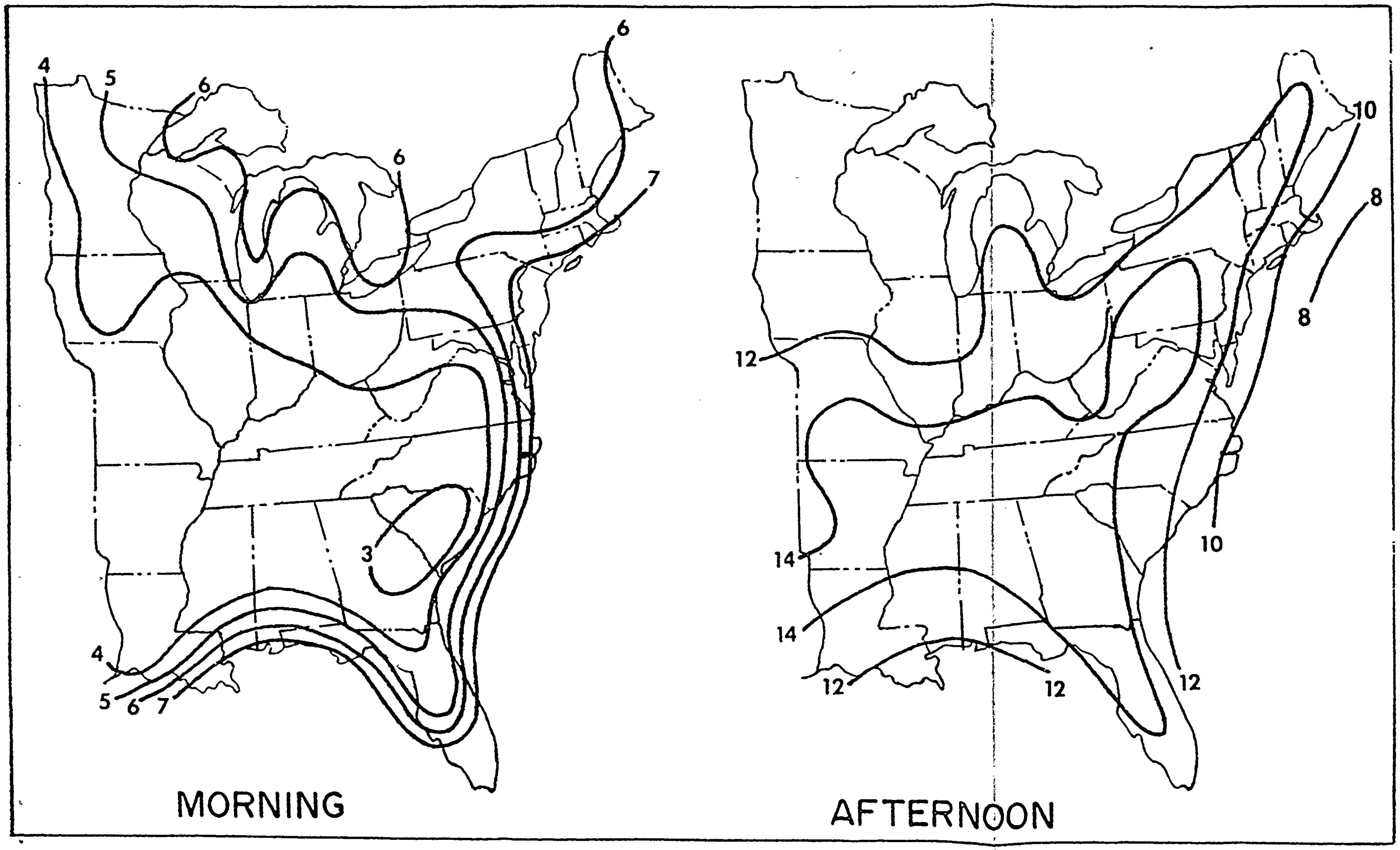


FIGURE B2-4
MEAN WINTER MIXING HEIGHTS

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

(meters x 100)

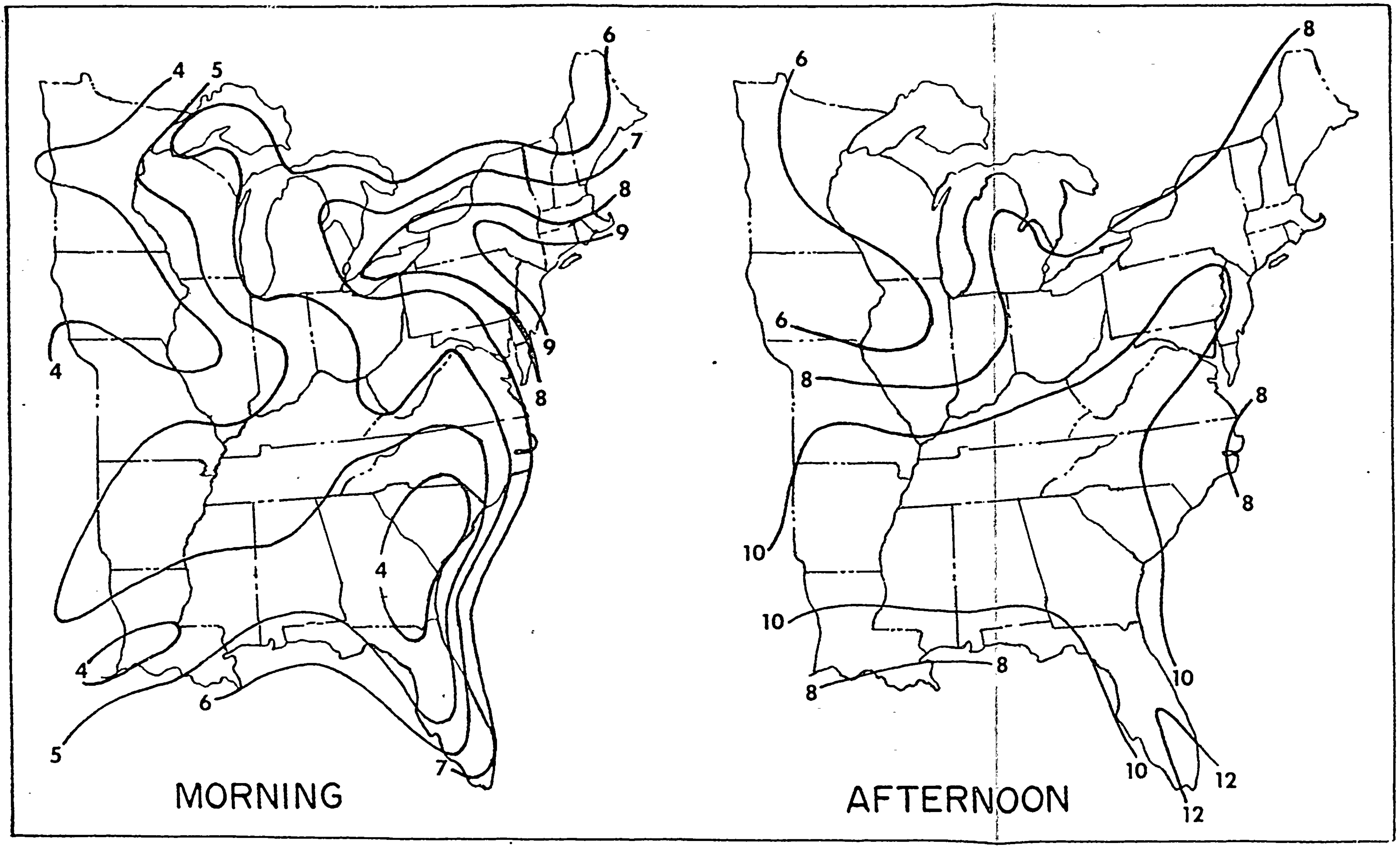
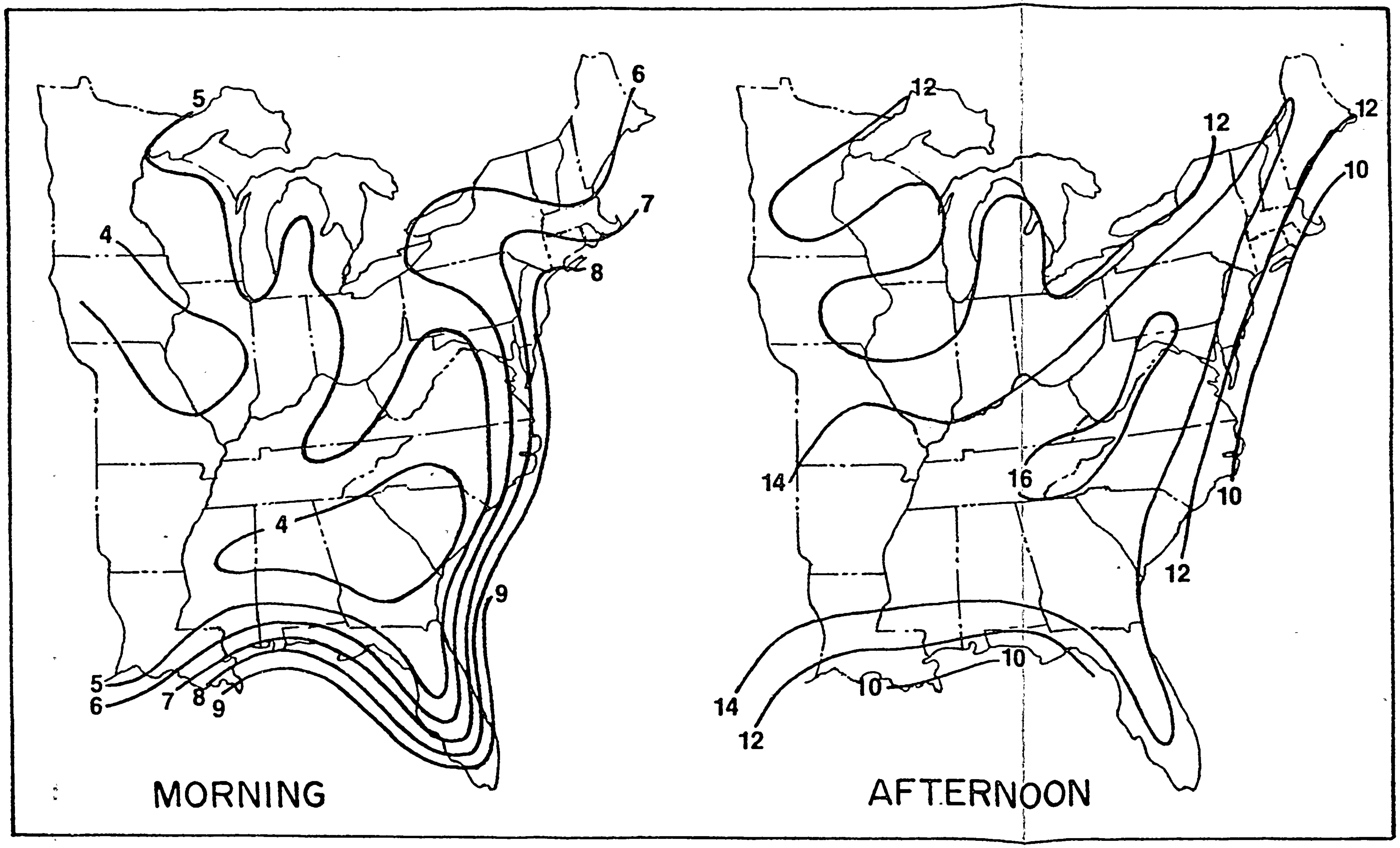


FIGURE B2-5
MEAN ANNUAL MIXING HEIGHTS

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

(meters x 100)



Request B3

Provide the following topographical information:

a. A map showing the detailed topographic features (as modified by the plant) on a large scale within a 5-mile radius of the plant, and a smaller scale map showing topography within a 50-mile radius of the plant.

b. A plot of the maximum topographic elevation versus distance from the center of the plant in each of the sixteen 22-1/2 degree cardinal compass point sectors (centered on true north, etc.), radiating from the center of the plant, to a distance of 50 miles.

Response B3

a. The topographic map within a 5-mile radius is shown in Figure 2.7-14 of the Nine Mile Point Nuclear Station Unit 2 Preliminary Safety Analysis Report, (ref. 1). The smaller scale topographic map is shown in Figure B3a-1.

b. The plots showing the maximum topographic elevation versus distance from the center of the plant are shown in Figures B3b-1 through B3b-4.

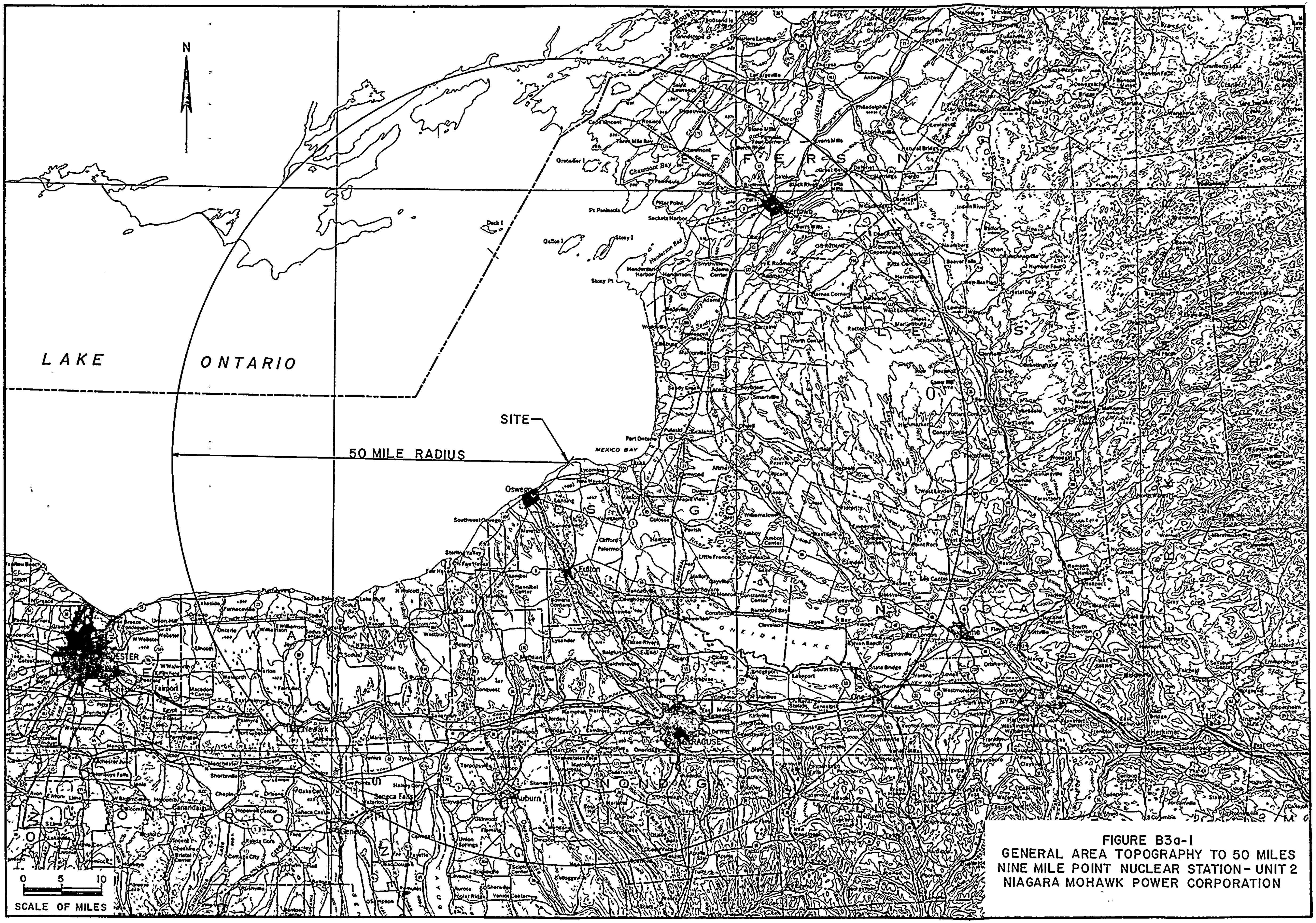


FIGURE B3a-1
GENERAL AREA TOPOGRAPHY TO 50 MILES
NINE MILE POINT NUCLEAR STATION - UNIT 2
NIAGARA MOHAWK POWER CORPORATION

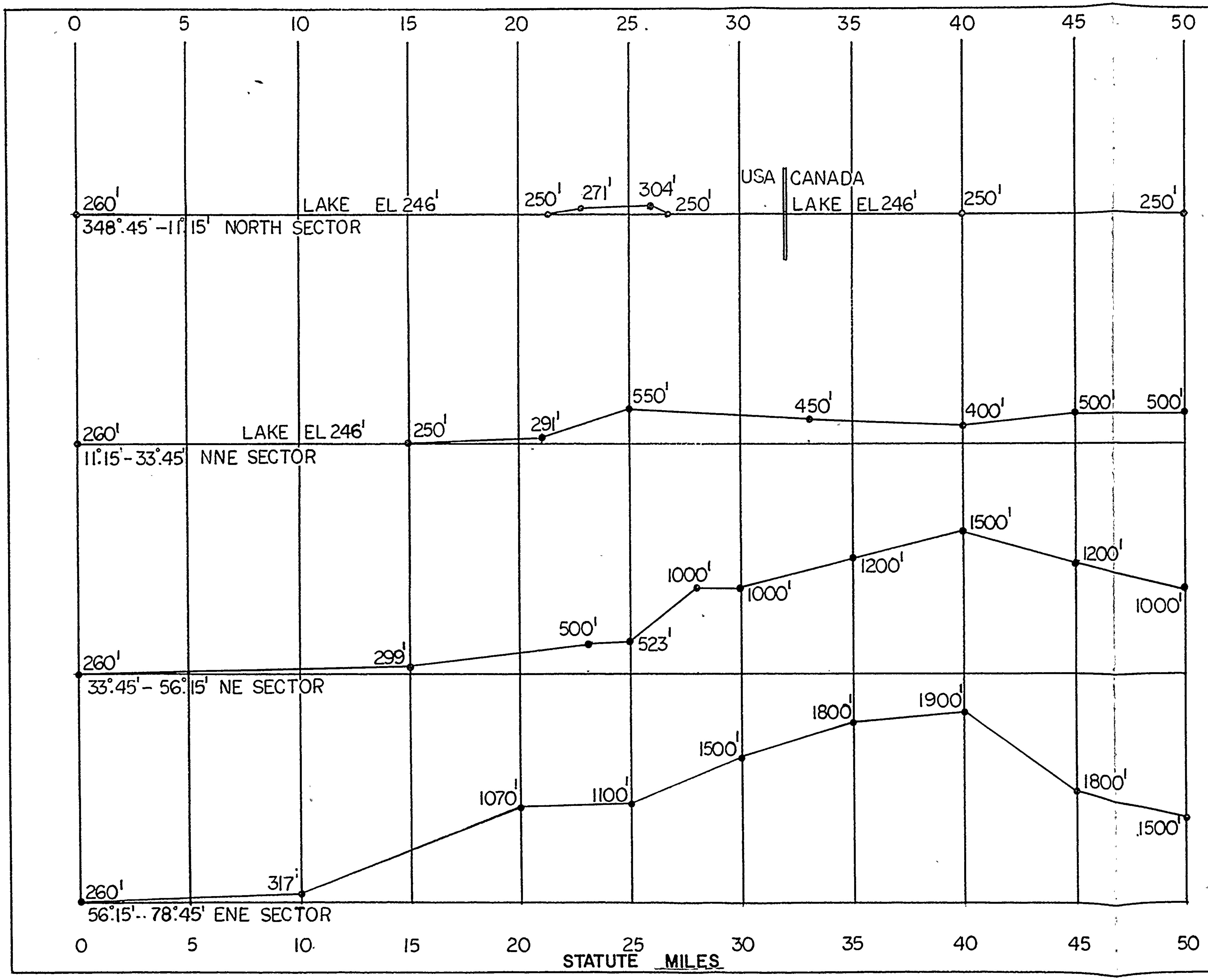


Figure B3 b-1

MAXIMUM TOPOGRAPHIC ELEVATIONS (NORTHEAST QUADRANT)

NINE MILE POINT NUCLEAR STATION-UNIT 2
NIAGARA MOHAWK POWER CORPORATION

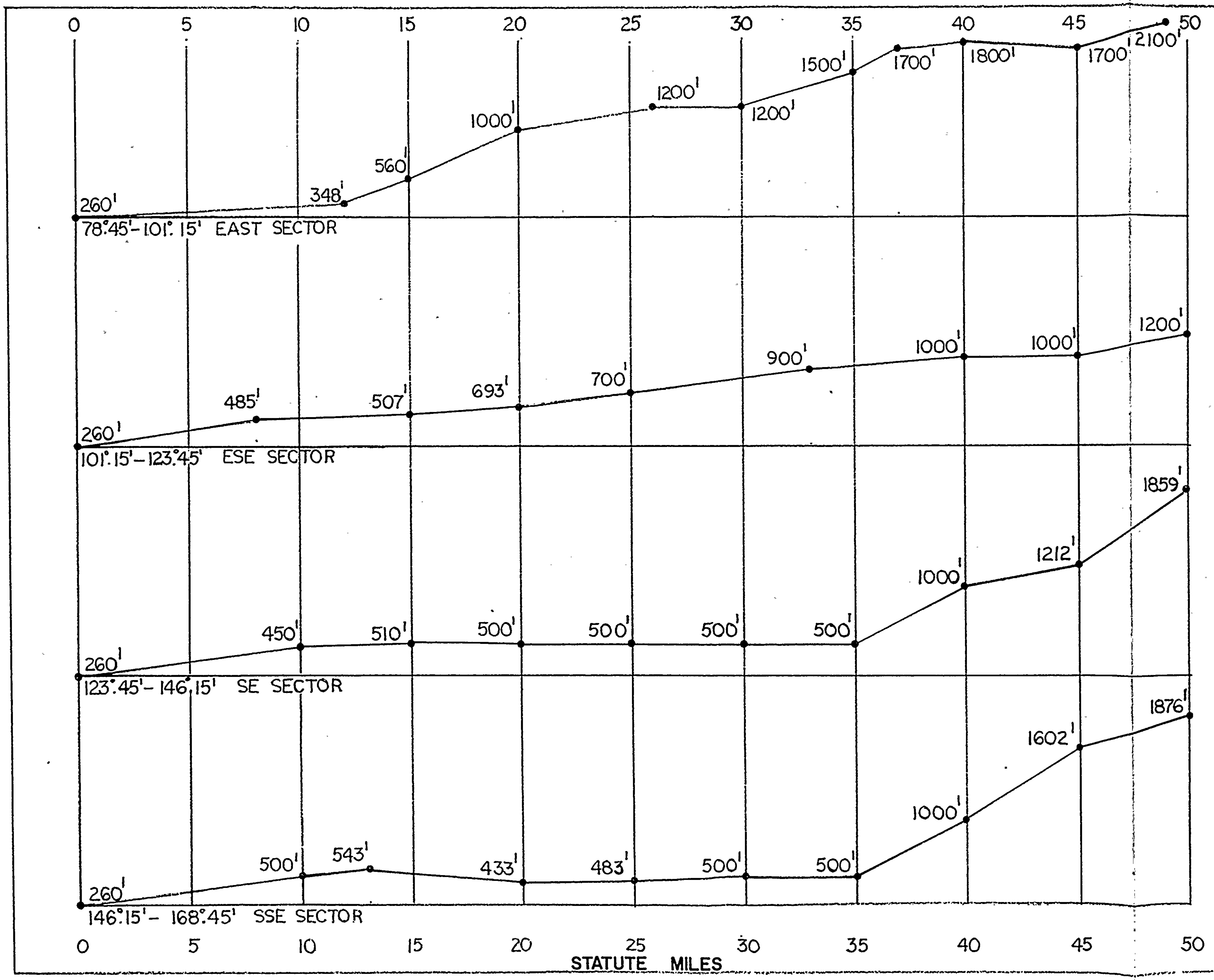


Figure B3 b-2

MAXIMUM TOPOGRAPHIC ELEVATIONS (SOUTHEAST QUADRANT)

NINE MILE POINT NUCLEAR STATION-UNIT 2 NIAGARA MOHAWK POWER CORPORATION

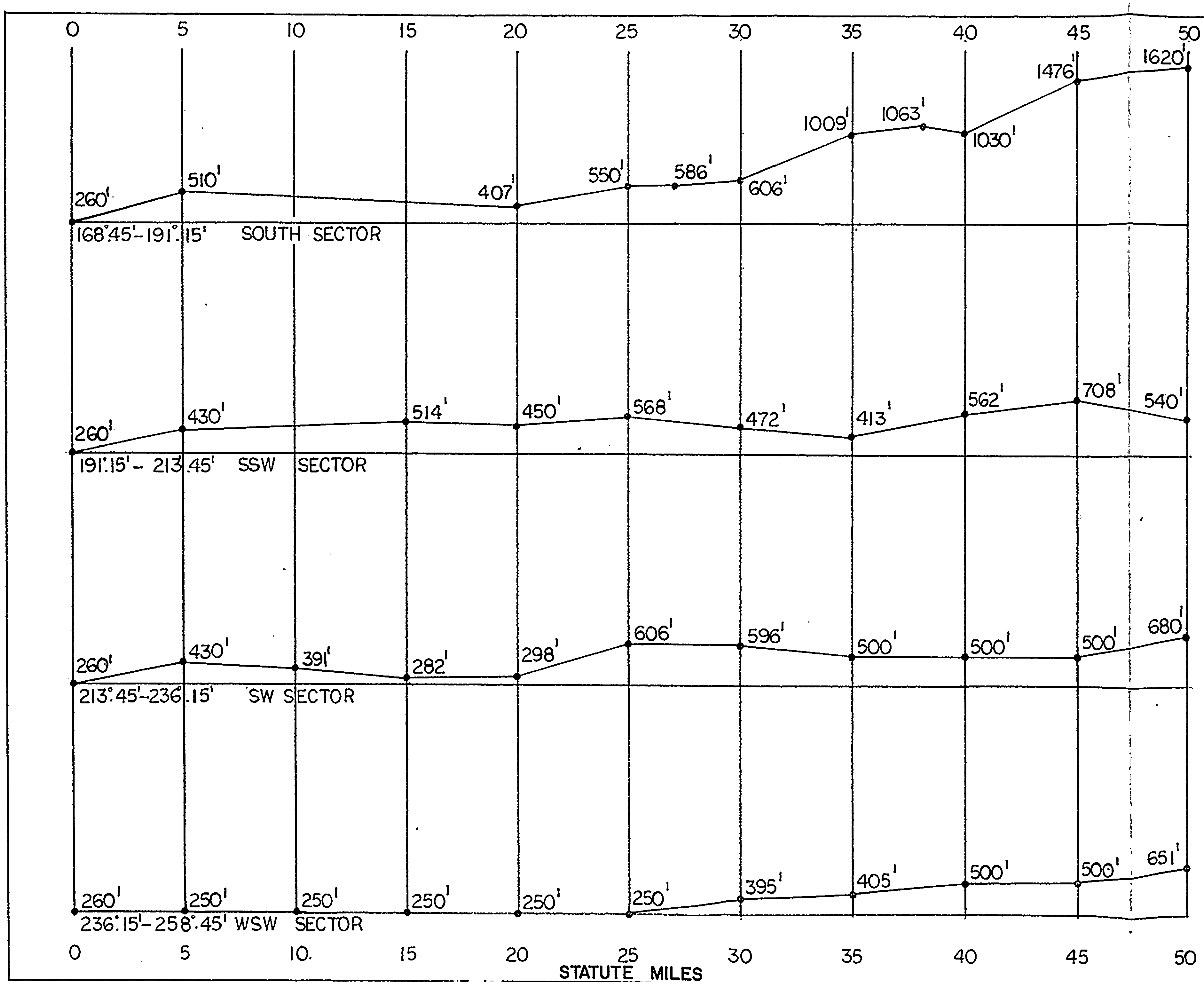


Figure B3 b-3

MAXIMUM TOPOGRAPHIC ELEVATIONS (SOUTHWEST QUADRANT)

NINE MILE POINT NUCLEAR STATION-UNIT 2
NIAGARA MOHAWK POWER CORPORATION

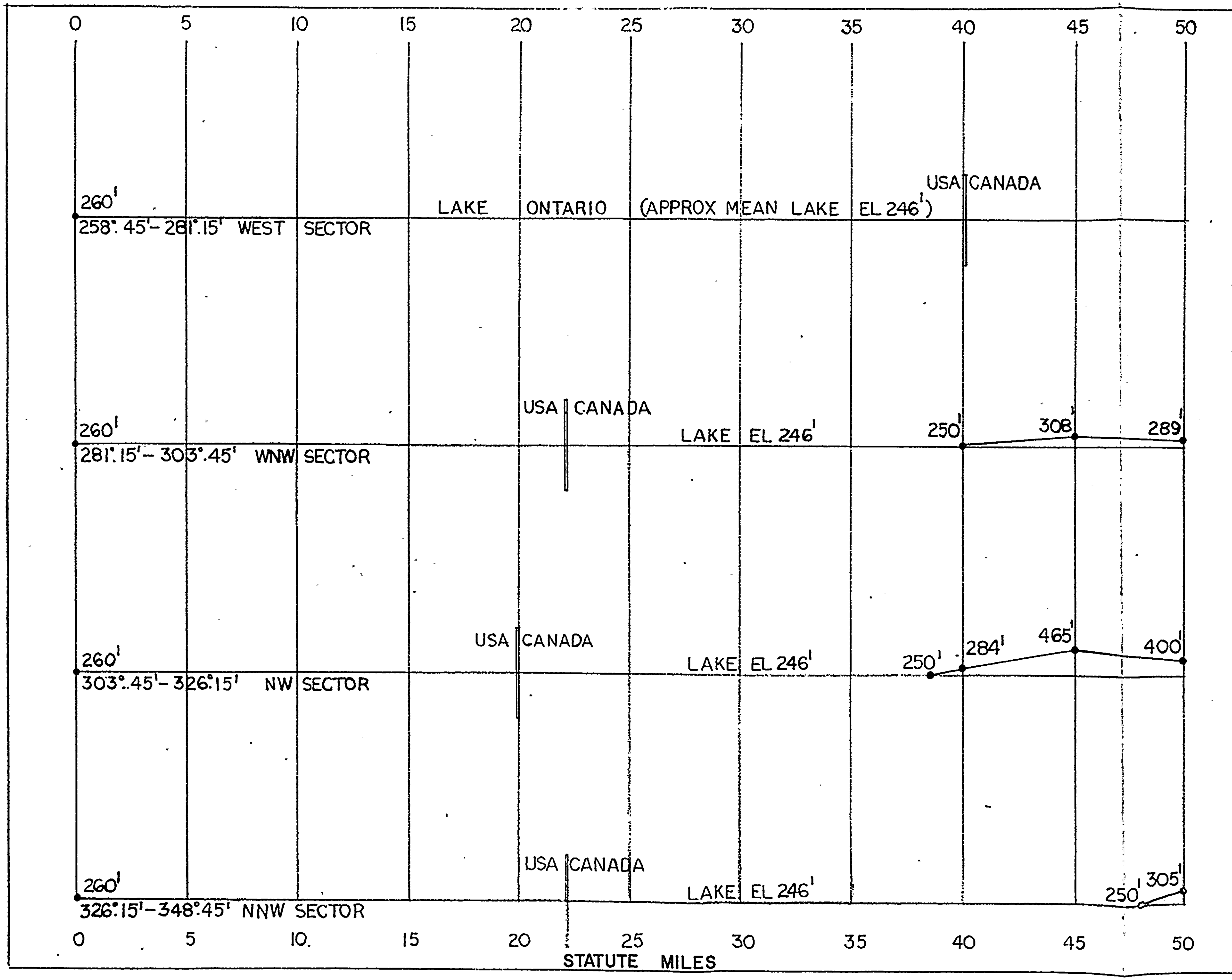


Figure B3 b-4

MAXIMUM TOPOGRAPHIC ELEVATIONS (NORTHWEST QUADRANT)

NINE MILE POINT NUCLEAR STATION-UNIT 2
NIAGARA MOHAWK POWER CORPORATION

Request B4

Provide the following information concerning meteorological data:

a. The identity of the sources of meteorological data used in the atmospheric transport models to assess the dispersion of gaseous effluents from the plant to a distance of 50 miles, and a description of the locations and elevations of all observations and the frequency and duration of the measurements made at each station.

b. A description of the cnsite pre-operational and operational meteorolcgical programs including the instruments, performance specifications, calibration and maintenance procedures, data output and recording systems and locations, and data analysis procedures.

c. A detailed description of any model(s) to derive estimates of basic meteorological parameters, such as atmospheric stability, and information concerning the validity and accuracy of the model(s).

Response B4

a. Onsite Meteorolcgical Measurements

A Complete onsite metecrological program is in service at Nine Mile Point to provide accurate documentation of the local meteorological conditions. The facility began test operations in December, 1973, and has been in routine operation since January, 1974. The parameters measured are continuous wind speed and wind direction, ambient temperature, temperature difference, and precipitation. The majority of the instrumentation selected for these studies is noted for durability rather than extreme sensitivity, commensurate with the exposure of the site. The accuracy and response specifications are suitable for the studies undertaken and comply with the recommendations of Safety Guide 23, (ref. 27).

b. Onsite Meteorolcgical Program

1. Instrumentation

A plan view of the 200 ft tower installation is provided in Figure B4-1. Bendix-Friez Model 120 Aerovanes are used tc measure wind speed and direction at the 200 ft, 100 ft, and 30 ft tower elevations. This information is recorded on Leeds and Northrup Model 880 strip chart recorders.

A Climatronics F460 anemometer and wind vane are also used at the 30 ft tower elevation for redundancy and low threshold measurements. Yellow Springs Instrument Company thermistors are used at 27 ft for ambient temperature and at the 100 ft and 200 ft tower elevations for temperature differences. Each temperature is recorded on a separate Esterline Angus Series A strip chart recorder. A Weathermeasure P511 E heated snow and rain gauge is used for precipitation. The recorder is a Weathermeasure P521 event recorder. The instrumentation performance specifications are provided in Table B4-1.

2. Calibration and Maintenance

The instrumentation was initially installed by the Climatronics Corporation under the supervision of Smith-Singer personnel. Niagara Mohawk personnel are responsible for maintenance and repairs which are performed as necessary. Surveillance, including inking, charting, and routine preventative maintenance is also the responsibility of Niagara Mohawk personnel. The entire instrument set is calibrated on a semiannual basis following the manufacturers' suggested calibration and maintenance procedures. Surveillance and calibration scheduling are specified in the station technical specifications and comply with Safety Guide 23 (ref. 27) recommendations.

3. Data Analysis

The analog strip charts are shipped to Smith-Singer Meteorologists, Inc. After each chart is scanned for instrument malfunctions, hourly readings are extracted by Smith-Singer personnel. The data are routinely key-punched on a monthly basis. After key punch verification, a computer listing is generated of hourly readings. The data are again checked for inconsistencies by one of the instrumentation specialists and a meteorologist. After incorporating any calibrations from site personnel, a final listing is generated. The data are then transferred to magnetic tape and a copy is made. Monthly summaries of the data are accomplished following the same procedures.

c. Stability

The stability classification used in the development of the Appendix I calculations is based essentially on the original Nine Mile Point Unit study of 1963–1964. The four turbulence classes used in that study are described in Figure A-8 of Appendix A, Meteorology, of the Preliminary Hazards Summary Report, Nine Mile Point Nuclear Station Unit 1 (ref. 4), and the two-year distribution appears in Appendix A of the Final Safety Analysis Report on this same station (ref. 5).

In the NMP2 Appendix I calculations the set of ΔT classes shown in the right-hand column of Table B4-2 have been determined to be equivalent to the four turbulence classes. These ΔT groups were used in lieu of wind direction fluctuations because the multiple recording requirements of the Nine Mile Point wind system made direction fluctuations hard to interpret in terms of the four turbulance classes as described in Figure A-8 of Appendix A of the Preliminary Hazards Summary Report, Nine Mile Point Nuclear Station Unit 1, (ref. 4). Table B4-3, shows a comparison between the turbulence classes assessed by these ΔT categories versus wind fluctuations and shows very good agreement with the 1963-1964 Nine Mile Point data.

TABLE B4-1
INSTRUMENT PERFORMANCE SPECIFICATIONS

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

YSI Thermistors	Ambient	Accuracy $\pm .2^{\circ}C$
	Δ T	Accuracy $\pm 0.15^{\circ}F$
Weathermeasure Rain Gauge		Accuracy 0.5%
Climatronics F460	Wind Speed	Accuracy $\pm$.25 mph or 1.5%
	Wind Direction	Accuracy $\pm$1.5%
Esterline Angus Model A Strip Chart Recorder		Accuracy $\pm$1.0%
L&N Model 880 Strip Chart Recorder		Accuracy 0.5% of electrical span
Bendix Model 120 Aerovane	Wind Speed	Accuracy Range: 0-10 mi/hr — Average Error: $\pm$.5 mi/hr Range: 10-200 mi/hr — Average Error: $\pm$1.0 mi/hr
	Wind Direction	Accuracy $\pm 2^{\circ}$ Complete Range

TABLE B4-2

TURBULENCE CLASS SYSTEMS AND TEMPERATURE DIFFERENCES

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

Brookhaven Nat'l Lab	Smith-Singer Temperature Difference System
	$^{o}C/100m$
B_2	≤ -1.9
B_1	$-1.9<\Delta T\leq-0.7$
C	$-0.7<\Delta T\leq 0.0$
D	$\Delta T>0.0$

TABLE B4-3
COMPARISON OF STABILITIES

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

Stability	Stability Classes (%) 1974-1975 Smith-Singer Temperature Difference System	1963-1964 Smith-Singer Temperature Difference System	1963-1964 Turbulence Class
Very Unstable	5.2	12.0	4.1
Unstable	40.5	39.8	62.5
Neutral	25.0	11.6	19.5
Stable	29.3	36.6	14.0

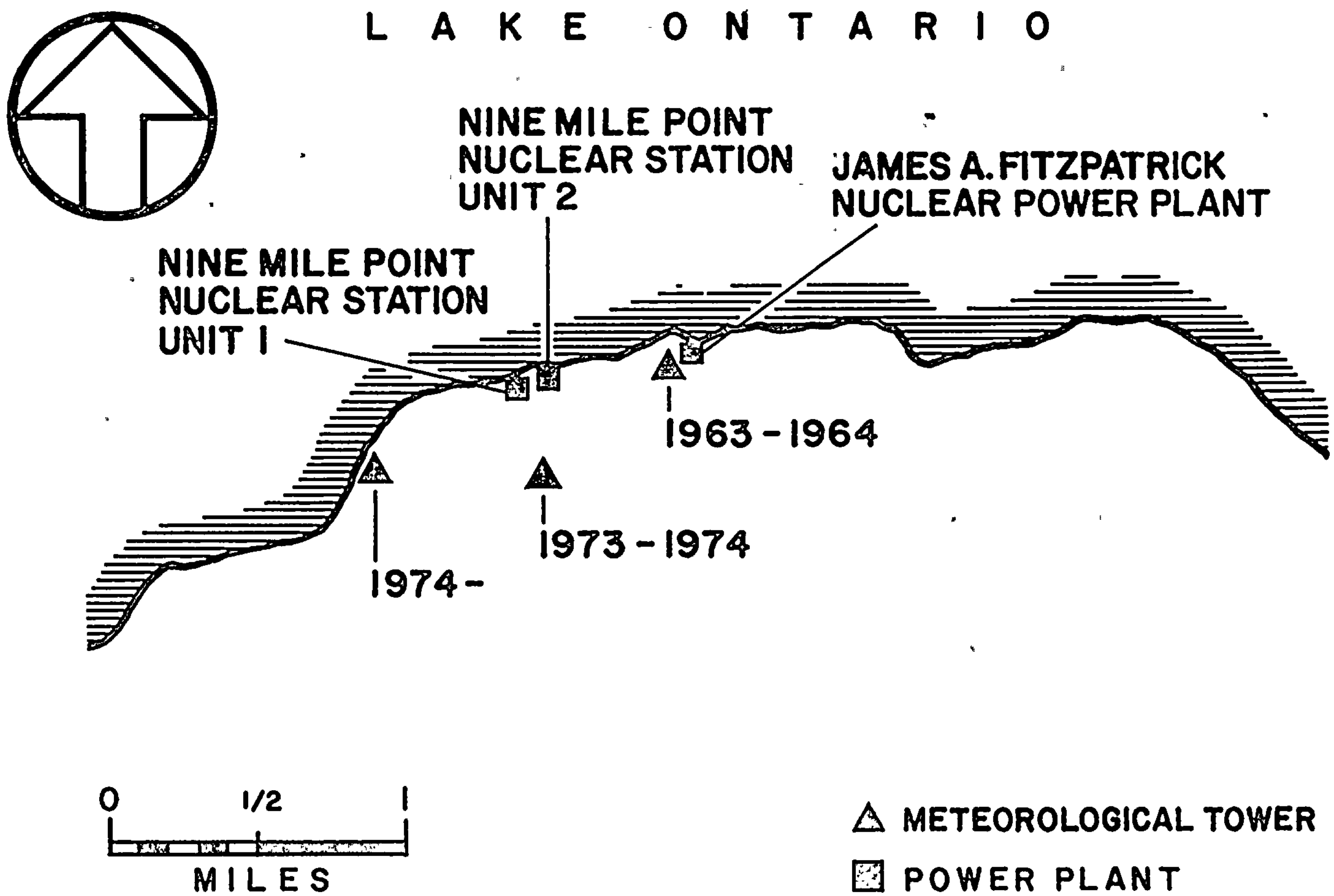


FIGURE B4-1

METEOROLOGICAL TOWER LOCATIONS

NINE MILE POINT NUCLEAR STATION - UNIT 2
NIAGARA MOHAWK POWER CORPORATION

Request B5

Provide the following information concerning concentration evaluations:

a. Estimates of relative concentrations (X/Q) and or deposition (D/Q) at points of potential maximum concentration outside the site boundary, at points estimated maximum individual exposure, and at points within a radial grid of sixteen 22-1/2 degree sectors (centered on true north, etc.) and extending to a distance of 50 miles from the plant. A set of data points should be located within each sector at increments of .25 miles to a distance of 1 mile, at increments of .5 mile from a distance of 1 to 5 miles, at increments of 2.5 miles from a distance of 5 to 10 miles, and at increments of 5 miles thereafter to a distance of 50 miles.

b. Estimates of X/Q for noble gas effluents and, if applicable, X/Q depleted by deposition and D/Q for iodine effluents at each of these grid points, as well as averages of these X/Q and/or D/Q values between all adjacent grid points along the radials.

c. A detailed description of the model(s) and the model assumption(s) used to determine the air concentrations and/or deposition, and information concerning the validity and accuracy of the model(s) and assumptions, and the identity of the meteorological data used.

Response B5

a. X/Q Values

X/Q values are given in Table B5-1 for the stack; Table B5-2 for the radwaste building vent and Table B5-3 for the reactor building vent for the composite annual case. Also Tables B5-4, B5-5, and B5-6 show the X/Q values for the grazing period for each release.

b. D/Q Values

D/Q values are given in Table B5-7 for stack; Table B5-8 for the radwaste building vent and Table B5-9 for the reactor building vent for the reactor building vent for the composite annual case. Also Tables B5-10,B5-11, and B5-12 show the D/Q values for the grazing period for each release.

c. X/Q and D/Q Computations

The Nine Mile Point site has been studied in detail in two separate periods, 1963-1964, when Nine Mile Point Nuclear Station Unit 1 was being designed and

constructed, and again during 1974–1975 for the development of Nine Mile Point Nuclear Station Unit 2 data.

The analysis of the diffusion and deposition is based on the meteorological data collected during 1974–1975. The following formulae and assumptions were used in deriving the X/Q and D/Q estimates.

1. Plume Rise

a. Main Stack

Radioactivity will be released from three sources, the tall (416 foot) stack and two vent stacks in a rectangular structure between the reactor and turbine buildings.

The tall stack is isolated from other structures, and the volumes and speed of emission ($31\ m^3/sec$ and 10 m/sec, respectively) preclude any likelihood of significant downwash associated with either other structures or the stack itself. Plume rise has therefore been calculated by the momentum formula in the ASME Guide (ref. 13).

$$h_e = h_s + D\left(\frac{W_e}{u}\right)^{1.4}$$

where:

h_e	Effective height of plume, m
h_s	Actual stack height, m
D	Diameter of stack, m
W_e	Vertical efflux velocity at release temperature m/sec
u	Mean wind speed at actual stack height, m/sec.

b. Vent Stacks

The vent stacks present a different problem, since they are undoubtedly affected by the nearby building aerodynamics with moderate to strong winds. Their height is 187 feet and the top of the reactor building is only 12 feet lower.

The field data developed at Peach Bottom (ref. 14) and Millstone (ref. 15) are believed to be the best guide for evaluation of the downwash from these stacks. These two plants had emission speeds lower than those of the

reactor and radwaste building vents at Nine Mile Point Nuclear Station Unit 2 (NMP2), but their range of total emission volumes envelops that at NMP2.

	NMP2		Peach Bottom	Millstone	
	Reactor	Radwaste		Reactor	Turbine
W_a (m/sec)	17.5	17.8	12.2	8.5	10.5
D (m)	2.2	1.2	4.5	2.1	1.4
Vol (m^3/sec)	66.0	10.0	194.0	29.0	16.0

At Peach Bottom the plume rose freely when values of W_e/U from 3.5 to 4.0 were reached, while the Millstone results suggested that the plume was partially elevated as well as partially entrained during each time period in which W_e/U was less than 5.0. Based on these results total entrapment has been assumed for all values of W_e/U less than 5.5, a conservative assumption. Whenever entrapment occurs, the source height is assumed to be 10 meters above ground and a building correction factor (CA=632 m^2) has been used. The wind speed was adjusted from the 200 foot level to the 26.5 meter level, to be representative of the average wind speed between the top of the vents and the ground. This evaluation procedure is in good agreement with observed data and should be conservative in the application.

2. Diffusion Modeling

The Gaussian diffusion equation applicable to 22.5 degree sectors and corrected for building wake was used for the computations. The stability was determined from the temperature difference between the 200 and 27 foot levels and grouped as shown in Table B4-2.

The equations expressing the change in σ_z with distance are different for high and low elevation sources as shown in the following table.

	Very Unstable	Unstable	Neutral	Stable
	Sources Higher Than 50 Meters			
σ_z	$.40\ x^{.91}$	$.33\ x^{.86}$	$.22\ x^{.78}$	$.06\ x^{.71}$

Sources Lower Than 50 Meters

σ_z	$.29\ x^{.91}$	$.25\ x^{.86}$	$.19\ x^{.78}$	$.08\ x^{.71}$

where: σ_z Vertical standard deviation of the Gaussian plume, m

x Distance downwind, m

The χ/Q and D/Q estimates have not been adjusted for possible changes in wind trajectories and diffusion conditions with distance. The Nine Mile Point site is open and uncomplicated, with a vigorous, reliable wind flow. The data from the NMP2 tower should be quite representative of a large area. Furthermore, the data available from other locations is insufficient to define variations in trajectories and diffusion in a meaningful way.

Changes in terrain elevation are considered too small to have a significant effect on the estimates, and the calculations are developed on the basis of flat terrain.

3. Wind Speed Profile

The winds taken from the 200 foot level on the Nine Mile Point Nuclear Station Unit – 2 tower were assumed to increase or decrease with height according to the formula:

$$u_h = u_1\left(\frac{Z}{Z_1}\right)^q$$

u_h Wind speed at upper elevation, m/sec

u_1 Wind speed at lower elevation, m/sec

Z Upper height, m

Z_1 Lower height, m

q Ranges from 0.16 to 0.50 for very unstable to very stable conditions.

Increases in speed for sources higher than that of the wind instrument are logical and in accord with observational data. Therefore, the tower winds were adjusted upward for stack calculations as well as downward for the vent releases.

4. <u>Deposition</u>

One of the most complex problems in reactor safety evaluations is the respresentation of the deposition of halogens. Although some field data are available, considerable evidence exists (refs. 16, 17 and 18) to suggest that an average deposition velocity (V_g) of 0.01 m/sec is often found with active chemical compounds such as iodine. Therefore, reasonable estimates of D/Q should result from the single assumption of a uniform deposition velocity of 0.01 m/sec. The D/Q estimates are based on this value.

Correction of the X/Q for removal by deposition and depletion have been made. For the tall stack source, it is evident that both deposition and depletion are very small. The vents have had deposition and depletion considered and the differences are more apparent at large distances. The formulae for depletion follow those given in Chamberlain (ref. 19).

TABLE B5-1

STACK X/Q AT GROUND LEVEL APPLICABLE TO LONG TERM (ROUTINE) GASEOUS RELEASES

Nine Mile Point Nuclear Station - Unit 2

Niagara Mohawk Power Corporation

ANNUAL X/Q BY SECTOR

(sec/m^3)

Distance (miles)	Bearing 22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
.25	7.6318E-09	4.6991E-09	2.0659E-08	3.8414E-08	3.6738E-08	4.9750E-08	4.9452E-08	5.1198E-08
.50	1.1146E-08	9.6395E-09	3.8667E-08	6.8946E-08	6.0877E-08	5.8625E-08	4.5759E-08	5.1023E-08
.75	1.3884E-08	1.2772E-08	3.7486E-08	5.7443E-08	4.8026E-08	4.2717E-08	3.1411E-08	3.6424E-08
1.00	1.6617E-08	1.5434E-08	3.7124E-08	4.8801E-08	3.8606E-08	3.2644E-08	2.3143E-08	2.7922E-08
1.50	1.7089E-08	1.5861E-08	3.4214E-08	4.0145E-08	3.0331E-08	2.4674E-08	1.6994E-08	2.1347E-08
2.00	1.3504E-08	1.2543E-08	2.4926E-08	2.6396E-08	1.9070E-08	1.5008E-08	1.0009E-08	1.3186E-08
2.50	1.0764E-08	1.0025E-08	1.9458E-08	1.9975E-08	1.4237E-08	1.1130E-08	7.3317E-09	9.8096E-09
3.00	8.6242E-09	8.0546E-09	1.5419E-08	1.5544E-08	1.0994E-08	8.5758E-09	5.6031E-09	7.5617E-09
3.50	7.0143E-09	6.5673E-09	1.2457E-08	1.2411E-08	8.7354E-09	6.8114E-09	4.4243E-09	6.0021E-09
4.00	5.7981E-09	5.4398E-09	1.0250E-08	1.0128E-08	7.1046E-09	5.5410E-09	3.5834E-09	4.8779E-09
4.50	4.8705E-09	4.5773E-09	8.5789E-09	8.4238E-09	5.8937E-09	4.5986E-09	2.9639E-09	4.0442E-09
5.00	4.1563E-09	3.9110E-09	7.2928E-09	7.1254E-09	4.9734E-09	3.8821E-09	2.4957E-09	3.4110E-09
7.50	2.3415E-09	2.2081E-09	3.9296E-09	3.7629E-09	2.5762E-09	2.0082E-09	1.2861E-09	1.7640E-09
10.00	1.7548E-09	1.6572E-09	2.7006E-09	2.5302E-09	1.6730E-09	1.2896E-09	8.3357E-10	1.1446E-09
15.00	1.3423E-09	1.2789E-09	1.7773E-09	1.6103E-09	1.0053E-09	7.4317E-10	4.9781E-10	6.8678E-10
20.00	1.1019E-09	1.0568E-09	1.3437E-09	1.2008E-09	7.3844E-10	5.2247E-10	3.6261E-10	5.0125E-10
25.00	9.1275E-10	8.7804E-10	1.0617E-09	9.4534E-10	5.8513E-10	3.9949E-10	2.8513E-10	3.9347E-10
30.00	7.6248E-10	7.3425E-10	8.6073E-10	7.6652E-10	4.8054E-10	3.1929E-10	2.3274E-10	3.2011E-10
35.00	6.4358E-10	6.1983E-10	7.1165E-10	6.3472E-10	4.0321E-10	2.6248E-10	1.9437E-10	2.6639E-10
40.00	5.4916E-10	5.2876E-10	5.9817E-10	5.3451E-10	3.4363E-10	2.2020E-10	1.6504E-10	2.2545E-10
45.00	4.7351E-10	4.5573E-10	5.0991E-10	4.5648E-10	2.9649E-10	1.8768E-10	1.4200E-10	1.9340E-10
50.00	4.1226E-10	3.9661E-10	4.4000E-10	3.9457E-10	2.5852E-10	1.6205E-10	1.2353E-10	1.6782E-10

TABLE B5-1
STACK X/Q AT GROUND LEVEL APPLICABLE TO
LONG TERM (ROUTINE) GASEOUS RELEASES

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

ANNUAL X/Q BY SECTOR
(sec/m³)

Distance (miles)	Bearing 22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
.25	7.6510E-09	4.6991E-09	2.0659E-08	3.8414E-08	3.6738E-08	4.9750E-08	4.9452E-08	5.1198E-08
.50	1.1146E-08	9.6595E-09	5.8667E-08	6.8946E-08	6.0677E-08	5.8625E-08	4.5759E-08	5.1025E-08
.75	1.5884E-08	1.2772E-08	3.7466E-08	5.7443E-08	4.8026E-08	4.2717E-08	3.1411E-08	3.6424E-08
1.00	1.6617E-08	1.5454E-08	3.7124E-08	4.8601E-08	3.8606E-08	3.2644E-08	2.3143E-08	2.7922E-08
1.50	1.7089E-08	1.5861E-08	3.4214E-08	4.0145E-08	3.0531E-08	2.4674E-08	1.6994E-08	2.1347E-08
2.00	1.5504E-08	1.2545E-08	2.4926E-08	2.6396E-08	1.9070E-08	1.5008E-08	1.0009E-08	1.3186E-08
2.50	1.0764E-08	1.0025E-08	1.9458E-08	1.9975E-08	1.4257E-08	1.1130E-08	7.3317E-09	9.8096E-09
3.00	8.6252E-09	8.0540E-09	1.5419E-08	1.5544E-08	1.0994E-08	8.5758E-09	5.6031E-09	7.5617E-09
3.50	7.0145E-09	6.5675E-09	1.2457E-08	1.2411E-08	8.7354E-09	6.8114E-09	4.4243E-09	6.0021E-09
4.00	5.7981E-09	5.4596E-09	1.0250E-08	1.0128E-08	7.1046E-09	5.5410E-09	3.5634E-09	4.8779E-09
4.50	4.8705E-09	4.5715E-09	8.5789E-09	8.4258E-09	5.8957E-09	4.5966E-09	2.9639E-09	4.0442E-09
5.00	4.1565E-09	3.9110E-09	7.2928E-09	7.1254E-09	4.9734E-09	3.8821E-09	2.4957E-09	3.4110E-09
7.50	2.5415E-09	2.2081E-09	3.9296E-09	3.7629E-09	2.5762E-09	2.0082E-09	1.2861E-09	1.7640E-09
10.00	1.7548E-09	1.6572E-09	2.7006E-09	2.5302E-09	1.6730E-09	1.2896E-09	8.3357E-10	1.1446E-09
15.00	1.3492E-09	1.2789E-09	1.7775E-09	1.6103E-09	1.0055E-09	7.4317E-10	4.9781E-10	6.8078E-10
20.00	1.1019E-09	1.0568E-09	1.3457E-09	1.2000E-09	7.5844E-10	5.2247E-10	3.6561E-10	5.0125E-10
25.00	9.1275E-10	8.7604E-10	1.0617E-09	9.4534E-10	5.8513E-10	3.9904E-10	2.8513E-10	3.9547E-10
30.00	7.6298E-10	7.3425E-10	8.6075E-10	7.6652E-10	4.6054E-10	3.1925E-10	2.3274E-10	3.2011E-10
35.00	6.4558E-10	6.1985E-10	7.1165E-10	6.5472E-10	4.0351E-10	2.6248E-10	1.9437E-10	2.6659E-10
40.00	5.4916E-10	5.2876E-10	5.9817E-10	5.3451E-10	3.4563E-10	2.2020E-10	1.6504E-10	2.2595E-10
45.00	4.7351E-10	4.5573E-10	5.0991E-10	4.5648E-10	2.9649E-10	1.8768E-10	1.4200E-10	1.9540E-10
50.00	4.1226E-10	3.9661E-10	4.4000E-10	3.9457E-10	2.5852E-10	1.6205E-10	1.2353E-10	1.6782E-10

TABLE B5-1 (cont)

STACK χ/Q AT GROUND LEVEL APPLICABLE TO LONG TERM (ROUTINE) GASEOUS RELEASES

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

ANNUAL χ/Q BY SECTOR
(sec/m^3)

Distance (miles)	Bearing 202.5	225.0	247.5	270.0	292.5	315.0	337.5	360.0
.25	2.7438E-08	2.2149E-08	5.8200E-09	5.0701E-09	1.1171E-08	1.9684E-08	2.0977E-08	2.1442E-08
.50	3.2804E-08	3.1743E-08	1.1701E-08	9.1930E-09	1.9621E-08	3.2384E-08	2.9017E-08	3.1809E-08
.75	2.5523E-08	2.5860E-08	1.1049E-08	9.9890E-09	2.1354E-08	3.6446E-08	2.8377E-08	3.3588E-08
1.00	2.1005E-08	2.1885E-08	1.0656E-08	1.0895E-08	2.2950E-08	4.0275E-08	2.8948E-08	3.5937E-08
1.50	1.7007E-08	1.8040E-08	9.7587E-09	1.0777E-08	2.2168E-08	3.9539E-08	2.7304E-08	3.4700E-08
2.00	1.1110E-08	1.1962E-08	7.1555E-09	8.3864E-09	1.6670E-08	3.0124E-08	2.0309E-08	2.6148E-08
2.50	8.4108E-09	9.1023E-09	5.6087E-09	6.6794E-09	1.3097E-08	2.3761E-08	1.5948E-08	2.0578E-08
3.00	6.5509E-09	7.1139E-09	4.4558E-09	5.3535E-09	1.0406E-08	1.8922E-08	1.2678E-08	1.6372E-08
3.50	5.2351E-09	5.6995E-09	3.6058E-09	4.3563E-09	8.4174E-09	1.5330E-08	1.0263E-08	1.3259E-08
4.00	4.2751E-09	4.6636E-09	2.9702E-09	3.6026E-09	6.9307E-09	1.2636E-08	8.4568E-09	1.0928E-08
4.50	3.5573E-09	3.8870E-09	2.4880E-09	3.0276E-09	5.8040E-09	1.0588E-08	7.0869E-09	9.1599E-09
5.00	3.0091E-09	3.2932E-09	2.1171E-09	2.5852E-09	4.9384E-09	9.0089E-09	6.0343E-09	7.8026E-09
7.50	1.5719E-09	1.7410E-09	1.1636E-09	1.4777E-09	2.7136E-09	4.8643E-09	3.3273E-09	4.3397E-09
10.00	1.0263E-09	1.1599E-09	8.4560E-10	1.1527E-09	1.9463E-09	3.3244E-09	2.3895E-09	3.1717E-09
15.00	6.1940E-10	7.2428E-10	6.3515E-10	9.5719E-10	1.3856E-09	2.1373E-09	1.6946E-09	2.3043E-09
20.00	4.5594E-10	5.4120E-10	5.2788E-10	8.2421E-10	1.0969E-09	1.5855E-09	1.3343E-09	1.8236E-09
25.00	3.6204E-10	4.3203E-10	4.4437E-10	7.0112E-10	8.9131E-10	1.2378E-09	1.0791E-09	1.4714E-09
30.00	2.9793E-10	3.5609E-10	3.7641E-10	5.9510E-10	7.3611E-10	9.9579E-10	8.8789E-10	1.2054E-09
35.00	2.5044E-10	2.9941E-10	3.2125E-10	5.0749E-10	6.1670E-10	8.1912E-10	7.4166E-10	1.0024E-09
40.00	2.1375E-10	2.5550E-10	2.7652E-10	4.3608E-10	5.2348E-10	6.8606E-10	6.2807E-10	8.4544E-10
45.00	1.8467E-10	2.2066E-10	2.4009E-10	3.7791E-10	4.4964E-10	5.8332E-10	5.3846E-10	7.2229E-10
50.00	1.6119E-10	1.9253E-10	2.1021E-10	3.3027E-10	3.9034E-10	5.0237E-10	4.6672E-10	6.2420E-10

TABLE B5-2
RADWASTE BUILDING VENT χ/Q AT GROUND LEVEL
APPLICABLE TO LONG TERM (ROUTINE) GASEOUS RELEASES

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

ANNUAL χ/Q BY SECTOR
(sec/m^3)

Distance	Bearing							
(miles)	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
.25	1.2953E-06	1.2636E-06	2.1919E-06	2.1003E-06	1.4512E-06	1.1818E-06	7.3596E-07	9.0167E-07
.50	6.8545E-07	6.4079E-07	9.2995E-07	8.4577E-07	5.2720E-07	4.2298E-07	2.7307E-07	3.3858E-07
.75	4.3924E-07	4.0271E-07	5.4252E-07	4.8252E-07	2.8307E-07	2.2571E-07	1.4940E-07	1.8610E-07
1.00	3.0798E-07	2.7946E-07	3.6220E-07	3.1810E-07	1.8000E-07	1.4304E-07	9.6139E-08	1.2056E-07
1.50	2.1352E-07	1.9232E-07	2.4231E-07	2.1067E-07	1.1590E-07	9.1897E-08	6.2510E-08	7.9009E-08
2.00	1.1587E-07	1.0365E-07	1.2650E-07	1.0863E-07	5.7839E-08	4.5864E-08	3.1604E-08	4.0333E-08
2.50	8.2224E-08	7.3432E-08	8.8492E-08	7.5601E-08	3.9728E-08	3.1568E-08	2.1843E-08	2.7946E-08
3.00	6.1741E-08	5.5114E-08	6.5861E-08	5.6065E-08	2.9195E-08	2.3245E-08	1.6120E-08	2.0640E-08
3.50	4.8359E-08	4.3180E-08	5.1303E-08	4.3561E-08	2.2531E-08	1.7957E-08	1.2470E-08	1.5967E-08
4.00	3.9110E-08	3.4948E-08	4.1358E-08	3.5055E-08	1.8038E-08	1.4372E-08	9.9890E-09	1.2788E-08
4.50	3.2450E-08	2.9029E-08	3.4259E-08	2.9000E-08	1.4867E-08	1.1825E-08	8.2245E-09	1.0528E-08
5.00	2.7489E-08	2.4625E-08	2.9007E-08	2.4533E-08	1.2543E-08	9.9492E-09	6.9234E-09	8.8637E-09
7.50	1.4642E-08	1.3242E-08	1.5523E-08	1.3115E-08	6.6973E-09	5.1890E-09	3.6196E-09	4.6569E-09
10.00	9.4120E-09	8.6074E-09	1.0049E-08	8.4972E-09	4.3768E-09	3.3053E-09	2.3125E-09	3.0069E-09
15.00	5.0205E-09	4.6864E-09	5.4176E-09	4.5904E-09	2.4161E-09	1.7553E-09	1.2367E-09	1.6474E-09
20.00	3.1925E-09	3.0239E-09	3.4626E-09	2.9410E-09	1.5806E-09	1.1183E-09	7.9392E-10	1.0765E-09
25.00	2.2427E-09	2.1439E-09	2.4344E-09	2.0747E-09	1.1393E-09	7.8921E-10	5.6512E-10	7.7387E-10
30.00	1.6809E-09	1.6155E-09	1.8210E-09	1.5582E-09	8.7461E-10	5.9493E-10	4.2988E-10	5.9118E-10
35.00	1.3177E-09	1.2701E-09	1.4226E-09	1.2226E-09	7.0077E-10	4.6918E-10	3.4203E-10	4.7078E-10
40.00	1.0671E-09	1.0302E-09	1.1475E-09	9.9034E-10	5.7867E-10	3.8217E-10	2.8087E-10	3.8625E-10
45.00	8.8578E-10	8.5564E-10	9.4855E-10	8.2187E-10	4.8852E-10	3.1888E-10	2.3607E-10	3.2406E-10
50.00	7.4953E-10	7.2413E-10	7.9944E-10	6.9516E-10	4.1946E-10	2.7107E-10	2.0196E-10	2.7666E-10

TABLE B5-2 (cont)
RADWASTE BUILDING VENT X/Q AT GROUND LEVEL
APPLICABLE TO LONG TERM (ROUTINE) GASEOUS RELEASES

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

ANNUAL X/Q BY SECTOR
(sec/m^3)

Distance (miles)	Bearing 202.5	225.0	247.5	270.0	292.5	315.0	337.5	360.0
.25	7.6985E-07	8.5749E-07	4.5341E-07	5.9195E-07	1.4131E-06	2.7299E-06	1.8647E-06	2.6141E-06
.50	3.0750E-07	3.6795E-07	2.2125E-07	3.5529E-07	7.1602E-07	1.2609E-06	9.2915E-07	1.3356E-06
.75	1.7383E-07	2.1478E-07	1.3741E-07	2.4062E-07	4.5106E-07	7.6025E-07	5.8275E-07	8.4337E-07
1.00	1.1412E-07	1.4323E-07	9.5116E-08	1.7358E-07	3.1319E-07	5.1643E-07	4.0438E-07	5.8664E-07
1.50	7.5409E-08	9.5634E-08	6.5432E-08	1.2274E-07	2.1541E-07	3.4998E-07	2.7834E-07	4.0435E-07
2.00	3.8806E-08	4.9784E-08	3.5220E-08	6.7952E-08	1.1577E-07	1.8532E-07	1.4993E-07	2.1813E-07
2.50	2.6972E-08	3.4788E-08	2.4922E-08	4.8577E-08	8.1817E-08	1.3024E-07	1.0609E-07	1.5445E-07
3.00	1.9962E-08	2.5861E-08	1.8715E-08	3.6702E-08	6.1257E-08	9.7076E-08	7.9485E-08	1.1576E-07
3.50	1.5463E-08	2.0110E-08	1.4712E-08	2.8939E-08	4.7870E-08	7.5521E-08	6.2107E-08	9.0467E-08
4.00	1.2392E-08	1.6173E-08	1.1985E-08	2.3584E-08	3.8637E-08	6.0650E-08	5.0084E-08	7.2953E-08
4.50	1.0203E-08	1.3357E-08	1.0049E-08	1.9735E-08	3.1996E-08	4.9944E-08	4.1412E-08	6.0312E-08
5.00	8.5857E-09	1.1270E-08	8.6222E-09	1.6868E-08	2.7052E-08	4.1971E-08	3.4941E-08	5.0876E-08
7.50	4.4764E-09	5.9141E-09	4.9535E-09	9.3879E-09	1.4271E-08	2.1444E-08	1.8188E-08	2.6439E-08
10.00	2.8561E-09	3.7640E-09	3.4040E-09	6.2586E-09	9.1002E-09	1.3316E-08	1.1462E-08	1.6624E-08
15.00	1.5298E-09	1.9858E-09	1.9867E-09	3.5222E-09	4.8089E-09	6.8025E-09	5.9725E-09	8.6128E-09
20.00	9.8627E-10	1.2605E-09	1.3338E-09	2.3202E-09	3.0439E-09	4.2224E-09	3.7540E-09	5.3794E-09
25.00	7.0601E-10	8.9086E-10	9.7211E-10	1.6689E-09	2.1323E-09	2.9180E-09	2.6180E-09	3.7267E-09
30.00	5.4039E-10	6.7513E-10	7.4862E-10	1.2712E-09	1.5946E-09	2.1592E-09	1.9511E-09	2.7588E-09
35.00	4.3256E-10	5.3628E-10	5.9926E-10	1.0078E-09	1.2477E-09	1.6746E-09	1.5222E-09	2.1386E-09
40.00	3.5720E-10	4.4023E-10	4.9346E-10	8.2297E-10	1.0089E-09	1.3439E-09	1.2277E-09	1.7146E-09
45.00	3.0170E-10	3.7011E-10	4.1513E-10	6.8730E-10	8.3624E-10	1.1068E-09	1.0154E-09	1.4105E-09
50.00	2.5924E-10	3.1685E-10	3.5516E-10	5.8430E-10	7.0673E-10	9.3026E-10	8.5650E-10	1.1841E-09

TABLE B5-3

REACTOR BUILDING VENT X/Q AT GROUND LEVEL
APPLICABLE TO LONG TERM (ROUTINE) GASEOUS RELEASES

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

ANNUAL X/Q BY SECTOR
(sec/m^3)

Distance (miles)	Bearing 22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
.25	1.2903E-06	1.2603E-06	2.1856E-06	2.0800E-06	1.4310E-06	1.1660E-06	7.2033E-07	8.7982E-07
.50	6.7905E-07	6.3654E-07	9.1994E-07	8.3009E-07	5.1622E-07	4.1644E-07	2.6585E-07	3.3006E-07
.75	4.3376E-07	3.9908E-07	5.3460E-07	4.7252E-07	2.7653E-07	2.2194E-07	1.4559E-07	1.8051E-07
1.00	3.0402E-07	2.7693E-07	3.5692E-07	3.1185E-07	1.7598E-07	1.4076E-07	9.3934E-08	1.1646E-07
1.50	2.1096E-07	1.9076E-07	2.3912E-07	2.0714E-07	1.1356E-07	9.0559E-08	6.1265E-08	7.6190E-08
2.00	1.1484E-07	1.0295E-07	1.2517E-07	1.0728E-07	5.6865E-08	4.5168E-08	3.1053E-08	3.9027E-08
2.50	8.1597E-08	7.2906E-08	8.7603E-08	7.4725E-08	3.9073E-08	3.0989E-08	2.1440E-08	2.7125E-08
3.00	6.1264E-08	5.4629E-08	6.5115E-08	5.5348E-08	2.8671E-08	2.2723E-08	1.5786E-08	2.0068E-08
3.50	4.7906E-08	4.2670E-08	5.0566E-08	4.2869E-08	2.2052E-08	1.7474E-08	1.2172E-08	1.5525E-08
4.00	3.8629E-08	3.4390E-08	4.0579E-08	3.4333E-08	1.7563E-08	1.3918E-08	9.7125E-09	1.2413E-08
4.50	3.1925E-08	2.8421E-08	3.3431E-08	2.8240E-08	1.4382E-08	1.1396E-08	7.9618E-09	1.0188E-08
5.00	2.6924E-08	2.3977E-08	2.8139E-08	2.3742E-08	1.2046E-08	9.5418E-09	6.6712E-09	8.5428E-09
7.50	1.4052E-08	1.2572E-08	1.4690E-08	1.2363E-08	6.2098E-09	4.8793E-09	3.4151E-09	4.3778E-09
10.00	8.9420E-09	8.0509E-09	9.4035E-09	7.9139E-09	3.9735E-09	3.0757E-09	2.1535E-09	2.7651E-09
15.00	4.7614E-09	4.3421E-09	5.0623E-09	4.2671E-09	2.1659E-09	1.6244E-09	1.1393E-09	1.4762E-09
20.00	3.0373E-09	2.8036E-09	3.2535E-09	2.7465E-09	1.4139E-09	1.0344E-09	7.2753E-10	9.5547E-10
25.00	2.1337E-09	1.9911E-09	2.2975E-09	1.9417E-09	1.0126E-09	7.2719E-10	5.1322E-10	6.8328E-10
30.00	1.5938E-09	1.5011E-09	1.7225E-09	1.4570E-09	7.6831E-10	5.4408E-10	3.8531E-10	5.1917E-10
35.00	1.2431E-09	1.1796E-09	1.3466E-09	1.1401E-09	6.0719E-10	4.2518E-10	3.0215E-10	4.1111E-10
40.00	1.0014E-09	9.5599E-10	1.0863E-09	9.2069E-10	4.9501E-10	3.4331E-10	2.4484E-10	3.3565E-10
45.00	8.2742E-10	7.9355E-10	8.9786E-10	7.6197E-10	4.1362E-10	2.8437E-10	2.0359E-10	2.8061E-10
50.00	6.9765E-10	6.7146E-10	7.5675E-10	6.4321E-10	3.5259E-10	2.4044E-10	1.7283E-10	2.3911E-10

TABLE B5-3 (cont)
REACTOR BUILDING VENT χ/Q AT GROUND LEVEL
APPLICABLE TO LONG TERM (ROUTINE) RELEASES

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

ANNUAL χ/Q BY SECTOR
(sec/m^3)

Distance (miles)	Bearing 202.5	225.0	247.5	270.0	292.5	315.0	337.5	360.0
.25	7.5223E-07	8.3553E-07	4.4078E-07	5.8431E-07	1.3989E-06	2.7119E-06	1.8548E-06	2.6044E-06
.50	2.9844E-07	3.5822E-07	2.1433E-07	3.4649E-07	7.0387E-07	1.2475E-06	9.1929E-07	1.3255E-06
.75	1.6825E-07	2.0917E-07	1.3247E-07	2.3337E-07	4.4274E-07	7.5038E-07	5.7480E-07	8.3560E-07
1.00	1.1049E-07	1.3989E-07	9.1558E-08	1.6831E-07	3.0802E-07	5.0966E-07	3.9881E-07	5.8144E-07
1.50	7.3166E-08	9.3791E-08	6.3060E-08	1.1932E-07	2.1251E-07	3.4573E-07	2.7482E-07	4.0120E-07
2.00	3.7861E-08	4.9060E-08	3.4180E-08	6.6523E-08	1.1476E-07	1.8360E-07	1.4847E-07	2.1687E-07
2.50	2.6382E-08	3.4296E-08	2.4278E-08	4.7703E-08	8.1238E-08	1.2923E-07	1.0519E-07	1.5365E-07
3.00	1.9546E-08	2.5464E-08	1.8236E-08	3.6042E-08	6.0828E-08	9.6412E-08	7.8821E-08	1.1514E-07
3.50	1.5133E-08	1.9753E-08	1.4278E-08	2.8327E-08	4.7466E-08	7.5018E-08	6.1539E-08	8.9896E-08
4.00	1.2106E-08	1.5832E-08	1.1542E-08	2.2954E-08	3.8208E-08	6.0226E-08	4.9549E-08	7.2379E-08
4.50	9.9389E-09	1.3024E-08	9.5785E-09	1.9071E-08	3.1532E-08	4.9561E-08	4.0886E-08	5.9719E-08
5.00	8.3341E-09	1.0943E-08	8.1243E-09	1.6178E-08	2.6558E-08	4.1614E-08	3.4422E-08	5.0268E-08
7.50	4.2608E-09	5.6467E-09	4.4411E-09	8.7387E-09	1.3784E-08	2.1162E-08	1.7748E-08	2.5875E-08
10.00	2.6773E-09	3.5677E-09	2.9845E-09	5.7393E-09	8.7193E-09	1.3088E-08	1.1120E-08	1.6184E-08
15.00	1.4100E-09	1.8797E-09	1.7342E-09	3.1934E-09	4.5917E-09	6.6454E-09	5.7579E-09	8.3615E-09
20.00	8.9971E-10	1.1905E-09	1.1732E-09	2.1005E-09	2.9071E-09	4.1093E-09	3.6071E-09	5.2254E-09
25.00	6.3536E-10	8.3233E-10	8.5878E-10	1.5119E-09	2.0332E-09	2.8303E-09	2.5072E-09	3.6215E-09
30.00	4.7786E-10	6.1989E-10	6.6110E-10	1.1518E-09	1.5147E-09	2.0866E-09	1.8610E-09	2.6800E-09
35.00	3.7554E-10	4.8287E-10	5.2763E-10	9.1279E-10	1.1793E-09	1.6123E-09	1.4456E-09	2.0755E-09
40.00	3.0505E-10	3.8921E-10	4.3294E-10	7.4495E-10	9.4894E-10	1.2896E-09	1.1613E-09	1.6623E-09
45.00	2.5432E-10	3.2231E-10	3.6318E-10	6.2204E-10	7.8331E-10	1.0591E-09	9.5737E-10	1.3662E-09
50.00	2.1652E-10	2.7280E-10	3.1021E-10	5.2905E-10	6.5993E-10	8.8834E-10	8.0564E-10	1.1461E-09

TABLE B5-4
STACK X/Q AT GROUND LEVEL APPLICABLE TO LONG TERM (ROUTINE) GASEOUS RELEASES GRAZING SEASON (APRIL 1 - SEPTEMBER 30)

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

X/Q BY SECTOR
(sec/m^3)

Distance (miles)	Bearing 22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
.25	5.7935E-09	4.3042E-09	3.3499E-08	3.8379E-08	1.6242E-08	7.4823E-09	1.5964E-08	3.6064E-08
.50	1.2129E-08	9.5993E-09	5.9089E-08	7.4134E-08	2.8554E-08	1.3714E-08	1.8343E-08	3.4331E-08
.75	1.6215E-08	1.7758E-08	6.5554E-08	6.3103E-08	2.3170E-08	1.1495E-08	1.3112E-08	2.3123E-08
1.00	1.9667E-08	2.4535E-08	7.2232E-08	5.3457E-08	1.9212E-08	1.0046E-08	9.8032E-09	1.7134E-08
1.50	2.0198E-08	2.6632E-08	7.1032E-08	4.3395E-08	1.5424E-08	8.5409E-09	7.2186E-09	1.3117E-08
2.00	1.5836E-08	2.1623E-08	5.4376E-08	2.7811E-08	9.8139E-09	5.8299E-09	4.1924E-09	8.4776E-09
2.50	1.2575E-08	1.7319E-08	4.2989E-08	2.0786E-08	7.3230E-09	4.4641E-09	3.0323E-09	6.4771E-09
3.00	1.0049E-08	1.3906E-08	3.4289E-08	1.6031E-08	5.6433E-09	3.4966E-09	2.2922E-09	5.0875E-09
3.50	8.1582E-09	1.1323E-08	2.7811E-08	1.2717E-08	4.4746E-09	2.8032E-09	1.7942E-09	4.0924E-09
4.00	6.7339E-09	9.3652E-09	2.2942E-08	1.0327E-08	3.6325E-09	2.2943E-09	1.4436E-09	3.3585E-09
4.50	5.6484E-09	7.8671E-09	1.9236E-08	8.5568E-09	3.0089E-09	1.9137E-09	1.1896E-09	2.8049E-09
5.00	4.8106E-09	6.7074E-09	1.6377E-08	7.2174E-09	2.5363E-09	1.6252E-09	1.0023E-09	2.3788E-09
7.50	2.6195E-09	3.6669E-09	8.8782E-09	3.8033E-09	1.3146E-09	9.1684E-10	5.9147E-10	1.2390E-09
10.00	1.8223E-09	2.5805E-09	6.1139E-09	2.5976E-09	8.5470E-10	7.0342E-10	5.2594E-10	7.8363E-10
15.00	1.2089E-09	1.7938E-09	3.9700E-09	1.7178E-09	4.9876E-10	5.5126E-10	5.1310E-10	4.2155E-10
20.00	9.0642E-10	1.4058E-09	2.9372E-09	1.3019E-09	3.4531E-10	4.4942E-10	4.6093E-10	2.7357E-10
25.00	7.0746E-10	1.1330E-09	2.2744E-09	1.0265E-09	2.5698E-10	3.6637E-10	3.9446E-10	1.9480E-10
30.00	5.6676E-10	9.2846E-10	1.8130E-09	8.2871E-10	1.9972E-10	3.0107E-10	3.3341E-10	1.4684E-10
35.00	4.6382E-10	7.7241E-10	1.4787E-09	6.8211E-10	1.6009E-10	2.5045E-10	2.8241E-10	1.1515E-10
40.00	3.8653E-10	6.5164E-10	1.2293E-09	5.7091E-10	1.3143E-10	2.1108E-10	2.4101E-10	9.2995E-11
45.00	3.2715E-10	5.5677E-10	1.0386E-09	4.8483E-10	1.0999E-10	1.8012E-10	2.0755E-10	7.6844E-11
50.00	2.8063E-10	4.8116E-10	8.8965E-10	4.1697E-10	9.3524E-11	1.5547E-10	1.8039E-10	6.4678E-11

TABLE B5-4 (cont)
STACK X/Q AT GROUND LEVEL APPLICABLE TO LONG TERM (ROUTINE) GASEOUS RELEASES GRAZING SEASON (APRIL 1 - SEPTEMBER 30)

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

X/Q BY SECTOR (sec/m^3)

Distance (miles)	Bearing 202.5	225.0	247.5	270.0	292.5	315.0	337.5	360.0
.25	3.3355E-08	5.4898E-08	2.8702E-09	2.2529E-09	4.1401E-09	1.1044E-08	2.5647E-08	1.8492E-08
.50	3.5370E-08	6.3161E-08	6.0159E-09	6.7759E-09	7.4955E-09	2.0329E-08	2.3728E-08	2.9666E-08
.75	2.6600E-08	4.5612E-08	5.7441E-09	9.0489E-09	7.0068E-09	1.7976E-08	1.7824E-08	2.6997E-08
1.00	2.2350E-08	3.4550E-08	5.5519E-09	1.0590E-08	6.7242E-09	1.6161E-08	1.4823E-08	2.5237E-08
1.50	1.8957E-08	2.5859E-08	5.0261E-09	1.0601E-08	6.0454E-09	1.3795E-08	1.2144E-08	2.2203E-08
2.00	1.3323E-08	1.5379E-08	3.5926E-09	8.1226E-09	4.2824E-09	9.2930E-09	7.9690E-09	1.5386E-08
2.50	1.0382E-08	1.1234E-08	2.7827E-09	6.4035E-09	3.3056E-09	7.0585E-09	6.0181E-09	1.1790E-08
3.00	8.2346E-09	8.5472E-09	2.1930E-09	5.0956E-09	2.5994E-09	5.4973E-09	4.6732E-09	9.2301E-09
3.50	6.6608E-09	6.7200E-09	1.7646E-09	4.1253E-09	2.0886E-09	4.3893E-09	3.7248E-09	7.3952E-09
4.00	5.4856E-09	5.4227E-09	1.4476E-09	3.3989E-09	1.7113E-09	3.5819E-09	3.0363E-09	6.0500E-09
4.50	4.5921E-09	4.4724E-09	1.2086E-09	2.8483E-09	1.4269E-09	2.9814E-09	2.5262E-09	5.0463E-09
5.00	3.9001E-09	3.7593E-09	1.0255E-09	2.4264E-09	1.2082E-09	2.5281E-09	2.1430E-09	4.2883E-09
7.50	2.0179E-09	1.9725E-09	5.6005E-10	1.3664E-09	6.2018E-10	1.4301E-09	1.2569E-09	2.4869E-09
10.00	1.2433E-09	1.3622E-09	4.2830E-10	1.0355E-09	3.8351E-10	1.1172E-09	1.0908E-09	2.0397E-09
15.00	6.5643E-10	9.8462E-10	4.2192E-10	8.3435E-10	2.3037E-10	9.3758E-10	1.0967E-09	1.8034E-09
20.00	4.7039E-10	8.7857E-10	4.5425E-10	7.4097E-10	2.1342E-10	8.3876E-10	1.0345E-09	1.5736E-09
25.00	3.9086E-10	8.1433E-10	4.5773E-10	6.6233E-10	2.1772E-10	7.4727E-10	9.1819E-10	1.3343E-09
30.00	3.4204E-10	7.5010E-10	4.3799E-10	5.8911E-10	2.1679E-10	6.6126E-10	7.9631E-10	1.1242E-09
35.00	3.0417E-10	6.8402E-10	4.0702E-10	5.2242E-10	2.0898E-10	5.8364E-10	6.8713E-10	9.5128E-10
40.00	2.7204E-10	6.1987E-10	3.7261E-10	4.6335E-10	1.9701E-10	5.1562E-10	5.9454E-10	8.1165E-10
45.00	2.4410E-10	5.6031E-10	3.3880E-10	4.1194E-10	1.8329E-10	4.5695E-10	5.1742E-10	6.9904E-10
50.00	2.1971E-10	5.0651E-10	3.0737E-10	3.6758E-10	1.6933E-10	4.0669E-10	4.5342E-10	6.0770E-10

TABLE B5-5
RADWASTE BUILDING VENT X/Q AT GROUND LEVEL
APPLICABLE TO LONG TERM (ROUTINE) GASEOUS RELEASES
GRAZING SEASON (APRIL 1 - SEPTEMBER 30)

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

X/Q BY SECTOR
(sec/m^3)

Distance (miles)	Bearing 22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
.25	1.5611E-06	1.9856E-06	4.7080E-06	2.6293E-06	1.0032E-06	5.1926E-07	4.9421E-07	4.8189E-07
.50	7.2599E-07	9.1035E-07	2.1162E-06	1.0342E-06	3.8968E-07	2.7740E-07	2.4510E-07	1.7353E-07
.75	4.3817E-07	5.4870E-07	1.2703E-06	5.7662E-07	2.1692E-07	1.8225E-07	1.5489E-07	9.9111E-08
1.00	2.9765E-07	3.7243E-07	8.6187E-07	3.7434E-07	1.4096E-07	1.2966E-07	1.0793E-07	6.7503E-08
1.50	2.0164E-07	2.5202E-07	5.8390E-07	2.4500E-07	9.2413E-08	9.0784E-08	7.4543E-08	4.6758E-08
2.00	1.0671E-07	1.3308E-07	3.0917E-07	1.2467E-07	4.7162E-08	4.9729E-08	4.0335E-08	2.5746E-08
2.50	7.4983E-08	9.3436E-08	2.1736E-07	8.6283E-08	3.2672E-08	3.5406E-08	2.8634E-08	1.8372E-08
3.00	5.5908E-08	6.9666E-08	1.6223E-07	6.3701E-08	2.4109E-08	2.6661E-08	2.1569E-08	1.3809E-08
3.50	4.3533E-08	5.4296E-08	1.2656E-07	4.9294E-08	1.8607E-08	2.0943E-08	1.7005E-08	1.0785E-08
4.00	3.5017E-08	4.3751E-08	1.0207E-07	3.9521E-08	1.4839E-08	1.6990E-08	1.3889E-08	8.6710E-09
4.50	2.8900E-08	3.6196E-08	8.4511E-08	3.2596E-08	1.2143E-08	1.4139E-08	1.1671E-08	7.1349E-09
5.00	2.4353E-08	3.0588E-08	7.1455E-08	2.7512E-08	1.0144E-08	1.2009E-08	1.0033E-08	5.9836E-09
7.50	1.2637E-08	1.6182E-08	3.7676E-08	1.4716E-08	5.0480E-09	6.4362E-09	5.7791E-09	3.0019E-09
10.00	7.9395E-09	1.0438E-08	2.3933E-08	9.6334E-09	3.0668E-09	4.1280E-09	3.9450E-09	1.8256E-09
15.00	4.0973E-09	5.7097E-09	1.2500E-08	5.3041E-09	1.5148E-09	2.1785E-09	2.2510E-09	8.9968E-10
20.00	2.5457E-09	3.7221E-09	7.8106E-09	3.4293E-09	9.1731E-10	1.3689E-09	1.4753E-09	5.4305E-10
25.00	1.7532E-09	2.6559E-09	5.3960E-09	2.4215E-09	6.2136E-10	9.4921E-10	1.0491E-09	3.6672E-10
30.00	1.2899E-09	2.0056E-09	3.9777E-09	1.8115E-09	4.5190E-10	7.0158E-10	7.8825E-10	2.6599E-10
35.00	9.9384E-10	1.5756E-09	3.0686E-09	1.4121E-09	3.4521E-10	5.4235E-10	6.1637E-10	2.0270E-10
40.00	7.9230E-10	1.2749E-09	2.4484E-09	1.1354E-09	2.7337E-10	4.3347E-10	4.9676E-10	1.6018E-10
45.00	6.4837E-10	1.0555E-09	2.0048E-09	9.3508E-10	2.2252E-10	3.5544E-10	4.0995E-10	1.3013E-10
50.00	5.4172E-10	8.9013E-10	1.6758E-09	7.8516E-10	1.8510E-10	2.9747E-10	3.4481E-10	1.0805E-10

TABLE B5-5 (cont)
RADWASTE BUILDING VENT X/Q AT GROUND LEVEL
APPLICABLE TO LONG TERM (ROUTINE) GASEOUS RELEASES
GRAZING SEASON (APRIL 1 - SEPTEMBER 30)

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

X/Q BY SECTOR
(sec/m^3)

Distance (miles)	Bearing 202.5	225.0	247.5	270.0	292.5	315.0	337.5	360.0
.25	6.3868E-07	1.0138E-06	1.8924E-07	7.6441E-07	4.2159E-07	1.1286E-06	8.1436E-07	1.8863E-06
.50	2.2341E-07	4.3976E-07	7.5525E-08	4.0381E-07	1.4462E-07	5.8671E-07	4.8003E-07	1.0354E-06
.75	1.2384E-07	2.6437E-07	4.2298E-08	2.5529E-07	7.3186E-08	3.7361E-07	3.2153E-07	6.7032E-07
1.00	8.2169E-08	1.7932E-07	2.7377E-08	1.7716E-07	4.4612E-08	2.6098E-07	2.3006E-07	4.7177E-07
1.50	5.5424E-08	1.2114E-07	1.7764E-08	1.2176E-07	2.7705E-08	1.8047E-07	1.6164E-07	3.2789E-07
2.00	2.9411E-08	6.3700E-08	8.8669E-09	6.5439E-08	1.3208E-08	9.7756E-08	8.8904E-08	1.7853E-07
2.50	2.0650E-08	4.4646E-08	6.0949E-09	4.6318E-08	8.8891E-09	6.9347E-08	6.3397E-08	1.2687E-07
3.00	1.5343E-08	3.3308E-08	4.5251E-09	3.4803E-08	6.4273E-09	5.2060E-08	4.7753E-08	9.5323E-08
3.50	1.1881E-08	2.6040E-08	3.5739E-09	2.7355E-08	4.8857E-09	4.0753E-08	3.7473E-08	7.4647E-08
4.00	9.4870E-09	2.1090E-08	2.9619E-09	2.2245E-08	3.8506E-09	3.2921E-08	3.0330E-08	6.0313E-08
4.50	7.7632E-09	1.7560E-08	2.5467E-09	1.8577E-08	3.1208E-09	2.7263E-08	2.5162E-08	4.9963E-08
5.00	6.4805E-09	1.4942E-08	2.2508E-09	1.5845E-08	2.5864E-09	2.3035E-08	2.1298E-08	4.2239E-08
7.50	3.2006E-09	8.1266E-09	1.5341E-09	8.6697E-09	1.2537E-09	1.2029E-08	1.1343E-08	2.2269E-08
10.00	1.9280E-09	5.2764E-09	1.2672E-09	5.6433E-09	7.5000E-10	7.5657E-09	7.4777E-09	1.4277E-08
15.00	9.4662E-10	2.8381E-09	1.0060E-09	3.0355E-09	3.7152E-10	3.9097E-09	4.3796E-09	7.7116E-09
20.00	6.0004E-10	1.8601E-09	8.4017E-10	1.9560E-09	2.5554E-10	2.4605E-09	3.0295E-09	4.9786E-09
25.00	4.5506E-10	1.3963E-09	7.2596E-10	1.4140E-09	2.2387E-10	1.7458E-09	2.2554E-09	3.5286E-09
30.00	3.8382E-10	1.1414E-09	6.4140E-10	1.1021E-09	2.1703E-10	1.3388E-09	1.7550E-09	2.6522E-09
35.00	3.4069E-10	9.7842E-10	5.7343E-10	9.0141E-10	2.1416E-10	1.0799E-09	1.4092E-09	2.0768E-09
40.00	3.0905E-10	8.6055E-10	5.1592E-10	7.6057E-10	2.0947E-10	9.0058E-10	1.1591E-09	1.6765E-09
45.00	2.8288E-10	7.6787E-10	4.6609E-10	6.5535E-10	2.0227E-10	7.6855E-10	9.7187E-10	1.3857E-09
50.00	2.5995E-10	6.9133E-10	4.2248E-10	5.7322E-10	1.9324E-10	6.6692E-10	8.2789E-10	1.1671E-09

TABLE B5-6
REACTOR BUILDING VENT X/Q AT GROUND LEVEL
APPLICABLE TO LONG TERM (ROUTINE) GASEOUS RELEASES
GRAZING SEASON (APRIL 1 - SEPTEMBER 30)

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

X/Q BY SECTOR
(sec/m^3)

Distance (miles)	Bearing 22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
.25	1.5547E-06	1.9841E-06	4.7025E-06	2.6214E-06	1.0032E-06	5.1908E-07	4.9421E-07	4.8119E-07
.50	7.2106E-07	9.0013E-07	2.0914E-06	1.0233E-06	3.8968E-07	2.7354E-07	2.4510E-07	1.7001E-07
.75	4.3387E-07	5.4017E-07	1.2507E-06	5.7164E-07	2.1692E-07	1.7824E-07	1.5489E-07	9.4678E-08
1.00	2.9478E-07	3.6702E-07	8.4787E-07	3.7202E-07	1.4096E-07	1.2690E-07	1.0793E-07	6.2450E-08
1.50	2.0000E-07	2.4903E-07	5.7450E-07	2.4397E-07	9.2413E-08	8.9188E-08	7.4543E-08	4.2099E-08
2.00	1.0614E-07	1.3209E-07	3.0496E-07	1.2440E-07	4.7162E-08	4.9174E-08	4.0324E-08	2.3068E-08
2.50	7.4669E-08	9.2868E-08	2.1473E-07	8.6120E-08	3.2672E-08	3.5081E-08	2.8583E-08	1.6678E-08
3.00	5.5675E-08	6.9220E-08	1.6028E-07	6.3517E-08	2.4109E-08	2.6404E-08	2.1441E-08	1.2710E-08
3.50	4.3304E-08	5.3838E-08	1.2483E-07	4.9022E-08	1.8607E-08	2.0688E-08	1.6780E-08	1.0048E-08
4.00	3.4759E-08	4.3236E-08	1.0037E-07	3.9129E-08	1.4839E-08	1.6715E-08	1.3566E-08	8.1590E-09
4.50	2.8609E-08	3.5623E-08	8.2800E-08	3.2076E-08	1.2143E-08	1.3847E-08	1.1262E-08	6.7683E-09
5.00	2.4035E-08	2.9972E-08	6.9749E-08	2.6873E-08	1.0144E-08	1.1709E-08	9.5568E-09	5.7138E-09
7.50	1.2326E-08	1.5544E-08	3.6334E-08	1.3792E-08	5.0480E-09	6.1925E-09	5.2369E-09	2.9233E-09
10.00	7.7155E-09	9.8465E-09	2.3045E-08	8.7932E-09	3.0668E-09	3.9675E-09	3.5231E-09	1.7940E-09
15.00	3.9926E-09	5.2208E-09	1.2112E-08	4.7997E-09	1.5148E-09	2.1092E-09	2.0373E-09	8.9113E-10
20.00	2.4925E-09	3.3570E-09	7.6191E-09	3.1394E-09	9.1731E-10	1.3350E-09	1.3625E-09	5.3971E-10
25.00	1.7233E-09	2.3943E-09	5.2901E-09	2.2468E-09	6.2136E-10	9.3049E-10	9.8430E-10	3.6512E-10
30.00	1.2717E-09	1.8182E-09	3.9138E-09	1.7002E-09	4.5190E-10	6.9030E-10	7.4822E-10	2.6511E-10
35.00	9.8202E-10	1.4395E-09	3.0273E-09	1.3376E-09	3.4521E-10	5.3509E-10	5.9013E-10	2.0217E-10
40.00	7.8423E-10	1.1741E-09	2.4204E-09	1.0834E-09	2.7337E-10	4.2854E-10	4.7874E-10	1.5984E-10
45.00	6.4264E-10	9.7938E-10	1.9850E-09	8.9755E-10	2.2252E-10	3.5195E-10	3.9708E-10	1.2990E-10
50.00	5.3751E-10	8.3155E-10	1.6613E-09	7.5726E-10	1.8510E-10	2.9492E-10	3.3533E-10	1.0789E-10

TABLE B5-6 (cont)
REACTOR BUILDING VENT X/Q AT GROUND LEVEL
APPLICABLE TO LONG TERM (ROUTINE) GASEOUS RELEASES
GRAZING SEASON (APRIL 1 - SEPTEMBER 30

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

X/Q BY SECTOR
(sec/m^3)

Distance (miles)	Bearing 202.5	225.0	247.5	270.0	292.5	315.0	337.5	360.0
.25	6.3062E-07	9.8678E-07	1.8234E-07	7.5156E-07	4.2159E-07	1.1286E-06	8.0770E-07	1.8801E-06
.50	2.1187E-07	4.2426E-07	7.1267E-08	3.9627E-07	1.4462E-07	5.8671E-07	4.7521E-07	1.0343E-06
.75	1.1403E-07	2.5561E-07	3.9874E-08	2.5285E-07	7.3186E-08	3.7361E-07	3.1829E-07	6.7003E-07
1.00	7.3997E-08	1.7450E-07	2.6054E-08	1.7596E-07	4.4612E-08	2.6098E-07	2.2816E-07	4.7166E-07
1.50	4.9139E-08	1.1870E-07	1.7099E-08	1.2120E-07	2.7705E-08	1.8047E-07	1.6063E-07	3.2784E-07
2.00	2.6224E-08	6.2938E-08	8.6597E-09	6.5263E-08	1.3208E-08	9.7750E-08	8.8580E-08	1.7851E-07
2.50	1.8695E-08	4.4187E-08	5.9585E-09	4.6159E-08	8.8891E-09	6.9312E-08	6.3199E-08	1.2682E-07
3.00	1.4096E-08	3.2903E-08	4.3792E-09	3.4570E-08	6.4273E-09	5.1972E-08	4.7571E-08	9.5206E-08
3.50	1.1051E-08	2.5601E-08	3.3875E-09	2.7021E-08	4.8857E-09	4.0602E-08	3.7264E-08	7.4427E-08
4.00	8.9150E-09	2.0601E-08	2.7324E-09	2.1824E-08	3.8506E-09	3.2715E-08	3.0085E-08	5.9980E-08
4.50	7.3554E-09	1.7034E-08	2.2840E-09	1.8099E-08	3.1208E-09	2.7019E-08	2.4886E-08	4.9528E-08
5.00	6.1813E-09	1.4402E-08	1.9665E-09	1.5338E-08	2.5864E-09	2.2768E-08	2.1000E-08	4.1721E-08
7.50	3.1142E-09	7.7006E-09	1.2111E-09	8.2526E-09	1.2537E-09	1.1795E-08	1.0932E-08	2.1587E-08
10.00	1.8931E-09	5.0006E-09	9.0050E-10	5.3712E-09	7.4985E-10	7.4086E-09	6.9019E-09	1.3604E-08
15.00	9.2903E-10	2.7048E-09	6.1391E-10	2.9111E-09	3.6327E-10	3.8331E-09	3.6804E-09	7.1618E-09
20.00	5.5811E-10	1.7267E-09	4.9007E-10	1.8612E-09	2.1725E-10	2.3886E-09	2.4395E-09	4.5769E-09
25.00	3.7561E-10	1.2096E-09	4.1649E-10	1.3052E-09	1.4616E-10	1.6495E-09	1.8105E-09	3.2446E-09
30.00	2.7293E-10	9.0274E-10	3.6238E-10	9.7354E-10	1.0709E-10	1.2177E-09	1.4280E-09	2.4506E-09
35.00	2.1082E-10	7.0780E-10	3.1993E-10	7.6012E-10	8.4870E-11	9.4336E-10	1.1680E-09	1.9312E-09
40.00	1.7172E-10	5.7845E-10	2.8629E-10	6.1547E-10	7.2505E-11	7.5872E-10	9.7865E-10	1.5691E-09
45.00	1.4636E-10	4.8955E-10	2.5946E-10	5.1333E-10	6.6002E-11	6.2882E-10	8.3461E-10	1.3047E-09
50.00	1.2941E-10	4.2637E-10	2.3773E-10	4.3864E-10	6.2863E-11	5.3401E-10	7.2168E-10	1.1049E-09

TABLE B5-7
STACK D/Q AT GROUND LEVEL APPLICABLE TO
LONG TERM (ROUTINE) GASEOUS RELEASES

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

ANNUAL D/Q BY SECTOR
(m^{-2})

Distance (miles)	Bearing 22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
.25	7.6285E-11	4.8983E-11	2.0657E-10	3.8408E-10	3.6731E-10	4.9728E-10	4.9421E-10	5.1166E-10
.50	1.1122E-10	9.6236E-11	3.8613E-10	6.8830E-10	6.0772E-10	5.8501E-10	4.5629E-10	5.0882E-10
.75	1.3846E-10	1.2743E-10	3.7389E-10	5.7250E-10	4.7841E-10	4.2541E-10	3.1241E-10	3.6233E-10
1.00	1.6564E-10	1.5391E-10	3.7002E-10	4.8546E-10	3.8393E-10	3.2457E-10	2.2969E-10	2.7719E-10
1.50	1.7007E-10	1.5794E-10	3.4052E-10	3.9859E-10	3.0106E-10	2.4489E-10	1.6826E-10	2.1141E-10
2.00	1.3354E-10	1.2420E-10	2.4679E-10	2.6067E-10	1.8833E-10	1.4827E-10	9.8559E-11	1.2976E-10
2.50	1.0584E-10	9.8768E-11	1.9176E-10	1.9637E-10	1.4000E-10	1.0950E-10	7.1860E-11	9.5991E-11
3.00	8.4320E-11	7.8940E-11	1.5122E-10	1.5208E-10	1.0761E-10	8.3982E-11	5.4642E-11	7.3552E-11
3.50	6.8197E-11	6.4021E-11	1.2158E-10	1.2086E-10	8.5115E-11	6.6371E-11	4.2921E-11	5.8028E-11
4.00	5.6071E-11	5.2751E-11	9.9569E-11	9.8172E-11	6.8907E-11	5.3713E-11	3.4577E-11	4.6876E-11
4.50	4.6863E-11	4.4159E-11	8.2951E-11	8.1290E-11	5.6907E-11	4.4344E-11	2.8447E-11	3.8636E-11
5.00	3.9802E-11	3.7549E-11	7.0209E-11	6.8468E-11	4.7813E-11	3.7241E-11	2.3828E-11	3.2404E-11
7.50	2.2070E-11	2.0835E-11	3.7191E-11	3.5551E-11	2.4320E-11	1.8826E-11	1.2007E-11	1.6368E-11
10.00	1.6490E-11	1.5570E-11	2.5349E-11	2.3697E-11	1.5615E-11	1.1900E-11	7.6722E-12	1.0471E-11
15.00	1.2549E-11	1.1934E-11	1.6497E-11	1.4910E-11	9.2463E-12	6.7276E-12	4.5093E-12	6.1852E-12
20.00	1.0049E-11	9.5856E-12	1.2165E-11	1.0653E-11	6.6206E-12	4.6210E-12	3.2087E-12	4.4003E-12
25.00	7.9952E-12	7.6092E-12	9.2479E-12	8.2220E-12	5.0193E-12	3.4080E-12	2.4238E-12	3.3050E-12
30.00	6.3501E-12	6.0167E-12	7.1510E-12	6.3487E-12	3.8768E-12	2.5942E-12	1.8701E-12	2.5328E-12
35.00	5.0650E-12	4.7764E-12	5.6140E-12	4.9750E-12	3.0217E-12	2.0124E-12	1.4589E-12	1.9651E-12
40.00	4.0733E-12	3.8245E-12	4.4740E-12	3.9541E-12	2.3760E-12	1.5855E-12	1.1497E-12	1.5429E-12
45.00	3.3102E-12	3.0961E-12	3.6181E-12	3.1673E-12	1.8882E-12	1.2677E-12	9.1637E-13	1.2269E-12
50.00	2.7213E-12	2.5366E-12	2.9674E-12	2.6052E-12	1.5192E-12	1.0285E-12	7.3975E-13	9.8911E-13

TABLE B5-7 (cont)
STACK D/Q AT GROUND LEVEL APPLICABLE TO LONG TERM (ROUTINE) GASEOUS RELEASES

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

ANNUAL D/Q BY SECTOR
(m^{-2})

Distance (miles)	Bearing 202.5	225.0	247.5	270.0	292.5	315.0	337.5	360.0
.25	2.7423E-10	2.2140E-10	5.8184E-11	5.0679E-11	1.1168E-10	1.9677E-10	2.0969E-10	2.1435E-10
.50	3.2718E-10	3.1664E-10	1.1669E-10	9.1659E-11	1.9578E-10	3.2312E-10	2.8957E-10	3.1749E-10
.75	2.5389E-10	2.5727E-10	1.0988E-10	9.9393E-11	2.1274E-10	3.6321E-10	2.8280E-10	3.3488E-10
1.00	2.0855E-10	2.1734E-10	1.0584E-10	1.0829E-10	2.2844E-10	4.0115E-10	2.8829E-10	3.5810E-10
1.50	1.6849E-10	1.7877E-10	9.6704E-11	1.0687E-10	2.2025E-10	3.9326E-10	2.7152E-10	3.4527E-10
2.00	1.0939E-10	1.1786E-10	7.0371E-11	8.2459E-11	1.6461E-10	2.9799E-10	2.0080E-10	2.5878E-10
2.50	8.2372E-11	8.9233E-11	5.4775E-11	6.5171E-11	1.2865E-10	2.3392E-10	1.5687E-10	2.0270E-10
3.00	6.3792E-11	6.9366E-11	4.3196E-11	5.1819E-11	1.0167E-10	1.8539E-10	1.2404E-10	1.6049E-10
3.50	5.0687E-11	5.5271E-11	3.4701E-11	4.1837E-11	8.1823E-11	1.4948E-10	9.9879E-11	1.2935E-10
4.00	4.1157E-11	4.4977E-11	2.8383E-11	3.4338E-11	6.7043E-11	1.2265E-10	8.1876E-11	1.0612E-10
4.50	3.4057E-11	3.7286E-11	2.3614E-11	2.8650E-11	5.5885E-11	1.0232E-10	6.8275E-11	8.8565E-11
5.00	2.8657E-11	3.1426E-11	1.9966E-11	2.4300E-11	4.7346E-11	8.6710E-11	5.7864E-11	7.5132E-11
7.50	1.4644E-11	1.6263E-11	1.0725E-11	1.3597E-11	2.5623E-11	4.6099E-11	3.1372E-11	4.1189E-11
10.00	9.4362E-12	1.0705E-11	7.7467E-12	1.0602E-11	1.8292E-11	3.1276E-11	2.2405E-11	2.9983E-11
15.00	5.6160E-12	6.6026E-12	5.7868E-12	8.7978E-12	1.2936E-11	1.9943E-11	1.5802E-11	2.1660E-11
20.00	4.0459E-12	4.8345E-12	4.6599E-12	7.3450E-12	1.0005E-11	1.4544E-11	1.2201E-11	1.6793E-11
25.00	3.0884E-12	3.7216E-12	3.7130E-12	5.9270E-12	7.8272E-12	1.1048E-11	9.5473E-12	1.3123E-11
30.00	2.4003E-12	2.9112E-12	2.9299E-12	4.7102E-12	6.1620E-12	8.5855E-12	7.5321E-12	1.0344E-11
35.00	1.8807E-12	2.2951E-12	2.3068E-12	3.7342E-12	4.8920E-12	6.7927E-12	6.0015E-12	8.2509E-12
40.00	1.4854E-12	1.8237E-12	1.8232E-12	2.9750E-12	3.9251E-12	5.4628E-12	4.8382E-12	6.6690E-12
45.00	1.1851E-12	1.4636E-12	1.4524E-12	2.3911E-12	3.1869E-12	4.4607E-12	3.9496E-12	5.4632E-12
50.00	9.5699E-13	1.1884E-12	1.1692E-12	1.9428E-12	2.6198E-12	3.6947E-12	3.2654E-12	4.5339E-12

TABLE B5-8

RADWASTE BUILDING VENT D/Q AT GROUND LEVEL

APPLICABLE TO LONG TERM (ROUTINE) GASEOUS RELEASES

Nine Mile Point Nuclear Station - Unit 2

Niagara Mohawk Power Corporation

ANNUAL D/Q BY SECTOR

(m^{-2})

Distance (miles)	Bearing 22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
.25	1.0387E-08	1.0303E-08	1.8676E-08	1.8219E-08	1.2917E-08	1.0494E-08	6.4710E-09	7.8877E-09
.50	4.7725E-09	4.5433E-09	7.2361E-09	6.8234E-09	4.5160E-09	3.6017E-09	2.2640E-09	2.8162E-09
.75	2.8151E-09	2.6210E-09	3.9729E-09	3.7029E-09	2.3577E-09	1.8622E-09	1.1854E-09	1.4923E-09
1.00	1.8649E-09	1.7141E-09	2.5395E-09	2.3532E-09	1.4673E-09	1.1517E-09	7.3789E-10	9.4140E-10
1.50	1.2252E-09	1.1155E-09	1.6295E-09	1.5038E-09	9.2448E-10	7.2214E-10	4.6438E-10	6.0113E-10
2.00	6.1100E-10	5.5167E-10	7.9731E-10	7.3303E-10	4.4523E-10	3.4681E-10	2.2310E-10	2.9410E-10
2.50	4.1404E-10	3.7344E-10	5.3889E-10	4.9503E-10	2.9988E-10	2.3391E-10	1.5010E-10	1.9891E-10
3.00	2.9952E-10	2.7036E-10	3.9033E-10	3.5847E-10	2.1690E-10	1.6943E-10	1.0841E-10	1.4396E-10
3.50	2.2770E-10	2.0592E-10	2.9768E-10	2.7339E-10	1.6527E-10	1.2912E-10	8.2401E-11	1.0949E-10
4.00	1.7987E-10	1.6311E-10	2.3614E-10	2.1689E-10	1.3098E-10	1.0217E-10	6.5062E-11	8.6456E-11
4.50	1.4658E-10	1.3334E-10	1.9330E-10	1.7755E-10	1.0711E-10	8.3269E-11	5.2943E-11	7.0355E-11
5.00	1.2249E-10	1.1184E-10	1.6227E-10	1.4904E-10	8.9842E-11	6.9493E-11	4.4140E-11	5.8672E-11
7.50	6.3065E-11	5.8812E-11	8.5074E-11	7.8120E-11	4.7170E-11	3.5202E-11	2.2377E-11	2.9955E-11
10.00	3.9573E-11	3.7717E-11	5.4021E-11	4.9609E-11	3.0244E-11	2.1834E-11	1.3945E-11	1.8944E-11
15.00	1.9553E-11	1.9286E-11	2.7159E-11	2.4990E-11	1.5578E-11	1.0835E-11	6.9830E-12	9.7625E-12
20.00	1.1309E-11	1.1321E-11	1.5869E-11	1.4668E-11	9.3241E-12	6.3876E-12	4.1438E-12	5.8539E-12
25.00	7.2654E-12	7.2569E-12	1.0205E-11	9.5022E-12	6.1694E-12	4.1883E-12	2.7370E-12	3.8391E-12
30.00	5.0322E-12	4.9686E-12	7.0350E-12	6.6074E-12	4.3856E-12	2.9555E-12	1.9465E-12	2.6870E-12
35.00	3.6674E-12	3.5714E-12	5.1023E-12	4.8303E-12	3.2653E-12	2.1903E-12	1.4507E-12	1.9691E-12
40.00	2.7639E-12	2.6594E-12	3.8423E-12	3.6583E-12	2.5008E-12	1.6767E-12	1.1122E-12	1.4893E-12
45.00	2.1323E-12	2.0336E-12	2.9779E-12	2.8443E-12	1.9511E-12	1.3132E-12	8.6854E-13	1.1525E-12
50.00	1.6756E-12	1.5892E-12	2.3625E-12	2.2586E-12	1.5450E-12	1.0476E-12	6.8829E-13	9.0868E-13

TABLE B5-8 (cont)

RADWASTE BUILDING VENT D/Q AT GROUND LEVEL

APPLICABLE TO LONG TERM (ROUTINE) GASEOUS RELEASES

Nine Mile Point Nuclear Station - Unit 2

Niagara Mohawk Power Corporation

ANNUAL D/Q BY SECTOR

(m^{-2})

Distance	Bearing							
(miles)	202.5	225.0	247.5	270.0	292.5	315.0	337.5	360.0
.25	6.7145E-09	7.3341E-09	3.6754E-09	4.5016E-09	1.1552E-08	2.3012E-08	1.5482E-08	2.1468E-08
.50	2.5460E-09	2.9084E-09	1.5870E-09	2.2558E-09	5.1461E-09	9.6727E-09	6.8778E-09	9.6408E-09
.75	1.3875E-09	1.6082E-09	9.1557E-10	1.3960E-09	3.0003E-09	5.4818E-09	4.0220E-09	5.6275E-09
1.00	8.8641E-10	1.0308E-09	6.0331E-10	9.4947E-10	1.9736E-09	3.5630E-09	2.6584E-09	3.7062E-09
1.50	5.7012E-10	6.6229E-10	3.9640E-10	6.3504E-10	1.2890E-09	2.3147E-09	1.7470E-09	2.4255E-09
2.00	2.8066E-10	3.2453E-10	1.9839E-10	3.2128E-10	6.3837E-10	1.1465E-09	8.7475E-10	1.2068E-09
2.50	1.9026E-10	2.1959E-10	1.3490E-10	2.1853E-10	4.3159E-10	7.7683E-10	5.9478E-10	8.1785E-10
3.00	1.3791E-10	1.5908E-10	9.8255E-11	1.5885E-10	3.1177E-10	5.6176E-10	4.3123E-10	5.9139E-10
3.50	1.0496E-10	1.2115E-10	7.5625E-11	1.2183E-10	2.3672E-10	4.2597E-10	3.2789E-10	4.4865E-10
4.00	8.2888E-11	9.5800E-11	6.0868E-11	9.7565E-11	1.8673E-10	3.3464E-10	2.5846E-10	3.5292E-10
4.50	6.7408E-11	7.8049E-11	5.0808E-11	8.0901E-11	1.5187E-10	2.7035E-10	2.0966E-10	2.8574E-10
5.00	5.6143E-11	6.5133E-11	4.3651E-11	6.8952E-11	1.2660E-10	2.2340E-10	1.7406E-10	2.3682E-10
7.50	2.8293E-11	3.3001E-11	2.5928E-11	3.9130E-11	6.4128E-11	1.0720E-10	8.5651E-11	1.1582E-10
10.00	1.7592E-11	2.0404E-11	1.8020E-11	2.6350E-11	3.9712E-11	6.3635E-11	5.1821E-11	6.9717E-11
15.00	8.8440E-12	1.0019E-11	9.8667E-12	1.4141E-11	1.9486E-11	3.0184E-11	2.4999E-11	3.3220E-11
20.00	5.2868E-12	5.8981E-12	5.9079E-12	8.4405E-12	1.1323E-11	1.7516E-11	1.4526E-11	1.9074E-11
25.00	3.5215E-12	3.9151E-12	3.8159E-12	5.4159E-12	7.3124E-12	1.1386E-11	9.4015E-12	1.2215E-11
30.00	2.5253E-12	2.8161E-12	2.6245E-12	3.6828E-12	5.0839E-12	7.9737E-12	6.5447E-12	8.4260E-12
35.00	1.8946E-12	2.1232E-12	1.8885E-12	2.6172E-12	3.7170E-12	5.8776E-12	4.7904E-12	6.1259E-12
40.00	1.4587E-12	1.6420E-12	1.4001E-12	1.9206E-12	2.8118E-12	4.4928E-12	3.6315E-12	4.6275E-12
45.00	1.1413E-12	1.2890E-12	1.0596E-12	1.4435E-12	2.1796E-12	3.5288E-12	2.8251E-12	3.5987E-12
50.00	9.0445E-13	1.0237E-12	8.1503E-13	1.1064E-12	1.7229E-12	2.8326E-12	2.2438E-12	2.8646E-12

TABLE B5-9

REACTOR BUILDING VENT D/Q AT GROUND LEVEL

APPLICABLE TO LONG TERM (ROUTINE) GASEOUS RELEASES

Nine Mile Point Nuclear Station - Unit 2

Niagara Mohawk Power Corporation

ANNUAL D/Q BY SECTOR

(m^{-2})

Distance (miles)	Bearing 22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
.25	1.0336E-08	1.0270E-08	1.8613E-08	1.8017E-08	1.2716E-08	1.0337E-08	6.3158E-09	7.6707E-09
.50	4.7090E-09	4.5011E-09	7.1367E-09	6.6688E-09	4.4082E-09	3.5377E-09	2.1933E-09	2.7329E-09
.75	2.7612E-09	2.5854E-09	3.8952E-09	3.6037E-09	2.2946E-09	1.8258E-09	1.1488E-09	1.4382E-09
1.00	1.8266E-09	1.6898E-09	2.4887E-09	2.2938E-09	1.4292E-09	1.1301E-09	7.1726E-10	9.0209E-10
1.50	1.2015E-09	1.1009E-09	1.5999E-09	1.4715E-09	9.0302E-10	7.0990E-10	4.5315E-10	5.7476E-10
2.00	6.0219E-10	5.4555E-10	7.8598E-10	7.2176E-10	4.3702E-10	3.4073E-10	2.1846E-10	2.8282E-10
2.50	4.0908E-10	3.6899E-10	5.3161E-10	4.8805E-10	2.9460E-10	2.2886E-10	1.4678E-10	1.9230E-10
3.00	2.9585E-10	2.6623E-10	3.8423E-10	3.5278E-10	2.1273E-10	1.6491E-10	1.0568E-10	1.3965E-10
3.50	2.2410E-10	2.0148E-10	2.9150E-10	2.6772E-10	1.6140E-10	1.2497E-10	7.9976E-11	1.0629E-10
4.00	1.7585E-10	1.5814E-10	2.2943E-10	2.1079E-10	1.2707E-10	9.8323E-11	6.2814E-11	8.3775E-11
4.50	1.4203E-10	1.2787E-10	1.8602E-10	1.7097E-10	1.0304E-10	7.9676E-11	5.0811E-11	6.7903E-11
5.00	1.1749E-10	1.0597E-10	1.5456E-10	1.4211E-10	8.5609E-11	6.6129E-11	4.2099E-11	5.6316E-11
7.50	5.7986E-11	5.3043E-11	7.8031E-11	7.1805E-11	4.3115E-11	3.2861E-11	2.0806E-11	2.7820E-11
10.00	3.6064E-11	3.3504E-11	4.9314E-11	4.5382E-11	2.7268E-11	2.0331E-11	1.2864E-11	1.7211E-11
15.00	1.8455E-11	1.7596E-11	2.5665E-11	2.3626E-11	1.4380E-11	1.0306E-11	6.5434E-12	8.8554E-12
20.00	1.1086E-11	1.0807E-11	1.5597E-11	1.4376E-11	8.8995E-12	6.2287E-12	3.9715E-12	5.4721E-12
25.00	7.2359E-12	7.1851E-12	1.0298E-11	9.5103E-12	5.9738E-12	4.1326E-12	2.6435E-12	3.7017E-12
30.00	5.0013E-12	5.0305E-12	7.1972E-12	6.6616E-12	4.2312E-12	2.9142E-12	1.8672E-12	2.6423E-12
35.00	3.6166E-12	3.6616E-12	5.2531E-12	4.8755E-12	3.1244E-12	2.1503E-12	1.3786E-12	1.9587E-12
40.00	2.7170E-12	2.7526E-12	3.9720E-12	3.6990E-12	2.3906E-12	1.6459E-12	1.0559E-12	1.4972E-12
45.00	2.1092E-12	2.1281E-12	3.0935E-12	2.8929E-12	1.8873E-12	1.2993E-12	8.3466E-13	1.1758E-12
50.00	1.6841E-12	1.6866E-12	2.4706E-12	2.3215E-12	1.5312E-12	1.0529E-12	6.7802E-13	9.4584E-13

TABLE B5-9 (cont)
REACTOR BUILDING VENT D/Q AT GROUND LEVEL
APPLICABLE TO LONG TERM (ROUTINE) GASEOUS RELEASES

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

ANNUAL D/Q BY SECTOR
(m^{-2})

Distance (miles)	Bearing 202.5	225.0	247.5	270.0	292.5	315.0	337.5	360.0
.25	6.5394E-09	7.1157E-09	3.5497E-09	4.4255E-09	1.1410E-08	2.2833E-08	1.5384E-08	2.1371E-08
.50	2.4572E-09	2.8130E-09	1.5189E-09	2.1687E-09	5.0260E-09	9.5398E-09	6.7801E-09	9.5402E-09
.75	1.3335E-09	1.5540E-09	8.6738E-10	1.3249E-09	2.9191E-09	5.3854E-09	3.9440E-09	5.5514E-09
1.00	8.5188E-10	9.9935E-10	5.6914E-10	8.9870E-10	1.9243E-09	3.4980E-09	2.6047E-09	3.6563E-09
1.50	5.4945E-10	6.4555E-10	3.7420E-10	6.0295E-10	1.2623E-09	2.2751E-09	1.7142E-09	2.3962E-09
2.00	2.7267E-10	3.1852E-10	1.8945E-10	3.0907E-10	6.3008E-10	1.1319E-09	8.6231E-10	1.1960E-09
2.50	1.8561E-10	2.1564E-10	1.2977E-10	2.1160E-10	4.2722E-10	7.6903E-10	5.8757E-10	8.1148E-10
3.00	1.3480E-10	1.5591E-10	9.4585E-11	1.5378E-10	3.0860E-10	5.5699E-10	4.2615E-10	5.8654E-10
3.50	1.0257E-10	1.1827E-10	7.2243E-11	1.1701E-10	2.3358E-10	4.2251E-10	3.2354E-10	4.4408E-10
4.00	8.0814E-11	9.3022E-11	5.7262E-11	9.2370E-11	1.8319E-10	3.3172E-10	2.5426E-10	3.4816E-10
4.50	6.5466E-11	7.5312E-11	4.6831E-11	7.5242E-11	1.4788E-10	2.6765E-10	2.0543E-10	2.8071E-10
5.00	5.4256E-11	6.2438E-11	3.9339E-11	6.2952E-11	1.2226E-10	2.2082E-10	1.6980E-10	2.3158E-10
7.50	2.6645E-11	3.0909E-11	2.1558E-11	3.3674E-11	5.9983E-11	1.0510E-10	8.2136E-11	1.1113E-10
10.00	1.6340E-11	1.9091E-11	1.4877E-11	2.2522E-11	3.6913E-11	6.2060E-11	4.9418E-11	6.6527E-11
15.00	8.2457E-12	9.6167E-12	8.6733E-12	1.2477E-11	1.8519E-11	2.9370E-11	2.3958E-11	3.2112E-11
20.00	5.0100E-12	5.7532E-12	5.5549E-12	7.8203E-12	1.1042E-11	1.7145E-11	1.4102E-11	1.8804E-11
25.00	3.3493E-12	3.7783E-12	3.7469E-12	5.2580E-12	7.2254E-12	1.1216E-11	9.2266E-12	1.2214E-11
30.00	2.3770E-12	2.6438E-12	2.6281E-12	3.7007E-12	5.0295E-12	7.8808E-12	6.4564E-12	8.4846E-12
35.00	1.7627E-12	1.9434E-12	1.9055E-12	2.6930E-12	3.6668E-12	5.8186E-12	4.7372E-12	6.1870E-12
40.00	1.3556E-12	1.4888E-12	1.4244E-12	2.0149E-12	2.7752E-12	4.4599E-12	3.6053E-12	4.6850E-12
45.00	1.0761E-12	1.1816E-12	1.0955E-12	1.5457E-12	2.1673E-12	3.5220E-12	2.8271E-12	3.6575E-12
50.00	8.7786E-13	9.6609E-13	8.6496E-13	1.2134E-12	1.7382E-12	2.8504E-12	2.2731E-12	2.9283E-12

TABLE B5-10
STACK D/Q AT GROUND LEVEL APPLICABLE TO
LONG TERM (ROUTINE) GASEOUS RELEASES
GRAZING SEASON (APRIL 1 - SEPTEMBER 30)

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

D/Q BY SECTOR
(m^{-2})

Distance (miles)	Bearing 22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
.25	5.7930E-11	4.3039E-11	3.3495E-10	3.8377E-10	1.6241E-10	7.4816E-11	1.5959E-10	3.6050E-10
.50	1.2111E-10	9.5896E-11	5.9020E-10	7.4029E-10	2.8522E-10	1.3693E-10	1.8312E-10	3.4273E-10
.75	1.6180E-10	1.7738E-10	6.5435E-10	6.2879E-10	2.3116E-10	1.1458E-10	1.3069E-10	2.3050E-10
1.00	1.9616E-10	2.4495E-10	7.2067E-10	5.3177E-10	1.9150E-10	1.0003E-10	9.7578E-11	1.7059E-10
1.50	2.0113E-10	2.6542E-10	7.0768E-10	4.3090E-10	1.5358E-10	8.4876E-11	7.1745E-11	1.3037E-10
2.00	1.5677E-10	2.1422E-10	5.3877E-10	2.7507E-10	9.7411E-11	5.7550E-11	4.1523E-11	8.3575E-11
2.50	1.2387E-10	1.7073E-10	4.2387E-10	2.0500E-10	7.2502E-11	4.3807E-11	2.9953E-11	6.3276E-11
3.00	9.8508E-11	1.3642E-10	3.3639E-10	1.5767E-10	5.5732E-11	3.4104E-11	2.2583E-11	4.9190E-11
3.50	7.9595E-11	1.1055E-10	2.7148E-10	1.2474E-10	4.4083E-11	2.7178E-11	1.7632E-11	3.9146E-11
4.00	6.5402E-11	9.1027E-11	2.2288E-10	1.0105E-10	3.5703E-11	2.2117E-11	1.4153E-11	3.1783E-11
4.50	5.4626E-11	7.6142E-11	1.8603E-10	8.3541E-11	2.9509E-11	1.8349E-11	1.1637E-11	2.6266E-11
5.00	4.6338E-11	6.4660E-11	1.5770E-10	7.0313E-11	2.4824E-11	1.5504E-11	9.7854E-12	2.2052E-11
7.50	2.4860E-11	3.4833E-11	8.4109E-11	3.6764E-11	1.2762E-11	8.6087E-12	5.7512E-12	1.0996E-11
10.00	1.7184E-11	2.4369E-11	5.7483E-11	2.5027E-11	8.2552E-12	6.5975E-12	5.1253E-12	6.7417E-12
15.00	1.1293E-11	1.6787E-11	3.6972E-11	1.6384E-11	4.7716E-12	5.1563E-12	4.9213E-12	3.4880E-12
20.00	8.2881E-12	1.2784E-11	2.6833E-11	1.2068E-11	3.2487E-12	4.1142E-12	4.2352E-12	2.2001E-12
25.00	6.2710E-12	9.8363E-12	2.0209E-11	9.1198E-12	2.3627E-12	3.2463E-12	3.4250E-12	1.5250E-12
30.00	4.8476E-12	7.6233E-12	1.5603E-11	7.0111E-12	1.7885E-12	2.5697E-12	2.7202E-12	1.1191E-12
35.00	3.8219E-12	5.9779E-12	1.2307E-11	5.4847E-12	1.3947E-12	2.0560E-12	2.1620E-12	8.5452E-13
40.00	3.0685E-12	4.7549E-12	9.8953E-12	4.3655E-12	1.1138E-12	1.6667E-12	1.7325E-12	6.7234E-13
45.00	2.5042E-12	3.8388E-12	8.0916E-12	3.5321E-12	9.0721E-13	1.3692E-12	1.4034E-12	5.4166E-13
50.00	2.0738E-12	3.1443E-12	6.7162E-12	2.9013E-12	7.5137E-13	1.1390E-12	1.1499E-12	4.4488E-13

TABLE B5-10 (cont)
STACK D/Q AT GROUND LEVEL APPLICABLE TO
LONG TERM (ROUTINE) GASEOUS RELEASES
GRAZING SEASON (APRIL 1 - SEPTEMBER 30)

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

D/Q BY SECTOR
(m^{-2})

Distance (miles)	Bearing 202.5	225.0	247.5	270.0	292.5	315.0	337.5	360.0
.25	3.3338E-10	5.4883E-10	2.8699E-11	2.2525E-11	4.1398E-11	1.1043E-10	2.5636E-10	1.8489E-10
.50	3.5303E-10	6.3055E-10	6.0022E-11	6.7544E-11	7.4867E-11	2.0300E-10	2.3681E-10	2.9623E-10
.75	2.6514E-10	4.5446E-10	5.7186E-11	9.0036E-11	6.9916E-11	1.7926E-10	1.7761E-10	2.6924E-10
1.00	2.2258E-10	3.4366E-10	5.5209E-11	1.0531E-10	6.7050E-11	1.6104E-10	1.4755E-10	2.5152E-10
1.50	1.8847E-10	2.5670E-10	4.9890E-11	1.0526E-10	6.0200E-11	1.3732E-10	1.2071E-10	2.2105E-10
2.00	1.3144E-10	1.5188E-10	3.5445E-11	8.0238E-11	4.2446E-11	9.2242E-11	7.8855E-11	1.5266E-10
2.50	1.0162E-10	1.1047E-10	2.7313E-11	6.2981E-11	3.2636E-11	6.9900E-11	5.9319E-11	1.1666E-10
3.00	7.9902E-11	8.3701E-11	2.1413E-11	4.9898E-11	2.5563E-11	5.4313E-11	4.5882E-11	9.1077E-11
3.50	6.4064E-11	6.5539E-11	1.7144E-11	4.0228E-11	2.0462E-11	4.3270E-11	3.6430E-11	7.2777E-11
4.00	5.2303E-11	5.2679E-11	1.3996E-11	3.3012E-11	1.6706E-11	3.5236E-11	2.9588E-11	5.9388E-11
4.50	4.3415E-11	4.3287E-11	1.1632E-11	2.7561E-11	1.3882E-11	2.9271E-11	2.4532E-11	4.9419E-11
5.00	3.6575E-11	3.6258E-11	9.8275E-12	2.3397E-11	1.1717E-11	2.4775E-11	2.0746E-11	4.1905E-11
7.50	1.8263E-11	1.8782E-11	5.2873E-12	1.3031E-11	5.9310E-12	1.3940E-11	1.2071E-11	2.4158E-11
10.00	1.0939E-11	1.2907E-11	4.0397E-12	9.8598E-12	3.6288E-12	1.0884E-11	1.0512E-11	1.9827E-11
15.00	5.5858E-12	9.2810E-12	3.9670E-12	7.8981E-12	2.1669E-12	9.0511E-12	1.0476E-11	1.7351E-11
20.00	3.9587E-12	8.1014E-12	4.0723E-12	6.8314E-12	1.9861E-12	7.8743E-12	9.4322E-12	1.4621E-11
25.00	3.1859E-12	7.1151E-12	3.7514E-12	5.8081E-12	1.9039E-12	6.6862E-12	7.7893E-12	1.1790E-11
30.00	2.5873E-12	5.9993E-12	3.1704E-12	4.7981E-12	1.6879E-12	5.5246E-12	6.2055E-12	9.3787E-12
35.00	2.0572E-12	4.8736E-12	2.5362E-12	3.8788E-12	1.3915E-12	4.4806E-12	4.8980E-12	7.4774E-12
40.00	1.6056E-12	3.8686E-12	1.9658E-12	3.1013E-12	1.0931E-12	3.6038E-12	3.8798E-12	6.0165E-12
45.00	1.2419E-12	3.0400E-12	1.5002E-12	2.4751E-12	8.3519E-13	2.8987E-12	3.1025E-12	4.8982E-12
50.00	9.6067E-13	2.3883E-12	1.1397E-12	1.9847E-12	6.3014E-13	2.3455E-12	2.5107E-12	4.0373E-12

TABLE B5-11
RADWASTE BUILDING VENT D/Q AT GROUND LEVEL
APPLICABLE TO LONG TERM (ROUTINE) GASEOUS RELEASES
GRAZING SEASON (APRIL 1 - SEPTEMBER 30)

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

D/Q BY SECTOR
(m^{-2})

Distance (miles)	Bearing 22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
.25	1.2774E-08	1.6593E-08	4.0420E-08	2.3344E-08	8.7627E-09	4.2213E-09	4.0082E-09	4.3045E-09
.50	5.2582E-09	6.8856E-09	1.6589E-08	8.6071E-09	3.0842E-09	1.9424E-09	1.6128E-09	1.4339E-09
.75	2.9314E-09	3.8938E-09	9.3971E-09	4.5713E-09	1.5957E-09	1.1787E-09	8.9682E-10	7.7884E-10
1.00	1.8826E-09	2.5249E-09	6.1217E-09	2.8605E-09	9.8257E-10	7.9515E-10	5.7280E-10	5.1576E-10
1.50	1.2091E-09	1.6346E-09	3.9904E-09	1.8063E-09	6.1207E-10	5.2912E-10	3.6500E-10	3.4948E-10
2.00	5.8903E-10	8.0465E-10	1.9890E-09	8.6939E-10	2.8919E-10	2.6704E-10	1.7496E-10	1.8550E-10
2.50	3.9596E-10	5.4382E-10	1.3531E-09	5.8414E-10	1.9250E-10	1.8175E-10	1.1679E-10	1.2912E-10
3.00	2.8481E-10	3.9323E-10	9.8362E-10	4.2118E-10	1.3755E-10	1.3202E-10	8.4168E-11	9.4759E-11
3.50	2.1536E-10	2.9905E-10	7.5131E-10	3.1984E-10	1.0334E-10	1.0085E-10	6.4569E-11	7.2362E-11
4.00	1.6913E-10	2.3635E-10	5.9588E-10	2.5269E-10	8.0532E-11	8.0104E-11	5.2125E-11	5.6957E-11
4.50	1.3688E-10	1.9260E-10	4.8690E-10	2.0612E-10	6.4571E-11	6.5629E-11	4.3848E-11	4.5943E-11
5.00	1.1351E-10	1.6086E-10	4.0740E-10	1.7258E-10	5.2973E-11	5.5102E-11	3.8073E-11	3.7818E-11
7.50	5.5927E-11	8.2398E-11	2.0748E-10	9.0900E-11	2.4593E-11	2.8560E-11	2.3792E-11	1.7536E-11
10.00	3.3792E-11	5.2231E-11	1.2766E-10	5.8743E-11	1.4223E-11	1.7723E-11	1.6806E-11	1.0029E-11
15.00	1.6053E-11	2.7301E-11	6.1771E-11	3.0200E-11	6.5528E-12	8.5473E-12	9.0176E-12	4.5045E-12
20.00	9.1680E-12	1.6442E-11	3.5651E-11	1.7679E-11	3.7761E-12	4.8611E-12	5.2057E-12	2.5364E-12
25.00	5.8408E-12	1.0599E-11	2.2882E-11	1.1270E-11	2.4611E-12	3.0636E-12	3.2219E-12	1.6201E-12
30.00	4.0090E-12	7.1899E-12	1.5794E-11	7.6722E-12	1.7343E-12	2.0746E-12	2.1171E-12	1.1218E-12
35.00	2.9050E-12	5.0979E-12	1.1496E-11	5.5023E-12	1.2900E-12	1.4816E-12	1.4619E-12	8.2146E-13
40.00	2.1937E-12	3.7579E-12	8.7112E-12	4.1144E-12	9.9823E-13	1.1024E-12	1.0517E-12	6.2687E-13
45.00	1.7109E-12	2.8647E-12	6.8129E-12	3.1821E-12	7.9615E-13	8.4716E-13	7.8270E-13	4.9371E-13
50.00	1.3693E-12	2.2473E-12	5.4654E-12	2.5301E-12	6.5031E-13	6.6839E-13	5.9936E-13	3.9867E-13

TABLE B5-11 (cont)
RADWASTE BUILDING VENT D/Q AT GROUND LEVEL
APPLICABLE TO LONG TERM (ROUTINE) GASEOUS RELEASES
GRAZING SEASON (APRIL 1 - SEPTEMBER 30)

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

D/Q BY SECTOR
(m^{-2})

Distance (miles)	Bearing 202.5	225.0	247.5	270.0	292.5	315.0	337.5	360.0
.25	5.8658E-09	9.0216E-09	1.6669E-09	6.0711E-09	3.6116E-09	9.3031E-09	6.6889E-09	1.5525E-08
.50	2.0453E-09	3.4567E-09	6.6178E-10	2.7137E-09	1.2045E-09	3.9997E-09	3.3250E-09	7.2029E-09
.75	1.1361E-09	1.9200E-09	3.7006E-10	1.5457E-09	5.9876E-10	2.2708E-09	2.0330E-09	4.2231E-09
1.00	7.5438E-10	1.2324E-09	2.3858E-10	9.9687E-10	3.6012E-10	1.4672E-09	1.3681E-09	2.7775E-09
1.50	5.0790E-10	7.9027E-10	1.5376E-10	6.3935E-10	2.2066E-10	9.4421E-10	9.0731E-10	1.8123E-09
2.00	2.6634E-10	3.8358E-10	7.5536E-11	3.0908E-10	1.0289E-10	4.5912E-10	4.5607E-10	8.9586E-10
2.50	1.8483E-10	2.5796E-10	5.1408E-11	2.0719E-10	6.8384E-11	3.0789E-10	3.0977E-10	6.0465E-10
3.00	1.3566E-10	1.8661E-10	3.7914E-11	1.4961E-10	4.8919E-11	2.2108E-10	2.2433E-10	4.3575E-10
3.50	1.0378E-10	1.4276E-10	2.9865E-11	1.1448E-10	3.6839E-11	1.6706E-10	1.7051E-10	3.2982E-10
4.00	8.1914E-11	1.1400E-10	2.4771E-11	9.1610E-11	2.8792E-11	1.3122E-10	1.3450E-10	2.5922E-10
4.50	6.6292E-11	9.4105E-11	2.1361E-11	7.5901E-11	2.3159E-11	1.0626E-10	1.0929E-10	2.1001E-10
5.00	5.4762E-11	7.9698E-11	1.8949E-11	6.4570E-11	1.9061E-11	8.8182E-11	9.0985E-11	1.7441E-10
7.50	2.5865E-11	4.3020E-11	1.3013E-11	3.5621E-11	8.9831E-12	4.3467E-11	4.6680E-11	8.7612E-11
10.00	1.5044E-11	2.7418E-11	1.0592E-11	2.2971E-11	5.2603E-12	2.6173E-11	3.1252E-11	5.5020E-11
15.00	7.0257E-12	1.3782E-11	7.7003E-12	1.1537E-11	2.5486E-12	1.2423E-11	1.8931E-11	2.8398E-11
20.00	4.3714E-12	8.6356E-12	5.5637E-12	6.9641E-12	1.8160E-12	7.3921E-12	1.2293E-11	1.6899E-11
25.00	3.3297E-12	6.5001E-12	4.1376E-12	4.8987E-12	1.6799E-12	5.1882E-12	8.0128E-12	1.0771E-11
30.00	2.7798E-12	5.3580E-12	3.1876E-12	3.7769E-12	1.6273E-12	4.0051E-12	5.3050E-12	7.2290E-12
35.00	2.3469E-12	4.4750E-12	2.4854E-12	3.0069E-12	1.4966E-12	3.1986E-12	3.6092E-12	5.0741E-12
40.00	1.9424E-12	3.6650E-12	1.9232E-12	2.3939E-12	1.2893E-12	2.5594E-12	2.5366E-12	3.7048E-12
45.00	1.5702E-12	2.9283E-12	1.4660E-12	1.8873E-12	1.0529E-12	2.0324E-12	1.8430E-12	2.7991E-12
50.00	1.2480E-12	2.2959E-12	1.1022E-12	1.4755E-12	8.2812E-13	1.6038E-12	1.3820E-12	2.1778E-12

TABLE B5-12

REACTOR BUILDING VENT D/Q AT GROUND LEVEL

APPLICABLE TO LONG TERM (ROUTINE) GASEOUS RELEASES

GRAZING SEASON (APRIL 1 - SEPTEMBER 30)

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

D/Q BY SECTOR
(m^{-2})

Distance (miles)	Bearing 22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
.25	1.2710E-08	1.6579E-08	4.0365E-08	2.3265E-08	8.7627E-09	4.2195E-09	4.0082E-09	4.2975E-09
.50	5.2094E-09	6.7837E-09	1.6343E-08	8.5000E-09	3.0842E-09	1.9038E-09	1.6128E-09	1.3988E-09
.75	2.8892E-09	3.8099E-09	9.2049E-09	4.5239E-09	1.5957E-09	1.1391E-09	8.9682E-10	7.3497E-10
1.00	1.8550E-09	2.4729E-09	5.9862E-09	2.8396E-09	9.8257E-10	7.6853E-10	5.7280E-10	4.6606E-10
1.50	1.1940E-09	1.6071E-09	3.9017E-09	1.7978E-09	6.1207E-10	5.1433E-10	3.6500E-10	3.0437E-10
2.00	5.8446E-10	7.9653E-10	1.9522E-09	8.6764E-10	2.8919E-10	2.6249E-10	1.7486E-10	1.6133E-10
2.50	3.9364E-10	5.3955E-10	1.3318E-09	5.8315E-10	1.9250E-10	1.7929E-10	1.1627E-10	1.1496E-10
3.00	2.8313E-10	3.8986E-10	9.6834E-10	4.1980E-10	1.3755E-10	1.3008E-10	8.2892E-11	8.6444E-11
3.50	2.1358E-10	2.9535E-10	7.3763E-10	3.1747E-10	1.0334E-10	9.8791E-11	6.2331E-11	6.7405E-11
4.00	1.6697E-10	2.3193E-10	5.8208E-10	2.4905E-10	8.0532E-11	7.7771E-11	4.8915E-11	5.3972E-11
4.50	1.3434E-10	1.8751E-10	4.7266E-10	2.0117E-10	6.4571E-11	6.3071E-11	3.9802E-11	4.4144E-11
5.00	1.1067E-10	1.5530E-10	3.9296E-10	1.6646E-10	5.2973E-11	5.2437E-11	3.3404E-11	3.6748E-11
7.50	5.3274E-11	7.6875E-11	1.9677E-10	8.2424E-11	2.4593E-11	2.6555E-11	1.8894E-11	1.7608E-11
10.00	3.2215E-11	4.7551E-11	1.2191E-10	5.1951E-11	1.4223E-11	1.6657E-11	1.3585E-11	1.0217E-11
15.00	1.5727E-11	2.4185E-11	6.0774E-11	2.7793E-11	6.5528E-12	8.3602E-12	8.1877E-12	4.6421E-12
20.00	9.2028E-12	1.4928E-11	3.5876E-11	1.7337E-11	3.7761E-12	4.8963E-12	5.1862E-12	2.6244E-12
25.00	5.9525E-12	1.0193E-11	2.3340E-11	1.1597E-11	2.4611E-12	3.1421E-12	3.4077E-12	1.6789E-12
30.00	4.1208E-12	7.3498E-12	1.6234E-11	8.1354E-12	1.7343E-12	2.1509E-12	2.3243E-12	1.1630E-12
35.00	2.9993E-12	5.4748E-12	1.1864E-11	5.9315E-12	1.2900E-12	1.5459E-12	1.6419E-12	8.5169E-13
40.00	2.2693E-12	4.1740E-12	9.0072E-12	4.4684E-12	9.9823E-13	1.1543E-12	1.1971E-12	6.4979E-13
45.00	1.7705E-12	3.2444E-12	7.0484E-12	3.4618E-12	7.9615E-13	8.8872E-13	8.9727E-13	5.1157E-13
50.00	1.4164E-12	2.5667E-12	5.6531E-12	2.7475E-12	6.5031E-13	7.0165E-13	6.8912E-13	4.1292E-13

TABLE B5-12 (cont)
REACTOR BUILDING VENT D/Q AT GROUND LEVEL
APPLICABLE TO LONG TERM (ROUTING) GASEOUS RELEASES
GRAZING SEASON (APRIL 1 - SEPTEMBER 30)

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

D/Q BY SECTOR
(m^{-2})

Distance (miles)	Bearing 202.5	225.0	247.5	270.0	292.5	315.0	337.5	360.0
.25	5.7856E-09	8.7524E-09	1.5984E-09	5.9431E-09	3.6116E-09	9.3031E-09	6.6227E-09	1.5464E-08
.50	1.9307E-09	3.3042E-09	6.1976E-10	2.6594E-09	1.2045E-09	3.9997E-09	3.2773E-09	7.1926E-09
.75	1.0396E-09	1.8351E-09	3.4650E-10	1.5224E-09	5.9876E-10	2.2708E-09	2.0014E-09	4.2204E-09
1.00	6.7496E-10	1.1870E-09	2.2606E-10	9.8581E-10	3.6012E-10	1.4672E-09	1.3500E-09	2.7765E-09
1.50	4.4793E-10	7.6824E-10	1.4773E-10	6.3440E-10	2.2066E-10	9.4421E-10	8.9814E-10	1.8119E-09
2.00	2.3806E-10	3.7753E-10	7.3868E-11	3.0770E-10	1.0289E-10	4.5906E-10	4.5346E-10	8.9574E-10
2.50	1.6881E-10	2.5451E-10	5.0341E-11	2.0587E-10	6.8384E-11	3.0754E-10	3.0826E-10	6.0423E-10
3.00	1.2642E-10	1.8343E-10	3.6680E-11	1.4747E-10	4.8919E-11	2.2020E-10	2.2287E-10	4.3460E-10
3.50	9.8348E-11	1.3905E-10	2.8179E-11	1.1130E-10	3.6839E-11	1.6556E-10	1.6872E-10	3.2764E-10
4.00	7.8682E-11	1.0967E-10	2.2630E-11	8.7554E-11	2.8792E-11	1.2917E-10	1.3230E-10	2.5593E-10
4.50	6.4369E-11	8.9359E-11	1.8882E-11	7.1287E-11	2.3159E-11	1.0385E-10	1.0676E-10	2.0572E-10
5.00	5.3638E-11	7.4792E-11	1.6265E-11	5.9718E-11	1.9061E-11	8.5583E-11	8.8224E-11	1.6933E-10
7.50	2.5973E-11	3.9486E-11	1.0133E-11	3.2043E-11	8.9831E-12	4.1424E-11	4.2957E-11	8.1372E-11
10.00	1.5266E-11	2.5576E-11	7.4749E-12	2.1087E-11	5.2588E-12	2.5066E-11	2.6121E-11	4.9461E-11
15.00	7.1034E-12	1.3294E-11	4.8188E-12	1.1105E-11	2.4661E-12	1.2129E-11	1.3541E-11	2.4906E-11
20.00	4.0967E-12	7.9352E-12	3.6322E-12	6.6239E-12	1.4389E-12	7.0343E-12	9.1629E-12	1.5307E-11
25.00	2.6684E-12	5.1684E-12	2.8860E-12	4.2853E-12	9.4996E-13	4.5260E-12	6.9003E-12	1.0386E-11
30.00	1.8907E-12	3.6091E-12	2.2954E-12	2.9571E-12	6.8986E-13	3.1363E-12	5.3257E-12	7.4322E-12
35.00	1.4374E-12	2.6918E-12	1.8208E-12	2.1625E-12	5.5156E-13	2.3120E-12	4.1107E-12	5.4923E-12
40.00	1.1647E-12	2.1424E-12	1.4572E-12	1.6712E-12	4.8453E-13	1.8021E-12	3.1661E-12	4.1543E-12
45.00	9.9606E-13	1.8077E-12	1.1894E-12	1.3580E-12	4.5755E-13	1.4750E-12	2.4418E-12	3.2043E-12
50.00	8.8627E-13	1.5949E-12	9.9478E-13	1.1499E-12	4.4944E-13	1.2555E-12	1.8936E-12	2.5160E-12

Part C Radiological Dose Assessment

Request C1

If there is a priori knowledge that the current 50-mile population age distribution may be significantly different from the U.S. population distribution, then furnish the current age distribution of the 50-mile population (e.g., 0-12, 12-18, >18).

Response C1

Table C1-1 provides the age distribution of counties within 50 miles of Nine Mile Point Nuclear Station - Unit 2 (NMP2) and the distribution for the United States. This population distribution is not significantly different from the U.S. population distribution.

The population age distribution used in determining man-rem dose estimates is as follows:

Age Group	Percent
Adult	62
Teen	14
Child	24

A total population of 1,324,000 persons within a 50 mile radius is projected for the year 2000 (Figure 2.1-13, ref. 1). This value is used as being representative of the 50 mile population at the midpoint of the NMP2 plant life.

TABLE C1-1
Population Age Distribution of U.S. and of Counties Within 50 Miles

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

County	1970 Population	% Under 5	% 5-9	% 10-14	% 15-19	% Over 19
Cayuga	77,439	8.63	9.96	10.57	9.59	61.23
Jefferson	88,509	9.01	10.42	10.77	9.17	60.64
Lewis	23,644	9.44	11.66	12.40	9.91	56.58
Madison	62,864	9.53	10.36	10.57	12.12	57.42
Oneida	273,037	8.63	9.92	10.13	9.02	62.29
Onondaga	472,746	8.90	10.26	10.26	9.47	61.11
Ontario	78,849	8.78	10.71	10.53	9.42	60.55
Oswego	100,897	9.54	10.74	10.78	10.50	58.43
Seneca	35,083	8.07	9.28	9.91	8.73	64.01
Wayne	79,404	9.39	10.96	10.74	8.57	60.35
Total (all counties)	1,292,472	8.93	10.29	10.42	9.50	60.86
U.S.	203,210,158	8.42	9.87	10.26	9.45	62.00

References:

1. U.S. Bureau of Census, Census of Population 1970, General Population Characteristics Final Report PC(1)B1 National.
2. U.S. Bureau of Census, Census of Population 1970, General Population Characteristics Final Report PC (1) B34 New York.

Request C2

Provide in tabular form the distances from the centerline of the first operational reactor for each of the sixteen sectors described in Section 2.1.3 of Regulatory Guide 4.2, Rev. 1, to the nearest vegetable garden (greater than 500 ft^2) out to a distance of five miles.

Response C2

Field surveys conducted on November 21, 1975, December 8, 1975, and April 21 and 22, 1976, located gardens larger than 500 sq ft in eight of the sixteen sectors within a distance of five miles of Nine Mile Point Nuclear Station - Unit 2. These Gardens are listed in Table C2-1.

TABLE C2-1
NEAREST GARDEN OVER 500 FT^2 WITHIN FIVE MILES

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

Sector	Distance (ft)
N	-
NNE	-
NE	-
ENE	-
E	6,200
ESE	7,800
SE	8,700
SSE	8,400
S	7,900
SSW	9,700
SW	10,400
WSW	6,000
W	-
WNW	-
NW	-
NNW	-

Note:
A dash (-) indicates none within 5 miles.

Request C3

Tabulate for each compass point sector radiating from the center of the plant the location of the nearest existing milk-producing animals (cows and goats) within five miles of the site.

Response C3

Field surveys conducted on November 21, 1975, December 8, 1975, and April 21 and 22, 1976, located milk-producing and meat producing animals within five miles of the site in 6 of the 16 compass point sectors. The distances in feet to the nearest of the animals in each sector are tabulated in Table C3-1.

The Response to AEC Question 2.19 in the Nine Mile Point Nuclear Station - Unit 2 Preliminary Safety Analysis Report (ref.1) shows dairy cow distribution and numbers within 1, 2, 3, 4, 5, 10, 20, 30, 40, and 50 miles. A 47 percent decline in the number of farms in Oswego County having cows in the five years from 1964 to 1969 is also indicated in that response. That trend could account for the failure to find cows in the east sector now versus 15 cows earlier.

TABLE C3-1

NEAREST MILK PRODUCERS AND MEAT ANIMALS WITHIN FIVE MILES

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

Sector	Distance to Nearest Milk Cow (ft)	Distance to Nearest Meat Animal (ft)	Distance to Nearest Goat (ft)
N	-	-	-
NNE	-	-	-
NE	-	-	-
ENE	-	-	-
E	-	-	-
ESE	7,800	7,800	-
SE	8,500	8,500	-
SSE	12,000	12,000	19,000
S	11,000	11,800	-
SSW	16,000	9,800	-
SW	11,800	8,500	-
WSW	-	-	-
W	-	-	-
WNW	-	-	-
NW	-	-	-
NNW	-	-	-

Note:
A dash (-) indicates none within 5 miles.

Request C4

Provide data on annual meat (kg/yr), milk (liters/yr), and truck farming production (kg/yr) and distribution within a 50 mile radius from the reactor. Provide the data by sectors in the same manner indicated in Sections 2.1.3.1 and 2.1.3.2 of Regulatory Guide 4.2, Rev. 1.

Response C4

Tables C4-1, C4-2, and C4-3 provide data on annual meat (kg/yr), milk (liters/yr), and farming production (kg/yr), respectively, by sector within a 50 mile radius (refs. 20 and 21).

TABLE C4-1
MEAT PRODUCTION DISTRIBUTION WITHIN 50 MILES

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

MEAT (Kilograms per year)

PRODUCTION DISTRIBUTION

SECTOR	0-1 MI	1-2 MI.	2-3 MI	3-4 MI	4-5 MI	5-10 MI	10-20 MI	20-30 MI	30-40 MI	40-50 MI
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6E+05	4.2E+05
NNE	0.0	0.0	0.0	0.0	0.0	0.0	3.5E+04	3.5E+05	4.9E+05	8.1E+05
NE	0.0	0.0	0.0	0.0	0.0	0.0	1.9E+05	4.5E+05	6.0E+05	7.5E+05
ENE	0.0	0.0	0.0	0.0	0.0	4.7E+03	1.9E+05	3.6E+05	3.9E+05	4.8E+05
E	0.0	0.0	0.0	4.4E+02	1.1E+03	2.3E+04	1.9E+05	3.2E+05	3.6E+05	5.7E+05
ESE	0.0	1.1E+04	1.7E+04	4.4E+03	5.6E+03	4.7E+04	1.9E+05	3.6E+05	7.3E+05	9.4E+05
SE	0.0	1.9E+04	4.5E+04	4.4E+03	5.6E+03	4.7E+04	1.9E+05	2.3E+05	4.9E+05	1.4E+06
SSE	0.0	0.0	3.3E+04	4.4E+03	5.6E+03	4.7E+04	1.9E+05	4.5E+05	6.4E+05	9.2E+05
S	0.0	0.0	2.3E+04	4.4E+03	5.6E+03	4.7E+04	1.9E+05	4.5E+05	6.9E+05	7.8E+05
SSW	0.0	1.0E+03	1.9E+04	4.4E+03	5.6E+03	4.7E+04	1.9E+05	5.9E+05	8.0E+05	9.4E+05
SW	0.0	1.0E+04	2.0E+03	4.4E+03	5.6E+03	4.7E+04	2.5E+05	5.0E+05	7.2E+05	8.8E+05
WSW	0.0	0.0	0.0	0.0	0.0	0.0	7.4E+04	0.0	4.2E+05	6.2E+05
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7E+05
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7E+05
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8E+05

Total Production 2.3E+07 Kilograms per year

Note: The typical notation 2.3E+07 represents 2.3×10^7

TABLE C4-2
COW MILK PRODUCTION DISTRIBUTION WITHIN 50 MILES

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

COW MILK (Liters/Year)

PRODUCTION DISTRIBUTION

SECTOR	0-1 MI	1-2 MI	2-3 MI	3-4 MI	4-5 MI	5-10 MI	10-20 MI	20-30 MI	30-40 MI	40-50 MI
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0E+06	1.3E+07
NNE	0.0	0.0	0.0	0.0	0.0	0.0	1.1E+06	1.1E+07	1.5E+07	2.5E+07
NE	0.0	0.0	0.0	0.0	0.0	0.0	5.3E+06	1.4E+07	2.0E+07	2.4E+07
ENE	0.0	0.0	0.0	0.0	0.0	9.9E+04	4.0E+06	9.2E+06	1.7E+07	2.1E+07
E	0.0	0.0	0.0	9.3E+03	2.4E+04	5.0E+05	4.0E+06	6.8E+06	1.6E+07	2.2E+07
ESE	0.0	1.5E+05	0.0	9.3E+04	1.2E+05	9.9E+05	4.0E+06	8.7E+06	2.1E+07	2.7E+07
SE	0.0	2.5E+04	1.5E+04	9.3E+04	1.2E+05	9.9E+05	4.0E+06	5.0E+06	1.6E+07	4.6E+07
SSE	0.0	0.0	7.5E+04	9.3E+04	1.2E+05	9.9E+05	4.0E+06	1.1E+07	1.5E+07	2.5E+07
S	0.0	0.0	0.0	9.3E+04	1.2E+05	9.9E+05	4.0E+06	1.1E+07	1.6E+07	1.8E+07
SSW	0.0	0.0	0.0	9.3E+04	1.2E+05	9.9E+05	4.0E+06	1.4E+07	1.6E+07	1.8E+07
SW	0.0	0.0	1.0E+04	9.3E+04	1.2E+05	9.9E+05	5.5E+06	1.1E+07	1.1E+07	1.3E+07
WSW	0.0	0.0	0.0	0.0	0.0	0.0	1.6E+06	0.0	9.5E+06	9.5E+06
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3E+06
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7E+07
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.7E+06

Total Production 6.1E+08 liters per year

Note: The typical notation 6.1E+08 represents $6.1X10^8$

TABLE C4-3
CROP GROWTH DISTRIBUTION WITHIN 50 MILES

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

FRUIT (Kilograms per year)

SECTOR	0-1 MI	1-2 MI	2-3 MI	3-4 MI	4-5 MI	5-10 MI	10-20 MI	20-30 MI	30-40 MI	40-50 MI
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5E+03	1.1E+04
NNE	0.0	0.0	0.0	0.0	0.0	0.0	9.5E+02	9.5E+03	1.3E+04	2.2E+04
NE	0.0	0.0	0.0	0.0	0.0	0.0	9.7E+04	1.2E+04	1.5E+04	1.8E+04
ENE	0.0	0.0	0.0	0.0	0.0	9.3E+03	3.7E+05	4.2E+05	1.8E+03	0.0
E	0.0	3.7E+03	3.1E+03	8.7E+02	2.3E+03	4.7E+04	3.7E+05	6.4E+05	0.0	3.1E+04
ESE	0.0	3.7E+03	6.4E+03	8.7E+03	1.1E+04	9.3E+04	3.7E+05	4.9E+05	1.2E+05	1.6E+05
SE	0.0	3.7E+03	6.4E+03	8.7E+03	1.1E+04	9.3E+04	3.7E+05	4.7E+05	7.8E+04	2.1E+05
SSE	0.0	3.7E+03	6.4E+03	8.7E+03	1.1E+04	9.3E+04	3.7E+05	9.6E+05	1.4E+06	1.5E+06
S	0.0	3.7E+03	6.4E+03	8.7E+03	1.1E+04	9.3E+04	3.7E+05	9.6E+05	1.2E+06	1.1E+06
SSW	0.0	3.7E+03	6.4E+03	8.7E+03	1.1E+04	9.3E+04	3.7E+05	4.9E+05	1.1E+07	9.1E+05
SW	1.2E+02	3.7E+03	6.4E+03	8.7E+03	1.1E+04	9.3E+04	3.2E+05	1.4E+07	3.3E+07	2.8E+07
WSW	0.0	0.0	0.0	0.0	0.0	0.0	9.6E+04	0.0	2.4E+05	2.8E+07
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7E+03
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6E+04
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7E+03

Total Production 1.3E+08 Kilograms per year

Note: The typical notation 1.3E+08 represents 1.3×10^8

TABLE C4-3 (cont.)
CROP GROWTH DISTRIBUTION WITHIN 50 MILES

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

FRESH VEGETABLES (Kilograms per year)

SECTOR	0-1 MI	1-2 MI	2-3 MI	3-4 MI	4-5 MI	5-10 MI	10-20 MI	20-30 MI	30-40 MI	40-50 MI
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4E+03	3.5E+03
NNE	0.0	0.0	0.0	0.0	0.0	0.0	2.9E+02	2.9E+03	4.1E+03	6.8E+03
NE	0.0	0.0	0.0	0.0	0.0	0.0	6.0E+05	3.7E+03	6.0E+03	7.5E+03
ENE	0.0	0.0	0.0	0.0	0.0	6.0E+04	2.4E+06	2.6E+06	7.7E+03	1.1E+04
E	0.0	2.4E+04	2.0E+04	5.6E+03	1.5E+04	3.0E+05	2.4E+06	4.1E+06	7.9E+03	2.7E+05
ESE	0.0	2.4E+04	4.1E+04	5.6E+04	7.1E+04	6.0E+05	2.4E+06	3.2E+06	1.0E+06	1.3E+06
SE	0.0	2.4E+04	4.1E+04	5.6E+04	7.1E+04	6.0E+05	2.4E+06	3.0E+06	7.6E+05	2.2E+06
SSE	0.0	2.4E+04	4.1E+04	5.6E+04	7.1E+04	6.0E+05	2.4E+06	1.4E+06	2.0E+06	2.5E+06
S	0.0	2.4E+04	4.1E+04	5.6E+04	7.1E+04	6.0E+05	2.4E+06	1.4E+06	2.1E+06	2.4E+06
SSW	0.0	2.4E+04	4.1E+04	5.6E+04	7.1E+04	6.0E+05	2.4E+06	1.7E+06	4.2E+06	1.7E+06
SW	7.8E+02	2.4E+04	4.1E+04	5.6E+04	7.1E+04	6.0E+05	2.0E+06	3.5E+06	7.8E+06	6.8E+06
WSW	0.0	0.0	0.0	0.0	0.0	0.0	5.9E+05	0.0	1.2E+06	6.8E+06
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4E+03
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7E+03
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4E+03

Total Production 8.9E+07 Kilograms per year

Note:
The typical notation 8.9E+07 represents $8.9X10^7$

TABLE C 4-3 (cont.)
CROP GROWTH DISTRIBUTION WITHIN 50 MILES

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

POTATOES (Kilograms per year)

SECTOR	0-1 MI	1-2 MI	2-3 MI	3-4 MI	4-5 MI	5-10 MI	10-20 MI	20-30 MI	30-40 MI	40-50 MI
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2E+05	3.0E+05
NNE	0.0	0.0	0.0	0.0	0.0	0.0	2.5E+04	2.5E+05	3.6E+05	6.0E+05
NE	0.0	0.0	0.0	0.0	0.0	0.0	1.7E+05	3.3E+05	3.9E+05	4.8E+05
ENE	0.0	0.0	0.0	0.0	0.0	6.8E+03	2.7E+05	4.1E+05	5.4E+04	9.9E+03
E	0.0	2.7E+03	2.3E+03	6.4E+02	1.7E+03	3.4E+04	2.7E+05	4.7E+05	7.4E+03	2.4E+05
ESE	0.0	2.7E+03	4.7E+03	6.4E+03	8.1E+03	6.8E+04	2.7E+05	5.0E+05	8.9E+05	1.1E+06
SE	0.0	2.7E+03	4.7E+03	6.4E+03	8.1E+03	6.8E+04	2.7E+05	3.4E+05	1.3E+06	4.4E+06
SSE	0.0	2.7E+03	4.7E+03	6.4E+03	8.1E+03	6.8E+04	2.7E+05	2.6E+05	3.7E+05	1.3E+06
S	0.0	2.7E+03	4.7E+03	6.4E+03	8.1E+03	6.8E+04	2.7E+05	2.6E+05	8.8E+05	1.3E+06
SSW	0.0	2.7E+03	4.7E+03	6.4E+03	8.1E+03	6.8E+04	2.7E+05	1.5E+06	4.6E+06	3.9E+06
SW	8.9E+01	2.7E+03	4.7E+03	6.4E+03	8.1E+03	6.8E+04	5.3E+05	4.0E+06	9.1E+06	9.4E+06
WSW	0.0	0.0	0.0	0.0	0.0	0.0	1.6E+05	0.0	1.2E+06	7.9E+06
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3E+05
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1E+05
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1E+05

Total Production 6.2E+07 Kilograms per year

Note:
The typical notation 6.2E+07 represents 6.2X10^7

TABLE C4-3 (cont.)
CROP GROWTH DISTRIBUTION WITHIN 50 MILES

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

PROCESSED VEGETABLES (Kilograms per year)

SECTOR	0-1 MI	1-2 MI	2-3 MI	3-4 MI	4-5 MI	5-10 MI	10-20 MI	20-30 MI	30-40 MI	40-50 MI
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.4E+02	2.2E+03
NNE	0.0	0.0	0.0	0.0	0.0	0.0	1.8E+02	1.8E+03	2.5E+03	4.2E+03
NE	0.0	0.0	0.0	0.0	0.0	0.0	6.6E+04	2.3E+03	3.1E+03	3.8E+03
ENE	0.0	0.0	0.0	0.0	0.0	6.5E+03	2.6E+05	2.9E+05	1.8E+03	2.2E+03
E	0.0	2.6E+03	2.2E+03	6.1E+02	1.6E+03	3.3E+04	2.6E+05	4.5E+05	1.6E+03	2.8E+05
ESE	0.0	2.6E+03	4.5E+03	6.1E+03	7.8E+03	6.5E+04	2.6E+05	5.2E+05	1.1E+06	1.4E+06
SE	0.0	2.6E+03	4.5E+03	6.1E+03	7.8E+03	6.5E+04	2.6E+05	3.3E+05	3.7E+05	6.0E+05
SSE	0.0	2.6E+03	4.5E+03	6.1E+03	7.8E+03	6.5E+04	2.6E+05	1.1E+06	1.5E+06	1.7E+06
S	0.0	2.6E+03	4.5E+03	6.1E+03	7.8E+03	6.5E+04	2.6E+05	1.1E+06	1.5E+06	1.6E+06
SSW	0.0	2.6E+03	4.5E+03	6.1E+03	7.8E+03	6.5E+04	2.6E+05	1.0E+06	2.3E+06	8.9E+05
SW	8.6E+01	2.6E+03	4.5E+03	6.1E+03	7.8E+03	6.5E+04	3.7E+05	2.1E+06	4.3E+06	3.7E+06
WSW	0.0	0.0	0.0	0.0	0.0	0.0	1.1E+05	0.0	6.6E+05	3.7E+06
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.9E+02
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9E+03
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5E+03

Total Production 3.5E+07 (Kilograms per year)

Note:
The typical notation 3.5E+07 represents 3.5×10^7

TABLE C4-3 (cont.)
CROP GROWTH DISTRIBUTION WITHIN 50 MILES

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

GRAINS (Kilograms per year)

SECTOR	0-1 MI	1-2 MI	2-3 MI	3-4 MI	4-5 MI	5-10 MI	10-20 MI	20-30 MI	30-40 MI	40-50 MI
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.9E+05	1.8E+06
NNE	0.0	0.0	0.0	0.0	0.0	0.0	1.5E+05	1.5E+06	2.1E+06	3.5E+06
NE	0.0	0.0	0.0	0.0	0.0	0.0	6.9E+05	1.9E+06	2.4E+06	3.0E+06
ENE	0.0	0.0	0.0	0.0	0.0	1.0E+04	4.0E+05	1.1E+06	8.9E+05	9.0E+05
E	0.0	4.0E+03	3.4E+03	9.4E+02	2.5E+03	5.0E+04	4.0E+05	6.9E+05	6.8E+05	1.5E+06
ESE	0.0	4.0E+03	6.9E+03	9.4E+03	1.2E+04	1.0E+05	4.0E+05	1.1E+06	3.1E+06	4.0E+06
SE	0.0	4.0E+03	6.9E+03	9.4E+03	1.2E+04	1.0E+05	4.0E+05	5.0E+05	2.7E+06	8.3E+06
SSE	0.0	4.0E+03	6.9E+03	9.4E+03	1.2E+04	1.0E+05	4.0E+05	5.7E+06	8.2E+06	1.0E+07
S	0.0	4.0E+03	6.9E+03	9.4E+03	1.2E+04	1.0E+05	4.0E+05	5.7E+06	1.0E+07	1.2E+07
SSW	0.0	4.0E+03	6.9E+03	9.4E+03	1.2E+04	1.0E+05	4.0E+05	1.0E+07	1.3E+07	1.9E+07
SW	1.3E+02	4.0E+03	6.9E+03	9.4E+03	1.2E+04	1.0E+05	2.5E+06	4.8E+06	9.4E+06	1.4E+07
WSW	0.0	0.0	0.0	0.0	0.0	0.0	7.3E+05	0.0	7.5E+06	8.1E+06
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.3E+05
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4E+06
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2E+06

Total Production 1.9E+08 Kilograms per year

Note:
The typical notation 1.9E+08 represents $1.9X10^8$

TABLE C9-1

COMPARISON OF CALCULATED ANNUAL DOSES TO INDIVIDUALS WITH APPENDIX I DESIGN OBJECTIVES

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

CRITERION	APPENDIX I DESIGN OBJECTIVE	CALCULATED DOSE
Gaseous Effluents		
Gamma Air Dose	10 mrad/yr	0.11 mrad/yr
Beta Air Dose	20 mrad/yr	0.047 mrad/yr
Noble Gas - Total Body	5 mrem/yr	0.083 mrem/yr
Noble Gas - Skin	15 mrem/yr	0.12 mrem/yr
Iodines and Part. Any Organ (Thyroid)	15 mrem/yr	2.20 mrem/yr
Liquid Effluents		
Total Body	3 mrem/yr	0.063 mrem/yr
Any Organ (Bone)	10 mrem/yr	0.70 mrem/yr

TABLE C9-2
ANNUAL DOSES FROM NOBLE GAS EFFLUENTS

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

CRITERION	LOCATION OF DOSE EVALUATION	CALCULATED DOSE
Gamma dose in air (mrad/yr)	Boundary of restricted area - 1 mile East	1.1×10^{-1}
Beta dose in air (mrad/yr)	Boundary of restricted area - 1 mile East	4.7×10^{-2}
Dose to total body of an individual (mrem/yr)	Boundary of restricted area - 1 mile East	8.3×10^{-2}
Dose to skin of an individual (mrem/yr)	Boundary of restricted area - 1 mile East	1.2×10^{-1}

TABLE C9-3
ANNUAL DOSES TO MAXIMUM INDIVIDUAL IN ADULT GROUP FROM RADIOIODINE AND PARTICULATE GASEOUS EFFLUENTS

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

PATHWAY AND LOCATION	ANNUAL DOSE (mrem/yr) TOTAL BODY	SKIN	BONE	LIVER	THYROID	KIDNEY	LUNG	GI TRACT
Inhalation - boundary of restricted area 1 mile East	8.0×10^{-4}	NA	9.0×10^{-4}	5.1×10^{-3}	9.1×10^{-2}	1.2×10^{-3}	7.5×10^{-3}	9.9×10^{-4}
Deposition on ground - boundary of restricted area 1 mile East	2.0×10^{-1}	2.4×10^{-1}	2.0×10^{-1}	2.0×10^{-1}	2.0×10^{-1}	2.0×10^{-1}	2.0×10^{-1}	2.0×10^{-1}
Leafy vegetables - 6,200 ft East	5.7×10^{-3}	NA	8.5×10^{-3}	7.2×10^{-3}	7.3×10^{-1}	6.0×10^{-3}	1.1×10^{-3}	6.9×10^{-3}
Stored vegetables - 6,000 ft East	3.5×10^{-2}	NA	5.3×10^{-2}	3.9×10^{-2}	3.9×10^{-2}	1.6×10^{-2}	8.7×10^{-3}	4.5×10^{-2}
Meat animal 7,800 ft East Southeast	9.7×10^{-4}	NA	1.9×10^{-3}	1.1×10^{-3}	9.9×10^{-3}	6.5×10^{-4}	5.0×10^{-4}	2.3×10^{-3}
Total of above pathways	2.4×10^{-1}	2.4×10^{-1}	2.6×10^{-1}	2.5×10^{-1}	1.1×10^{0}	2.2×10^{-1}	2.2×10^{-1}	2.5×10^{-1}

TABLE C9-4
ANNUAL DOSES TO MAXIMUM INDIVIDUAL IN TEEN AGE GROUP FROM RADIOIODINE AND PARTICULATE GASEOUS EFFLUENTS

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

PATHWAY AND LOCATION	ANNUAL DOSE (mrem/yr) TOTAL BODY	SKIN	BONE	LIVER	THYROID	KIDNEY	LUNG	GI TRACT
Inhalation - boundary of restricted area 1 mile East	5.0×10^{-4}	NA	4.1×10^{-4}	3.6×10^{-3}	7.9×10^{-2}	8.1×10^{-4}	7.0×10^{-3}	6.0×10^{-4}
Deposition on ground - boundary of restricted area 1 mile East	2.0×10^{-1}	2.4×10^{-1}	2.0×10^{-1}	2.0×10^{-1}	2.0×10^{-1}	2.0×10^{-1}	2.0×10^{-1}	2.0×10^{-1}
Leafy vegetables - 6,200 ft East	3.9×10^{-3}	NA	6.1×10^{-3}	6.1×10^{-3}	5.5×10^{-1}	3.9×10^{-3}	9.2×10^{-4}	4.1×10^{-3}
Stored vegetables - 6,000 ft East	4.0×10^{-2}	NA	6.7×10^{-2}	5.8×10^{-2}	5.5×10^{-2}	1.9×10^{-2}	1.3×10^{-2}	4.8×10^{-2}
Meat Animal 7,800 ft East Southeast	6.2×10^{-4}	NA	5.0×10^{-4}	7.7×10^{-4}	6.9×10^{-3}	3.9×10^{-4}	3.6×10^{-4}	1.2×10^{-3}
Total of above pathways	2.5×10^{-1}	2.4×10^{-1}	2.7×10^{-1}	2.7×10^{-1}	8.9×10^{-1}	2.2×10^{-1}	2.2×10^{-1}	2.5×10^{-1}

TABLE C9-5
ANNUAL DOSES TO MAXIMUM INDIVIDUAL IN CHILD AGE GROUP FROM RADIOIODINE AND PARTICULATE GASEOUS EFFLUENTS

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

PATHWAY AND LOCATION	ANNUAL DOSE (mrem/yr)							
	TOTAL BODY	SKIN	BONE	LIVER	THYROID	KIDNEY	LUNG	GI TRACT
Inhalation - boundary of restricted area 1 mile East	$5.0x10^{-4}$	NA	$6.2x10^{-4}$	$2.4x10^{-3}$	$1.1x10^{-1}$	$4.3x10^{-4}$	$6.3x10^{-3}$	$1.1x10^{-3}$
Deposition on ground - boundary of restricted area 1 mile East	$2.0x10^{-1}$	$2.4x10^{-1}$	$2.0x10^{-1}$	$2.0x10^{-1}$	$2.0x10^{-1}$	$2.0x10^{-1}$	$2.0x10^{-1}$	$2.0x10^{-1}$
Leafy vegetables - 6,200 ft East	$3.1x10^{-3}$	NA	$9.3x10^{-3}$	$7.7x10^{-3}$	$8.4x10^{-1}$	$2.4x10^{-3}$	$1.3x10^{-3}$	$2.9x10^{-3}$
Stored vegetables - 6,000 ft East	$5.4x10^{-2}$	NA	$1.3x10^{-1}$	$9.9x10^{-2}$	$1.1x10^{-1}$	$1.6x10^{-2}$	$2.5x10^{-2}$	$4.6x10^{-2}$
Meat Animal 7,800 ft East Southeast	$8.0 10^{-4}$	NA	$8.8x10^{-4}$	$1.1x10^{-3}$	$1.0x10^{-2}$	$2.4x10^{-4}$	$5.8x10^{-4}$	$1.1x10^{-3}$
Total of above pathways	$2.6x10^{-1}$	$2.4x10^{-1}$	$3.4x10^{-1}$	$3.1x10^{-1}$	$1.3x10^{0}$	$2.2x10^{-1}$	$2.3x10^{-1}$	$2.5x10^{-1}$

TABLE C9-6

ANNUAL DOSES TO MAXIMUM INDIVIDUAL IN INFANT AGE GROUP FROM RADIOIODINE AND PARTICULATE GASEOUS EFFLUENTS

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

PATHWAY AND LOCATION	ANNUAL DOSE (mrem/yr)							
	TOTAL BODY	SKIN	BONE	LIVER	THYROID	KIDNEY	LUNG	GI TRACT
Inhalation - boundary of restricted area 1 mile East	6.5×10^{-4}	NA	9.2×10^{-4}	2.4×10^{-3}	1.8×10^{-1}	3.0×10^{-4}	9.3×10^{-4}	4.7×10^{-4}
Deposition on ground - boundary of restricted area 1 mile East	2.0×10^{-1}	2.4×10^{-1}	2.0×10^{-1}	2.0×10^{-1}	2.0×10^{-1}	2.0×10^{-1}	2.0×10^{-1}	2.0×10^{-1}
Leafy vegetables - 6,200 ft East	NA	NA	NA	NA	NA	NA	NA	NA
Stored vegetables - 6,000 ft East	NA	NA	NA	NA	NA	NA	NA	NA
Meat Animal - 7,800 ft East Southeast	NA	NA	NA	NA	NA	NA	NA	NA
Total of above pathways	2.0×10^{-1}	2.4×10^{-1}	2.0×10^{-1}	2.0×10^{-1}	3.8×10^{-1}	2.0×10^{-1}	2.1×10^{-1}	2.0×10^{-1}

TABLE C9-7
ANNUAL THYROID DOSES TO INDIVIDUALS FROM RADIOIODINE AND PARTICULATE GASEOUS EFFLUENTS - COW LOCATION (7,800 ft ESE)

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

	ANNUAL THYROID DOSE BY AGE GROUP (mrem/yr)			
PATHWAY	ADULT	TEEN	CHILD	INFANT
Inhalation	$3.5x10^{-2}$	$3.6x10^{-2}$	$4.1x10^{-2}$	$7.2x10^{-2}$
Leafy vegetables	$1.6x10^{-1}$	$1.2x10^{-1}$	$1.8x10^{-1}$	NA
Stored vegetables	$9.1x10^{-3}$	$1.3x10^{-2}$	$2.6x10^{-2}$	NA
Meat animals	$9.9x10^{-3}$	$6.9x10^{-3}$	$1.0x10^{-2}$	NA
Cow's milk	$2.7x10^{-1}$	$4.2x10^{-1}$	$8.2x10^{-1}$	$2.0x10^{0}$
Deposition on ground	$8.0x10^{-2}$	$8.0x10^{-2}$	$8.0x10^{-2}$	$8.0x10^{-2}$
Total of above pathways	$5.6x10^{-1}$	$6.7x10^{-1}$	$1.2x10^{0}$	$2.2x10^{0}$

TABLE C9-8
ANNUAL THYROID DOSES TO INDIVIDUALS FROM RADIOIODINE AND PARTICULATE GASEOUS EFFLUENTS - GOAT LOCATION (19,000 ft SSE)

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

PATHWAY	ANNUAL THYROID DOSE BY AGE GROUP (mrem/yr) ADULT	TEEN	CHILD	INFANT
Inhalation	3.9×10^{-3}	3.4×10^{-3}	4.7×10^{-3}	8.1×10^{-3}
Leafy vegetables	1.7×10^{-2}	1.3×10^{-2}	2.0×10^{-2}	NA
Stored vegetables	9.9×10^{-4}	1.4×10^{-3}	2.8×10^{-3}	NA
Goat's milk	3.4×10^{-2}	5.2×10^{-2}	1.0×10^{-1}	2.5×10^{-1}
Deposition on ground	7.1×10^{-3}	7.1×10^{-3}	7.1×10^{-3}	7.1×10^{-3}
Total of above pathways	6.3×10^{-2}	7.7×10^{-2}	1.3×10^{-1}	2.7×10^{-1}

TABLE C9-9

ANNUAL DOSES TO MAXIMUM INDIVIDUAL IN ADULT AGE GROUP
FROM LIQUID EFFLUENTS UNDER EQUILIBRIUM CONDITIONS

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

	ANNUAL DOSE (mrem/yr)							
PATHWAY AND LOCATION	TOTAL BODY	SKIN	BONE	LIVER	THYROID	KIDNEY	LUNG	GI TRACT
Ingestion of potable water - public water supply 8 miles West	8.1×10^{-4}	NA	1.2×10^{-4}	8.5×10^{-4}	1.1×10^{-2}	8.3×10^{-4}	7.6×10^{-4}	8.5×10^{-4}
Ingestion of fish - near discharge	5.8×10^{-2}	NA	6.6×10^{-1}	8.6×10^{-2}	6.7×10^{-2}	1.7×10^{-2}	5.8×10^{-3}	8.0×10^{-2}
Ingestion of aquatic invertebrates - near discharge	4.0×10^{-3}	NA	3.5×10^{-2}	9.6×10^{-3}	6.4×10^{-3}	1.1×10^{-2}	4.4×10^{-3}	4.6×10^{-2}
Swimming - 100 hrs/yr near discharge	1.0×10^{-4}	1.2×10^{-4}	1.0×10^{-4}	1.0×10^{-4}	1.0×10^{-4}	1.0×10^{-4}	1.0×10^{-4}	1.0×10^{-4}
Fishing & boating - 500 hrs/yr - near discharge	2.5×10^{-4}	3.0×10^{-4}	2.5×10^{-4}	2.5×10^{-4}	2.5×10^{-4}	2.5×10^{-4}	2.5×10^{-4}	2.5×10^{-4}
Water skiing - 100 hrs/yr near discharge	5.0×10^{-5}	6.0×10^{-5}	5.0×10^{-5}	5.0×10^{-5}	5.0×10^{-5}	5.0×10^{-5}	5.0×10^{-5}	5.0×10^{-5}
Shoreline recreation - lakeview summer camp (4,500 ft SW)	4.1×10^{-5}	4.8×10^{-5}	4.1×10^{-5}	4.1×10^{-5}	4.1×10^{-5}	4.1×10^{-5}	4.1×10^{-5}	4.1×10^{-5}
Total of above pathways	6.3×10^{-2}	5.3×10^{-4}	7.0×10^{-1}	9.7×10^{-2}	8.5×10^{-2}	2.9×10^{-2}	1.1×10^{-2}	1.3×10^{-1}

TABLE C9-10

ANNUAL DOSES TO MAXIMUM INDIVIDUAL IN TEEN AGE GROUP FROM LIQUID EFFLUENTS UNDER EQUILIBRIUM CONDITIONS

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

PATHWAY AND LOCATION	ANNUAL DOSE (mrem/yr) TOTAL BODY	SKIN	BONE	LIVER	THYROID	KIDNEY	LUNG	GI TRACT
Ingestion of potable water - public water supply 8 miles West	4.6×10^{-4}	NA	1.1×10^{-4}	5.1×10^{-4}	8.8×10^{-3}	5.8×10^{-4}	4.3×10^{-4}	4.8×10^{-4}
Ingestion of fish - near discharge	3.7×10^{-2}	NA	5.1×10^{-1}	7.6×10^{-2}	6.1×10^{-2}	1.3×10^{-2}	6.2×10^{-3}	6.1×10^{-2}
Ingestion of aquatic invertebrates - near discharge	3.1×10^{-3}	NA	2.7×10^{-2}	7.6×10^{-3}	5.8×10^{-3}	8.6×10^{-3}	3.4×10^{-3}	3.5×10^{-2}
Swimming - 100 hrs/yr near discharge	1.0×10^{-4}	1.2×10^{-4}	1.0×10^{-4}	1.0×10^{-4}	1.0×10^{-4}	1.0×10^{-4}	1.0×10^{-4}	1.0×10^{-4}
Fishing & boating - 500 hrs/yr - near discharge	2.5×10^{-4}	3.0×10^{-4}	2.410^{-4}	2.5×10^{-4}	2.5×10^{-4}	2.5×10^{-4}	2.5×10^{-4}	2.5×10^{-4}
Water Skiing - 100 hrs/yr near discharge	5.0×10^{-5}	6.0×10^{-5}	5.0×10^{-5}	5.0×10^{-5}	5.0×10^{-5}	5.0×10^{-5}	5.0×10^{-5}	5.0×10^{-5}
Shoreline recreation - lakeview summer camp (4,500 ft SW)	2.3×10^{-4}	2.7×10^{-4}	2.3×10^{-4}	2.3×10^{-4}	2.3×10^{-4}	2.3×10^{-4}	2.3×10^{-4}	2.3×10^{-4}
Total of above pathways	4.1×10^{-2}	7.5×10^{-4}	5.4×10^{-1}	8.5×10^{-2}	7.6×10^{-2}	2.3×10^{-2}	1.1×10^{-2}	9.7×10^{-2}

TABLE C9-11

ANNUAL DOSES TO MAXIMUM INDIVIDUAL IN CHILD AGE GROUP FROM LIQUID EFFLUENTS UNDER EQUILIBRIUM CONDITIONS

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

PATHWAY AND LOCATION	ANNUAL DOSE (mrem/yr) TOTAL BODY	SKIN	BONE	LIVER	THYROID	KIDNEY	LUNG	GI-TRACT
Ingestion of potable water - public water supply 8 miles West	$8.3x10^{-4}$	NA	$2.6x10^{-4}$	$9.7x10^{-4}$	$2.2x10^{-2}$	$5.8x10^{-4}$	$8.1x10^{-4}$	$8.6x10^{-4}$
Ingestion of fish - near discharge	$1.5x10^{-2}$	NA	$2.4x10^{-1}$	$5.2x10^{-2}$	$6.6x10^{-2}$	$5.6x10^{-3}$	$4.7x10^{-3}$	$2.6x10^{-2}$
Ingestion of aquatic invertebrates - near discharge	$1.7x10^{-3}$	NA	$1.4x10^{-2}$	$4.1x10^{-3}$	$6.5x10^{-3}$	$3.9x10^{-3}$	$1.5x10^{-3}$	$1.6x10^{-2}$
Swimming - 100 hrs/yr near discharge	$1.4x10^{-4}$	$1.2x10^{-4}$	$1.0x10^{-4}$	$1.0x10^{-4}$	$1.0x10^{-4}$	$1.0x10^{-4}$	$1.0x10^{-4}$	$1.0x10^{-4}$
Fishing & boating - 500 hrs/yr - near discharge	$2.5x10^{-4}$	$3.0x10^{-4}$	$2.5x10^{-4}$	$2.5x10^{-4}$	$2.5x10^{-4}$	$2.5x10^{-4}$	$2.5x10^{-4}$	$2.5x10^{-4}$
Water skiing - 100 hrs/yr near discharge	$5.0x10^{-5}$	$6.0x10^{-5}$	$5.0x10^{-5}$	$5.0x10^{-5}$	$5.0x10^{-5}$	$5.0x10^{-5}$	$5.0x10^{-5}$	$5.0x10^{-5}$
Shoreline recreation - lakeview summer camp (4,500 ft SW)	$4.8x10^{-5}$	$5.6x10^{-5}$	$4.8x10^{-5}$	$4.8x10^{-5}$	$4.8x10^{-5}$	$4.8x10^{-5}$	$4.8x10^{-5}$	$4.8x10^{-5}$
Total of above pathways	$1.8x10^{-2}$	$5.6x10^{-4}$	$2.5x10^{-1}$	$5.8x10^{-2}$	$9.5x10^{-2}$	$1.1x10^{-2}$	$7.5x10^{-3}$	$4.3x10^{-2}$

TABLE C9-12
ANNUAL DOSES TO MAXIMUM INDIVIDUAL IN INFANT AGE GROUP
FROM LIQUID EFFLUENTS UNDER EQUILIBRIUM CONDITIONS

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

	ANNUAL DOSE (mrem/yr)							
PATHWAY AND LOCATION	TOTAL BODY	SKIN	BONE	LIVER	THYROID	KIDNEY	LUNG	GI-TRACT
Ingestion of potable water - public water supply 8 miles West	1.3×10^{-3}	NA	5.1×10^{-4}	1.6×10^{-3}	5.1×10^{-2}	5.8×10^{-4}	1.2×10^{-3}	1.3×10^{-3}
Ingestion of fish - near discharge	NA	NA	NA	NA	NA	NA	NA	NA
Ingestion of aquatic invertebrates - near discharge	NA	NA	NA	NA	NA	NA	NA	NA
Swimming - 100 hrs/yr near discharge	NA	NA	NA	NA	NA	NA	NA	NA
Fishing & boating - 500 hrs/yr - near discharge	NA	NA	NA	NA	NA	NA	NA	NA
Water skiing - 100 hrs/yr near discharge	NA	NA	NA	NA	NA	NA	NA	NA
Shoreline recreation - lakeview summer camp (4,500 ft SW)	NA	NA	NA	NA	NA	NA	NA	NA
Total of above pathways	1.3×10^{-3}	NA	5.1×10^{-4}	1.6×10^{-3}	5.1×10^{-2}	5.8×10^{-4}	1.2×10^{-3}	1.3×10^{-3}

TABLE C9-13
CALCULATED ANNUAL DOSES
FOR
POPULATION WITHIN 50 MILES RADIUS

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

		POPULATION MAN REM	
		WHOLE BODY	THYROID
Liquid Effluents			
Ingestion of potable water		1.0×10^{-1}	1.6×10^{0}
Ingestion of fish		6.6×10^{-5}	4.0×10^{-5}
Fishing		8.0×10^{-6}	8.0×10^{-6}
Boating		3.4×10^{-5}	3.4×10^{-5}
Swimming		1.2×10^{-4}	1.2×10^{-4}
Shoreline recreation		7.7×10^{-4}	7.7×10^{-4}
	Total	1.0×10^{-1}	1.6×10^{0}
Gaseous Effluents			
Plume immersion		1.4×10^{-1}	NA
Inhalation		3.2×10^{-3}	4.2×10^{-1}
Deposition on ground		3.9×10^{-1}	3.9×10^{-1}
Ingestion of milk		3.5×10^{-2}	2.2×10^{0}
Ingestion of vegetation		9.4×10^{-2}	1.3×10^{0}
Ingestion of meat		5.4×10^{-3}	3.8×10^{-1}
	Total	6.7×10^{-1}	4.4×10^{0}

TABLE C9-14
POPULATION MAN-REM DOSE ASSESSMENT FROM
INGESTION OF POTABLE WATER AND FISH

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

PATHWAY AND LOCATION	DILUTION FACTOR	DECAY TIME (hrs)	AGE GROUP	USAGE FACTOR (liters/yr or Kg/yr)	BASES	ANNUAL DOSE (man-rem) TOTAL BODY	THYROID
Potable water Oswego City and Onondega County	130	53	Adult	370	190,000 consumers in 1970 incr. by Pop. growth to 263,000	6.6×10^{-2}	8.2×10^{-1}
	130	53	Teen	260	Same as above	8.5×10^{-3}	1.5×10^{-1}
	130	53	Child	260	Same as above	2.7×10^{-2}	6.2×10^{-1}
Potable Water Subtotal						1.0×10^{-1}	1.6×10^{0}
Fish within 50 miles	1.0×10^{4}	240	Adult	6.9	Total fish catch of 6.0×10^{6} kg/yr	5.3×10^{-5}	2.6×10^{-5}
	1.0×10^{4}	240	Teen	5.2	Same as above	7.5×10^{-6}	5.1×10^{-6}
	1.0×10^{4}	240	Child	2.2	Same as above	5.1×10^{-6}	9.0×10^{-6}
Fish Subtotal						6.6×10^{-5}	4.0×10^{-5}
Total of above pathways						1.0×10^{-1}	1.6×10^{0}

TABLE C9-15
POPULATION MAN-REM DOSE FROM FISHING AND BOATING

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

ACTIVITY	LAKE DILUTION FACTOR	DOSE RATE** (rem/hr)	BASES	POPULATION USAGE (person-hrs/yr)	ANNUAL POPULATION DOSE (man-rem)*
Fishing	$1.0x10^{4}$	$5.0x10^{-13}$	$6.4x10^{6}$ fisherman days @ 2.5 hrs/day	$1.6x10^{7}$	$8.0x10^{-6}$
Boating	87.0	$5.7x10^{-11}$	1,000 people/day @ 2 hr/day 10,000 people/wknd. @ 4 hr/wknd. for 12 wks	$6.0x10^{5}$	$3.4x10^{-5}$
Total of above pathways					$4.2x10^{-5}$

*Dose estimate is not dependent on age group.
**Decay time for fishing and boating is 0.0 hrs.

TABLE C9-16
POPULATION MAN-REM DOSE ASSESSMENT FROM SWIMMING

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

LOCATION	LAKE DILUTION FACTOR	DOSE RATE* (rem/hr)	AGE GROUP	PER CAPITA USAGE (hrs/day)	NUMBER OF PERSON-DAYS	BASES	ANNUAL POPULATION DOSE (man-rem)
Lakeview Summer Camp	17.0	5.9×10^{-10}	Adult	2	11,200	500 pers/wkday 1,500 pers/wkend or 800 pers/day avg. for 10 wk season	1.3×10^{-5}
	17.0	5.9×10^{-10}	Teen	4	22,400	Same as above	5.3×10^{-5}
	17.0	5.9×10^{-10}	Child	4	22,400	Same as above	5.3×10^{-5}
Camp Subtotal							1.2×10^{-4}
Selkirk State Park	120	8.3×10^{-11}	Adult	2	6,200	1,000 swimmers/ wk for 10 wk season	1.0×10^{-6}
	120	8.3×10^{-11}	Teen	4	1,400	Same as above	4.6×10^{-7}
	120	8.3×10^{-11}	Child	4	2,400	Same as above	8.0×10^{-7}
Park Subtotal							2.3×10^{-6}
Vicinity of Mixing Zone	10.0	1.0×10^{-9}	Teen	4	200	Conservative Estimate	8.0×10^{-7}
Total of above pathways							1.2×10^{-4}

*Decay time for swimming is 0.0 hrs.

TABLE C9-17

POPULATION MAN-REM DOSE ASSESSMENT FROM SHORELINE RECREATION

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

LOCATION	LAKE DILUTION FACTOR	DECAY TIME (hrs)	DOSE RATE (rem/hr)	AGE GROUP	PER CAPITA USAGE FACTOR	POPULATION USAGE		BASES	ANNUAL POPULATION DOSE (man-rem)
Lakeview Summer Camp	17.0	3.1	$3.6x10^{-10}$	Adult	2 hrs/day	11,200	person-days	500 pers/wkday 1,500 pers/wkend or 800 pers/day avg. for 10 wk season	$8.0x10^{-6}$
	17.0	3.1	$3.6x10^{-10}$	Teen	4 hrs/day	22,400	person-days	Same as above	$3.2x10^{-5}$
	17.0	3.1	$3.6x10^{-10}$	Child	4 hrs/day	22,400	person-days	Same as above	$3.2x10^{-5}$
Camp Subtotal									$7.2x10^{-5}$
Selkirk State Park	120	37.0	$5.0x10^{-10}$	Adult	8.3 hrs/yr	62,000	persons	10,000 pers/ wkend for 10 wk season	$2.6x10^{-4}$
	120	37.0	$5.0x10^{-10}$	Teen	47.0 hrs/yr	14,000	persons	Same as above	$3.3x10^{-4}$
	120	37.0	$5.0x10^{-10}$	Child	9.5 hrs/yr	24,000	persons	Same as above	$1.1x10^{-4}$
Park Subtotal									$7.0x10^{-5}$
Total of above pathways									$7.7x10^{-4}$

TABLE C9-18
POPULATION MAN-REM DOSE ASSESSMENT FROM GASEOUS EFFLUENTS

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

PATHWAY	AGE GROUP	ANNUAL POPULATION DOSE	
		TOTAL BODY (man-rem)	THYROID (Thyroid man-rem)
Inhalation	Adult	2.2×10^{-3}	2.5×10^{-1}
	Teen	3.3×10^{-4}	4.9×10^{-2}
	Child	6.6×10^{-4}	1.2×10^{-1}
Deposition on ground	*	3.9×10^{-1}	3.9×10^{-1}
Submersion	*	1.4×10^{-1}	NA
Ingestion of milk	Adult	1.3×10^{-2}	7.0×10^{-1}
	Teen	5.4×10^{-3}	3.4×10^{-1}
	Child	1.7×10^{-2}	1.2×10^{0}
Ingestion of meat	Adult	3.3×10^{-3}	2.4×10^{-2}
	Teen	5.5×10^{-4}	3.9×10^{-3}
	Child	1.5×10^{-3}	1.0×10^{-2}
Ingestion of vegetation	Adult	4.5×10^{-2}	5.3×10^{-1}
	Teen	1.3×10^{-2}	1.8×10^{-1}
	Child	3.6×10^{-2}	6.0×10^{-1}
Total of above pathways		6.7×10^{-1}	4.4×10^{0}

*Dose estimate is not dependent on age group.

TABLE C9-19
SOURCE ACTIVITY FOR SWIMMING AND BOATING MODEL

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

Average Energy (Mev)	Source Activity by Location (Mev/cc-sec)				
	Mixing Zone	Lakeview Summer Camp	SelKirk State Park	at 5 miles	at 25 miles
0.4	3.1×10^{-6}	1.8×10^{-6}	2.6×10^{-7}	3.6×10^{-7}	3.1×10^{-9}
0.8	1.1×10^{-5}	6.2×10^{-6}	8.8×10^{-7}	1.2×10^{-6}	1.1×10^{-8}
1.3	5.4×10^{-6}	3.1×10^{-6}	4.5×10^{-7}	6.1×10^{-7}	5.4×10^{-9}
1.7	6.3×10^{-6}	3.7×10^{-6}	5.2×10^{-7}	7.2×10^{-7}	6.3×10^{-9}
2.2	2.0×10^{-6}	1.2×10^{-6}	1.6×10^{-7}	2.3×10^{-7}	2.0×10^{-9}
2.5	8.8×10^{-8}	5.2×10^{-8}	7.3×10^{-9}	1.0×10^{-8}	8.8×10^{-11}
3.5	3.6×10^{-8}	2.1×10^{-8}	3.0×10^{-9}	4.2×10^{-9}	3.6×10^{-11}

TABLE C9-20
PARAMETERS USED IN CALCULATING POPULATION DOSES
FROM INGESTION OF VEGETATION

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

Vegetation Category	Effective Population*	Adult Usage (kg/yr)	Teen Usage (kg/yr)	Child Usage (kg/yr)	Crop Yield (kg/m²)	Mass Produced (kg/yr)	Holdup Time (hr)
Fruits	1.9×10^7	6.6	8.3	6.9	1.26	1.3×10^8	1.4×10^3
Fresh Vegetables	1.9×10^6	44.5	56.2	46.8	2.60	8.9×10^7	3.4×10^2
Processed Vegetables	1.1×10^6	29.5	37.3	31.1	1.01	3.5×10^7	1.4×10^3
Potatoes	1.1×10^6	52.7	66.6	55.5	2.92	6.2×10^7	1.4×10^3
Grains	2.7×10^6	66.6	84.1	70.1	.41	1.9×10^8	1.4×10^3

* Note estimated actual population within 50 miles is 1.3×10^6.

TABLE D1-1
TOTAL DIRECT COST ESTIMATE SHEET
GASEOUS AUGMENT 1

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

Augment - 100% Filtration of Reactor Building

DIRECT COST (1975 $000)

ITEM		LABOR*	EQUIPMENT/MATERIALS	TOTAL	BASIS FOR COST ESTIMATE
1	PROCESS EQUIPMENT	144	702	846	6-30,000 CFM Charcoal/HEPA Filtration Systems Prefilter/4" Charcoal/HEPA given in Draft R.G.1-FF
2.	BUILDING ASSIGNMENT	167.8	154.8	322.6	28'x20'x12' @ 8 $/ft^3 NMP2 Project Estimate
3.	ASSOCIATED PIPING SYSTEMS	48	18	66	Base given in Draft R.G.1-FF
4.	INSTRUMENTATION & CONTROLS				In Item 1
5.	ELECTRICAL SERVICE	57.6	24	81.6	Allowance given in Draft R.G.1-FF
6.	SPARE PARTS	-	30	30	Given in Draft R.G.1-FF
	SUBTOTAL	417.4	928.8	1,346.2	
7.	CONTINGENCY	42	93	135	10% - Given in Draft R.G.1-FF
8.	TOTAL DIRECT COSTS	459.4	1,021.8	1,481.2	

*Labor cost includes a labor cost correction factor of 1.6 from Draft R.G.1-FF

TABLE D1-2
ANNUAL OPERATING AND MAINTENANCE COST ESTIMATE SHEE
GASEOUS AUGMENT 1

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

Augment - 100% Filtration of Reactor Building

COST (1975 $000)

ITEM	LABOR	OTHER	TOTAL	BASIS FOR COST ESTIMATE
1. OPERATING LABOR, SUPERVISORY AND OVERHEAD			22.8	15 Min/Shift + 40 hr Annual Test given in Draft R.G.1-FF
2. MAINTENANCE MATERIAL AND LABOR			108	60 @ 150$ + 30 @ 900$ every 2 yrs given in Draft R.G.1-FF
3. CONSUMABLES, CHEMICALS & SUPPLIES				In Item 2
4. UTILITIES & SERVICES Waste Disposal			18	50$/HEPA or Prefilter, 100$/Charcoal
Electricity			15.6	16 kw Additional Fan hp for Filter given in Draft R.G.1-FF
5. TOTAL O & M ANNUAL COST			164.4	

TABLE D1-3
TOTAL DIRECT COST ESTIMATE SHEET
GASEOUS AUGMENT 2

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

Augment - 100% Filtration of Turbine Building Exhaust

DIRECT COST (1975 $000)

ITEM	LABOR*	EQUIPMENT/MATERIALS	TOTAL	BASIS FOR COST ESTIMATE
1. PROCESS EQUIPMENT	96	468	564	4-30,000 CFM Charcoal/HEPA Filtration Systems Prefilter/4" Charcoal/HEPA as given in R.G.1-FF
2. BUILDING ASSIGNMENT	39.6	41.2	80.8	28'x20'x12' @ 3$/ft^3 NMP2 Project Estimate
3. ASSOCIATED PIPING SYSTEMS	19.2	20	39.2	Given in Draft R.G.1-FF
4. INSTRUMENTATION & CONTROLS				Included in Item 1
5. ELECTRICAL SERVICE	38.4	16	54.4	Allowance Given in Draft R.G.1-FF
6. SPARE PARTS	-	20	20	Given in Draft R.G.1-FF
SUBTOTAL	193.2	565.2	758.4	
7. CONTINGENCY	19	57	76	10% - Given in Draft R.G.1-FF
8. TOTAL DIRECT COSTS	212.2	622.2	834.4	

*Labor cost includes a labor cost correction factor of 1.6 from Draft R.G.1-FF

TABLE D1-4
ANNUAL OPERATING AND MAINTENANCE COST ESTIMATE SHEE
GASEOUS AUGMENT 2

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

Augment - 100% Filtration of Turbine Building Exhaust

COST (1975 $000)

ITEM	LABOR	OTHER	TOTAL	BASIS FOR COST ESTIMATE
1. OPERATING LABOR, SUPERVISORY AND OVERHEAD			15.2	15 Min/shift + 40 hr Annual Test as given in Draft R.G. 1-FF
2. MAINTENANCE MATERIAL AND LABOR			72	60 @ 150$ + 30 @ 900$ every 2 yrs as given in Draft R.G.1-FF
3. CONSUMABLES, CHEMICALS & SUPPLIES				Included in Item 2
4. UTILITIES & SERVICES				
Waste Disposal			12	50 $/HEPA or Prefilter, 100 $/Charcoal
Electricity			10.4	16 kw Additional Fan hp for Filter as given in Draft R.G.1-FF
5. TOTAL O & M ANNUAL COST			109.6	

TABLE D1-5
TOTAL DIRECT COST ESTIMATE SHEET
GASEOUS AUGMENT 3

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

Augment - 100% Filtration of Condenser Vacuum Pump

DIRECT COST (1975 $000)

ITEM	LABOR*	EQUIPMENT/MATERIALS	TOTAL	BASIS FOR COST ESTIMATE
1. PROCESS EQUIPMENT	6.4	65	71.4	2-2000 CFM Charcoal/HEPA Filtration Systems Prefilter/4" Charcoal/HEPA given in Draft R.G.1-FF
2. BUILDING ASSIGNMENT	4.7	4.5	9.2	Turbine Building 8x16x12 @ 3 $/ft^3 NMP2 Project Estimate
3. ASSOCIATED PIPING SYSTEMS	4.2	1.4	5.6	Allowance given in Draft R.G.1-FF
4. INSTRUMENTATION & CONTROLS				In Item 1
5. ELECTRICAL SERVICE	3.2	3	6.2	Allowance given in Draft R.G.1-FF
6. SPARE PARTS	-	1	1	Given in Draft R.G.1-FF
SUBTOTAL	18.5	74.9	93.4	
7. CONTINGENCY	2	7	9	10% Given in Draft R.G.1-FF
8. TOTAL DIRECT COSTS	20.5	81.9	102.4	

*Labor cost includes a labor cost correction factor of 1.6 from Draft R.G.1-FF

TABLE D1-6

ANNUAL OPERATING AND MAINTENANCE COST ESTIMATE SHEET

GASEOUS AUGMENT 3

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

Augment - 100% Filtration of Condenser Vacuum Pump

COST (1975 $000)

ITEM	LABOR	OTHER	TOTAL	BASIS FOR COST ESTIMATE
1. OPERATING LABOR, SUPERVISORY AND OVERHEAD			Neg	Used only during startup and shutdown Given in Draft R.G.1-FF
2. MAINTENANCE MATERIAL AND LABOR			2.4	4 @ 150$ + 2 @ 900$ Given in Draft R.G.1-FF
3. CONSUMABLES, CHEMICALS & SUPPLIES				In Item 2 and 4
4. UTILITIES & SERVICES Waste Disposal			.4	50$/Filter, 100$/Charcoal Given in Draft R.G.1-FF
5. TOTAL O & M ANNUAL COST			2.8	

TABLE D1-7
TOTAL DIRECT COST ESTIMATE SHEET
LIQUID AUGMENT 1

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

Augment - 100 GPM Radwaste Demineralizer

DIRECT COST (1975 $000)

ITEM	LABOR	EQUIPMENT/MATERIALS	TOTAL	BASIS FOR COST ESTIMATE
1. PROCESS EQUIPMENT	3.8	150	153.8	220 ft^3, Carbon Steel 150 psig, ASME VIII NMP2 Project Estimate
2. BUILDING ASSIGNMENT	.6	.6	1.2	283 ft^3 @ 4.3 $\$/ft^3$ NMP2 Project Estimate
3. ASSOCIATED PIPING SYSTEMS	10	7	17	1500 ft 3 in. 200 ft 2 in. NMP2 Project Estimate
4. INSTRUMENTATION & CONTROLS	-	-	-	In Item 1
5. ELECTRICAL SERVICE			NEG	
6. SPARE PARTS	-	-	-	In Item 1
SUBTOTAL	14.4	157.6	172	
7. CONTINGENCY	1	16	17	10 Percent Draft RG 1-FF
8. TOTAL DIRECT COSTS	15.4	173.6	189	

TABLE D1-8
ANNUAL OPERATING AND MAINTENANCE COST ESTIMATE SHEET
LIQUID AUGMENT 1

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

Augment - 100 GPM Radwaste Demineralizer

COST (1975 $000)

ITEM	LABOR	OTHER	TOTAL	BASIS FOR COST ESTIMATE
1. OPERATING LABOR, SUPERVISORY AND OVERHEAD			3.3	15 min/shift 80 Percent Capacity Factor Draft R.G. 1-FF
2. MAINTENANCE MATERIAL AND LABOR			5	Draft R.G. 1-FF
3. CONSUMABLES, CHEMICALS &			16.5	1 Regeneration Per Year @ 220 ft^3 @ 75 $\$/ft^3$ Draft R.G. 1-FF
4. UTILITIES & SERVICES Waste Disposal			1.8	50 ft^3 @ 35 $\$/ft^3$ Disposal Cost (Resin to be Replaced Every Five Years) NMP2 Project Estimate
5. TOTAL O & M ANNUAL COST			26.6	

TABLE D1-9
SUMMARY OF ANNUALIZED COSTS

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

Cost	Augments Gaseous 1	Gaseous 2	Gaseous 3	Liquid 1
Total Direct Costs (TDC)	1,481.2	834.4	102.4	189.0
Total Capital Costs (TCC) TCC = TDC x Indirect Cost Factor of 1.58	2,340.3	1,318.4	161.8	298.6
Annual Fixed Cost (AFC) AFC = TCC x Capital Recovery Factor of 0.1068	249.9	140.8	17.3	31.9
Total 0 + M Annual Cost (AB+MC)	164.4	109.6	2.8	26.6
Total Annualized Cost (TAC)	414.3	250.4	20.1	58.5

Note: All values are in thousands of 1975 dollars.

TABLE D1-10
SUMMARY OF COST-BENEFIT

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

Augments	Man-Rem Reduction		Benefit (@ $1,000 per man-rem)	
	Total Body	Thyroid	Total Body	Thyroid
Gaseous Augment No. 1	0.11	2.3	110	2,300
Gaseous Augment No. 2	0.014	0.98	14	980
Gaseous Augment No. 3	0.0	0.22	0	220
Liquid Augment No. 1	0.003	0.25	3	250

TABLE D1-11
COST-BENFIT COMPARISON

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

Radwaste Augment	Annualized Cost Dollars	Benefit (@ $1,000 per Man-Rem) Dollars		Cost-Benefit Ratio	
		Whole Body	Thyroid	Whole Body	Thyroid
Gaseous Augment No. 1	414,300	110	2,300	3,770	180
Gaseous Augment No. 2	250,400	14	980	17,900	256
Gaseous Augment No. 3	20,100	0	220	N/A	91
Liquid Augment No. 1	58,500	3	250	19,500	234

A DESCRIPTION OF MODELS AND ASSUMPTIONS USED IN INDIVIDUAL DOSE CALCULATIONS

A.1 LIQUID EFFLUENTS

A.1.1 Ingestion of Potable Water

The City of Oswego water supply, eight miles west of Nine Mile Point Nuclear Station Unit 2 (NMP2), is the closest Lake Ontario intake to the site. The lake dilution factor at this point is 130.0, as calculated using Regulatory Guide 1.EE (ref. 9). A decay time of 29.0 hours is assumed, to account for transit from release to intake. An additional 12.0 hours holdup for transport through the water purification plant is used (Page A-7, Regulatory Guide 1.AA, ref. 6). The total time from release to consumption is 41.0 hours.

The dose, R_{aj}, mrem/yr, to organ j of a maximum individual of age group a is:

$$R_{aj} = 1100.0 \frac{U_a}{F\,DF} \sum_i D_{aij}\, Q_i e^{-\lambda_i t_p}$$

where:

U_a is the usage factor for age group a, liters/yr, for a maximum individual. An adult usage of 730 liters/yr is assumed. For a teen, child, and infant 510 liters/yr are consumed (Table A-2, Regulatory Guide 1.109, ref. 22).

F is the flow rate of the release stream, 46.0 ft³/sec

DF is the lake dilution factor at the point of intake, 130.0

Q_i is the release rate of isotope i, Ci/yr

D_{aij} is the dose factor for age group a, isotope i and organ j, mrem/pCi ingested, (Table A-3, Regulatory Guide 1.AA, ref. C9A1-2)

λ_i is the decay constant of nuclide i, hr^{-1}

t_p is the total time from release to consumption, 41.0hrs

1100.0 is the factor used to convert (Ci/yr)/(ft³/sec) to (pCi/liter).

A.1.2 Ingestion of Fish and Fresh-Water Invertebrates

For the maximum individual case, fish and fresh-water invertebrates are assumed to be caught at the edge of the initial mixing zone. The appropriate mixing zone lake dilution factor is 10.0 (Table A-1, Regulatory Guide 1.AA). A holdup time of 24.0 hours is assumed (Page A-8, Regulatory Guide 1.AA).

The dose, R_{aj}, mrem/yr, to a maximum individual of age group a is:

$$R_{aj} = 1100.0 \frac{U_a}{F\ DF} \sum_i B_i\, Q_i\, D_{aij}\, e^{-\lambda_i t_p}$$

where:

U_a is the usage factor for age group a, of aquatic food type O, kg/yr. For fish, the factors are assumed to be 21.0, 16.0, and 6.9 kg/yr for an adult, teen, and child, respectively. The corresponding factors for seafood are 5.0, 3.8, and 1.7, respectively. (Table A-2, Regulatory Guide 1.109)

F is the flow rate of the release stream, 46.0 ft^3/sec

DF is the lake dilution factor in Lake Ontario, 10.0

B_i is the bioaccumulation factor for aquatic food type O, liters/kg (Table A-4, Regulatory Guide 1.AA)

Q_i is the release rate of nuclide i, Ci/yr

D_{aij} is the ingestion dose factor, mrem/pCi ingested, (Table A-3, Regulatory Guide 1.AA)

λ_i is the decay constant of nuclide i, hr^{-1}

t_p is the holdup time, 24.0 hrs (Page A-8, Regulatory Guide 1.AA)

1100.0 is the factor used to convert (Ci/yr)/(ft^3/sec) to pCi/kg.

A.1.3 Swimming, Boating, and Fishing

The point of exposure for calculating swimming, boating, and fishing doses is assumed to be near the point of discharge,

with an appropriate lake dilution of 10:1. All age groups are assumed to swim 100 hours per year; fishing and boating usage is assumed to be 500 hours per year (Table 5.5, ref. 26).

A detailed model is discussed in Section B.1.3 of this appendix.

A.1.4 Shoreline Recreation

The Lakeview Summer Camp is the closest point to the site at which this pathway exists. No decay time is assumed, and a lake dilution factor of 17.0 is used.

The dose, R_{aj}, mrem/yr, to the total body or skin of a maximum individual of age group a is:

$$R_{aj} = 3.18 \times 10^3 \frac{U_a W}{F\ DF} \sum_i Q_i e^{-\lambda_i t_p} \left[\frac{1-e^{-\lambda_i t}}{\lambda_i} \right] D_{aij}$$

where:

U_a is the usage factor for a maximum individual of age group a, hrs/yr. Values of 12, 67, and 14 hrs/yr are used for an adult, teenager, and child, respectively (Table A-2, Regulatory Guide 1.109)

W is the shore width factor, 0.3 (Table A-5, Regulatory Guide 1.AA)

F is the flow rate of the release stream, 46.0 ft^3/sec

DF is the lake dilution factor, 17.0

Q_i is the release rate of nuclide i, Ci/yr

λ_i is the decay constant of nuclide i, hr^{-1}

t_p is the holdup time from release to deposition on the shore, 0.0 hours

t is the buildup time, 1.31×10^5 hrs (Page 1.109-9, Regulatory Guide 1.109)

D_{aij} is as previously defined

3.18×10^3 is the factor used for conversion from (Ci/yr)/(ft^3/sec) to pCi/liter, and to account for the proportionality constant used in the sediment radioactivity model.

A.2 GASEOUS EFFLUENTS

A.2.1 Exposure to Noble Gases

The individual annual gamma air dose, $D^{\gamma}(r,\theta)$, mrad/yr, due to main stack release of noble gases at distance r meters from the main stack in the sector at angle θ is calculated by the following equation as given in Meteorology and Atomic Energy, 1968 (ref. 23) and Appendix B of Regulatory Guide 1.AA (ref. 6):

$$D^{\gamma}(r,\theta) = \frac{260}{r(\Delta\theta)} \sum_{n} \frac{1}{u_n} \sum_{j} f_{nj} \sum_{k} \mu_a(E_k)\ I_j(H,u,\sigma_z,E_k) \sum_{i} Q_i A_{ki}$$

where:

- r is the horizontal distance from the main stack to the receptor, m
- $\Delta\theta$ is the sector width over which atmospheric conditions are averaged, radians
- u_n is the wind speed assigned to wind speed class n, m/sec
- f_{nj} is the fraction of year for meteorological condition in wind speed class n and stability class j
- $\mu_a(E_k)$ is the energy absorption coefficient in air for photon energy E_k MeV, m^{-1}
- H is the effective height of main stack, m
- σ_z is the vertical standard deviation, m
- $I_j(H,u,\sigma_z,E_k)$ is the integral accounting for the distribution of radioactivity (Page 352, ref. 23)
- Q_i is the release rate of nuclide i, Ci/yr

A_{ki} is the fraction of disintegration of nuclide i yielding photons in the kth photon energy group.

The offsite location of maximum annual gamma air dose is found to be at r=1609 meters, east of the plant (θ=90°). The wind velocities are classified into 6 groups (u_1 = 1.5 mph, u_2 = 5.5 mph, u_3 = 10 mph, u_4 = 10.5 mph, u_5 =21 mph, and u_6 = 24 mph). Atmospheric stability classes equivalent to Pasquill classes A,B,D, and F are considered together with their frequency of occurrence (f_{ij}) for winds from the west direction (Page 2.2-3, NMP2-PSAR and Table B1-7 of Response to Request B1).

Gamma emitters released from the stack are classified into seven energy groups (E_1=0.4 MeV, E_2=0.7 MeV, E_3=1.3 MeV, E_4=1.7 MeV, E_5=2.2 MeV, E_6=2.5 MeV, and E_7=3.5 MeV). The corresponding attenuation coefficients in air, μ_a (E_k), are obtained from Figure 7.8, ref. 23.

The values of the integral I_j (H, u, σ_z , E_k) for each equivalent Pasquill stability class and gamma energy group are obtained from Figure 7.21 and Figure 7.22 of ref. C9A1-1. Other variables for the integrals I_j are as follows: The effective stack height is assumed to be 100 meters. The vertical standard deviations, σ_z , for each equivalent Pasquill stability class are obtained from Figure 1 of Regulatory Guide 1.DD (ref. 8).

No credit for decay during travel from the point of release to the receptor is considered for this calculation.

A.2.2 <u>Inhalation Doses</u>

The maximum inhalation dose occurs 1 mile east of NMP2. This inhalation dose, R_{aj}, mrem/yr, to a maximum individual of age group a is:

$$R_{aj} = 3.2 \times 10^4 \, U_a \sum_i D_{aij} \, Q_i^*$$

where:

$$Q_i^* = (Q_i \; X/Q)_{stack} + (Q_i \; X/Q)_{\substack{reactor \\ bldg\ vent}} + (Q_i \; X/Q)_{\substack{radwaste \\ bldg\ vent}}$$

(Ci-sec)/(m³-yr)

Q_i is the release rate of nuclide i, Ci/yr

X/Q is the atmospheric dispersion factor, sec/m³. Values of 3.1×10^{-7}, and 3.2×10^{-7}, and 4.4×10^{-8} sec/m³ are assumed for the reactor building vent, radwaste building vent, and stack releases respectively

D_{aij} is the inhalation dose factor for isotope i, organ j, age group a, mrem/pCi inhaled (Table C-1, Regulatory Guide 1.AA)

U_a is the amount of air inhaled yearly, m^3/yr, taken to be 7,300, 5,100, 2,700, and 1,900 for an adult, teen, child, and infant, respectively.

3.2×10^4 is the factor to convert (Ci/yr) to (pCi/sec).

A.2.3 Exposure from Contaminated Ground

The maximum exposure point is located 1 mile east of NMP2. The dose, R_j, mrem/yr, to organ j is calculated as follows:

$$R_j = 1.0 \times 10^{12} \, S_F \sum_i Q_i^* \left(\frac{1-e^{-\lambda_i t}}{\lambda_i} \right) D_{ij}$$

where:

$Q_i^* = (Q_i \delta)_{stack} + (Q_i \delta)_{\text{reactor bldg vent}} + (Q_i \delta)_{\text{radwaste bldg vent}}$

Ci/(yr-m²)

Q_i is the release rate of nuclide i, Ci/yr

δ is the relative deposition rate at the point of exposure, m^{-2}, values of 2.3×10^{-9}, 2.4×10^{-9}, and 4.9×10^{-10} m^{-2} are used, for the reactor building, radwaste building vent, and stack releases, respectively

S_F is the shielding and occupancy factor, 0.7 (Page C-2, Regulatory Guide 1.AA)

λ_i is the decay constant of nuclide i, hr^{-1}

t is the buildup time, 1.31×10^5 hrs (Page 1.109-9, Regulatory Guide 1.109)

D_{ij} is the dose factor for organ j (total body or skin), nuclide i adjusted to account for secular equilibrium, (mrem/hr)/(pCi/m²) (Table A-3, Regulatory Guide 1.AA)

1.0×10^{12} is a factor to convert Ci to pCi.

A.2.4 Ingestion of Milk and Meat

A six month grazing season is assumed for the NMP2 analysis. The deposition rates for the grazing season are given in Tables B5-10 through 12, Response to Request B5.

The location of the nearest milk cow and meat animal has been determined to be 7800 feet ESE of NMP2 (See Response to Request C3) The relative deposition rates at this point, δ, m^{-2}, are $6.1x10^{-10}$, $6.1x10^{-10}$ and $1.5x10^{-10}$ for the reactor building vent, radwaste building vent, and stack releases, respectively. Corresponding χ/Q values, sec/m^3, are $9.2x10^{-8}$, $9.2x10^{-8}$ and 1.5×10^{-8}, respectively.

The location of the nearest goat has been determined to be 19,000 ft SSE of NMP2 (see Reponse to Request C3). The relative deposition rates at this point, m^{-2}, are 6.2 $x10^{-11}$, 6.5 $x10^{-11}$ and $1.8x10^{-11}$ for the reactor building vent, radwaste building vent and stack releases, respectively. Corresponding χ/Q values, sec/m^3, are $1.7x10^{-8}$, $1.7x10^{-8}$ and $1.8x10^{-9}$ respectively.

The concentration, C_{iv}, pCi/kg, in the feed of isotope i is:

$$C_{iv} = Q_i^* \, 1.1x10^8 \, f_i \left[\frac{r(1-e^{-\lambda_E t_E})}{\lambda_E Y} + \frac{B_{iv}(1-e^{-\lambda_i t_b})}{\lambda_i P} \right] e^{-\lambda_i t_h}$$

where:

$$Q^* = (Q_i \delta)_{stack} + (Q_i \delta)_{\substack{reactor\\ bldg\ vent}} + (Q_i \delta)_{\substack{radwaste\\ bldg\ vent}}$$

Ci/(yr-m^2)

Q_i is the release rate of isotope i, Ci/yr

δ is the relative deposition rate at the location of the milk cow, goat, or meat animal, m^{-2}

f_i is the fraction of the releases available for deposition for isotope i, as follows:
- 0.5 for iodine
- 1.0 for other nuclides (Page 1.109-54, Regulatory Guide 1.109)

r is the retention factor
0.2 for particulates
1.0 for other nuclides (Page 1.109-9, Regulatory Guide 1.109)

λ_i is the decay constant for isotope i, hr^{-1}

λ_E is the effective decay constant for isotope i, adjusted to account for weathering effects, as follows:

$$\lambda_E = \lambda_i + 0.0021 \quad hr^{-1}$$

(Page 1.109-10, Regulatory Guide 1.109)

t_E is the exposure time, 720.0 hrs (Page C-10, Regulatory Guide 1.AA)

t_b is the buildup time, 1.31×10^5 hrs (Page 1.109-9, Regulatory Guide 1.109)

Y is the crop yield for the feed, 0.75 kg/m^2 for pasture grass and 2.0 kg/m^2 for stored feed (Page C-10, Regulatory Guide 1.AA)

P is the effective surface density for soil, 240 kg/m^2 (Page 7, Regulatory Guide 1.AA)

B_{iv} is the concentration factor from soil to crop isotope i (Table C-2, Regulatory Guide 1.AA)

t_h is the holdup time for stored feed (from harvest to consumption by the milk cow, goat, or meat animal, 2.2×10^3hrs (Page C-10, Regulatory Guide 1.AA)

1.10×10^8 is to convert (Ci/yr) to (pCi/hr).

The concentration, C_{iv}, pCi/liter, for tritium is:

$$C_{iv} = 3.17 \times 10^7 \, Q_i \, \frac{gf}{H} \, \frac{X}{Q} \qquad pCi/kg$$

where:

H is the absolute humidity in the region, 5.87 gm/m^3

f is the ratio of tritium concentration in atmospheric water to tritium concentration in the plant water, 0.5 (Page 1.109-54, Regulatory Guide 1.109)

g is the fraction of the total plant mass that is water, 0.75 (Page 1.109-54, Regulatory Guide 1.109)

3.17×10^7 is to convert (Ci-sec/gm) to (pCi-yr/kg).

The concentration, C_{iv}, pCi/kg, for C-14 is:

$$C_{iv} = 3.17 \times 10^{7}\, Q_i \frac{L}{k} \frac{\chi}{Q} \qquad \text{pCi/kg}$$

where:

χ/Q is the atmospheric dispersion factor at the appropriate location, sec/m³

L is the fraction of the total plant mass that is natural carbon, 0.11 (Page 1.109-54, Regulatory Guide 1.109)

k is the concentration of natural carbon in the atmosphere, 0.16 gm/m³ (Page 1.109-54, Regulatory Guide 1.109)

Other terms for tritium and C-14 calculations are as previously defined.

The concentration, C_{im}, pCi/liter or pCi/kg, in milk or meat is determined by:

$$C_{im} = F_{im} \left[(C_{iv} fr)_{fresh} + (C_{iv}\, fr)_{stored} \right] Q_F e^{-\lambda_i t_m}$$

where:

fr is the fraction of the animal's feed composed of fresh or stored grain, 0.5 (See Response to Request C6)

F_{im} is the fraction (uptake factor) of the animal's daily feed which appears in a liter of milk, days/liter or a kilogram of meat, days/kg (Tables C-2 and C-3, Regulatory Guide 1.AA)

Q_F is the animal's daily feed, kg/day. A value of 50 kg/day is assumed for a milk cow or meat animal and a value of 6 kg/day is assumed for a goat (Page C-10, Regulatory Guide 1.AA)

t_m is the transport time, hrs. For the milk pathway a value of 48.0 hours is used. For the meat, the appropriate time is 480.0 (Table D-2, Regulatory Guide 1.AA).

The ingestion dose, R_{amj}, mrem/yr, from milk or meat to a maximum individual is:

$$R_{amj} = \sum_i C_{im} D_{aij} U_a$$

where:

D_{aij} is the ingestion dose factor for isotope i, age group a, and organ j, mrem/pCi ingested (Table A-3, Regulatory Guide 1.AA)

U_a is the usage factor for age group a, liters/yr or kg/yr. Values for the milk pathway of 310, 400, 330, and 330 liters/yr are used for an adult, teen, child, and infant, respectively. The corresponding values for the meat pathway are 110, 65, 41 and 0 kg/yr, respectively. (Table A-2, Regulatory Guide 1.109.)

Other terms are as previously defined.

A.2.5 Ingestion of Vegetation

The stored-vegetable model is employed for an apple orchard, located 6000 feet east of NMP2. (See NMP2 Environmental Report Construction Permit Stage.) For fresh, leafy vegetables the calculation is made at 6200 feet east. (See Response to Request C2.) The atmospheric dispersion factors, X/Q, sec/m³, and relative deposition rates, δ, m^{-2}, are presented below.

		Reactor Bldg. Vent	Radwaste Bldg. Vent	Stack
Garden	X/Q	3.7×10^{-7}	3.7×10^{-7}	5.4×10^{-8}
	δ	2.8×10^{-9}	2.9×10^{-9}	5.3×10^{-10}
Orchard	X/Q	3.7×10^{-7}	3.7×10^{-7}	5.4×10^{-8}
	δ	2.8×10^{-9}	2.9×10^{-9}	5.3×10^{-10}

The concentration, C_{iv}, pCi/kg, of isotope i in the vegetation is:

$$C_{iv} = 1.1 \times 10^8 \, Q_i^* f_i \left[\frac{r(1-e^{-\lambda_E t_E})}{\lambda_E Y_v} + \frac{B_{iv}(1-e^{-\lambda_i t_b})}{\lambda_i P} \right] e^{-\lambda_i t_h}$$

where:

$$Q_i^* = (Q_i \delta)_{stack} + (Q_i \delta)_{\substack{reactor \\ bldg\ vent}} + (Q_i \delta)_{\substack{radwaste \\ bldg\ vent}} \quad Ci/(yr\text{-}m^2)$$

Q_i is the release rate of isotope i, Ci/yr

δ is the relative deposition rate at the location of the vegetation, m^{-2}

f_i is the fraction of the release available for deposition for isotope i, as follows:
0.5 for iodine
1.0 for other nuclides (Page 1.109-54, Regulatory Guide 1.109)

r is the retention factor:
0.2 for particulates
1.0 for other nuclides (Page 1.109-9 Regulatory Guide 1.109).

λ_i is the decay constant for isotope i, hr^{-1}

λ_E is the effective decay constant for isotope i, adjusted to account for weathering effects, as follows:

$$\lambda_E = \lambda_i + 0.0021 \quad hr^{-1}$$

(Page 1.109-10, Regulatory Guide 1.109)

t_E is the exposure time, 1440 hrs (Page C-8, Regulatory Guide 1.AA)

t_b is the buildup time, 1.31×10^5 hrs (Page 1.109-9, Regulatory Guide 1.109)

Y_v is the crop yield for the vegetation, 2.0 kg/m^2 (Page C-8, Regulatory Guide 1.AA)

P is the effective surface density for soil, 240 kg/m^2 (Page 7, Regulatory Guide 1.AA)

B_{iv} is the concentration factor from soil to crop for isotope i (Table C-2, Regulatory Guide 1.AA)

t_h is the holdup time from harvest to consumption by the maximum individual, 1440 hrs for stored vegetables, and 24.0 hrs for fresh vegetables (Page C-8, Regulatory Guide 1.AA)

1.10×10^8 is to convert (Ci/yr) to pCi/hr).

Concentrations of tritium and C-14 are calculated as described in Section A.2.4 of this appendix.

The ingestion dose R_{avj}, mrem/yr, to a maximum individual is:

$$R_{avj} = \sum_i C_{iv} D_{aij} U_a$$

where:

D_{aij} is the ingestion dose factor for isotope i, age group a, and organ j, mrem/pCi ingested (Table A-3, Regulatory Guide 1.AA)

U_a is the usage factor for age group a, kg/year. Values of 520, 630, and 520 kg/yr are assumed for an adult, teen, and child, respectively for the orchard. For the garden, the corresponding values are 64, 42, and 26 kg/yr, respectively (Table A-2, Regulatory Guide 1.109).

All other terms are as previously defined.

B DESCRIPTION OF MODELS AND ASSUMPTIONS USED IN POPULATION DOSE CALCULATIONS

B.1 LIQUID EFFLUENTS

B.1.1 Ingestion of Potable Water

As discussed in the Response to Requests A5, A6, and A8, potentially significant public potable water supply intakes are limited to the City of Oswego water supply, eight miles west of the site. Users of the supply consist of residents of the City of Oswego and Onondaga County. In 1970, there were approximately 24,000 and 166,000 consumers, respectively (Page 2.1-2, ref. 1 and Page 5.2-8, ref. 2).

Based on the population growth estimate discussed in Section 2.1 of the NMP2-PSAR (ref. 1), the number of consumers of the potable water from this intake is increased from 190,000 to 263,000. This accounts for a 38 percent increase to the midpoint of operation of NMP2.

A lake dilution factor of 130.0 is calculated by using Regulatory Guide 1.EE (refer to Response to Request A8 and ref. 9). Decay of radionuclides occurs based on a lake transit time of 29.0 hours from the point of discharge to the point of intake; transport time through the water purification plant and water distribution system is 24.0 hours (Table D-2, Regulatory Guide 1.109, ref. 22).

The model used for calculating population doses from ingestion of potable water is based on Regulatory Guide 1.AA (ref. 6). The concentration, C_i, pCi/liter, of isotope i at the point of intake is:

$$C_i = \frac{1100.0\ Q_i}{D\ F} e^{-\lambda_i t_p}$$

where:

Q_i is the release rate of the nuclide, Ci/yr

t_p is the time from the point of discharge to the point of intake (lake transit time), 29.0 hrs

is the decay constant of the nuclide, hr^{-1}

D is the lake dilution factor, 130.0

F is the flow rate of the release stream, 46.0 ft^3/sec

1100.0 is the factor to convert (Ci/yr)/(ft^3/sec) to pCi/liter.

The dose, R_{aj}, mrem/year, to an average individual of age group a, to organ j is:

$$R_{aj} = \sum_{i} C_i D_{aij} U_a e^{-\lambda_i t}$$

where:

C_i is the concentration at the point of water intake, pCi/liter

D_{aij} is the dose factor for ingestion to organ j, mrem/pCi ingested (Table A-3, Regulatory Guide 1.AA)

t is the distribution transport time, 24.0 hrs

U_a is the usage factor for age group a of potable water, for an average individual. For an adult, 370 liters/yr are consumed; for a teenager and child 260 liters/yr are consumed (Table A-2, Regulatory Guide 1.109).

The dose, D_j^p, man-rem/yr, to the 50-mile population (total body or thyroid) is:

$$D_j^p = 0.001\, P \sum_{a} R_{aj} f_a$$

where:

P is the population served

R_{aj} is the dose to an average individual of age group a, to organ j, mrem/yr

f_a is the fraction of the population served belonging to age group a

0.001 is the factor to convert mrem to rem.

B.1.2 Ingestion of Fish

As discussed in Response to Request C7, a total 50-mile fish catch of 1.3×10^7 pounds/year is assumed.

Most commercial fishing occurs in the extreme northeast portion of Lake Ontario (Page 2.2-3, ref. 2). It is conservatively assumed that the lake dilution factor is 1.0×10^4.

It is conservatively assumed that the entire fish catch is for human consumption.

Distribution transport time is assumed to be 10 days, in accordance with Table D-2 of Regulatory Guide 1.AA (ref. 6). A total annual United States fish consumption by humans of 3.2×10^9 pounds is used (Table 1106, ref. 24), based on a consumption rate of 11 lb/person/yr and a U.S. population of 200 million. This assumption is conservative, since the model considers the Lake Ontario catch as part of the total U.S. catch. A larger U.S. fish consumption by humans would thus result in a smaller dose. The Lake Ontario catch, however, is increased by a factor of four to account for future growth in the fishing industry and consumption of the sport catch.

The model used in calculating the dose from ingestion of fish is based on Appendices A and D of Regulatory Guide 1.AA. The concentration, C_{iF}, pCi/kg, of nuclide i in the fish is:

$$C_{iF} = \frac{1100.0\, Q_i}{D\, F} B_{is}\, e^{-\lambda_i t_p}$$

where:

B_{is} is the bioaccumulation factor in fish for water type s, fresh water in this case (Table A-4, Regulatory Guide 1.AA).

All other terms are as previously defined.

The dose, D_j^p, man-rem/yr, to the population (total body or thyroid) is:

$$D_j^p = 0.001\, P_{50} \frac{m}{M} \sum_i \sum_a (f_a C_{iF} U_a D_{aij})\, e^{-\lambda_i t}$$

where:

P_{50} is the 50-mile population

m is the mass of fish caught annually from Lake Ontario, kg/yr

M is the total annual U.S. fish consumption by humans, kg/yr

f_a is the fraction of the population in age group a

C_{iF} is the concentration of radionuclide i in fish, pCi/kg

U_a is the usage factor for age group a, kg/yr. Fish ingestion for adult, teen, and child are 6.9, 5.2, and 2.2 kg/yr, respectively (Table A-2, Regulatory Guide 1-109)

D_{aij} is the ingestion dose factor (total body or thyroid) for age group a, isotope i, and organ j, mrem/pCi (Table A-3, Regulatory Guide 1.AA)

t is the distribution transport time, 24.0 hrs (Table D-2, Regulatory Guide 1.109)

0.001 is the factor to convert mrem to rem.

B.1.3 Fishing, Boating, and Swimming

The COHORT-II Monte Carlo Radiation Transport Code, (ref. 25) has been used to determine the dose rates to which fishermen, boaters, and swimmers may be exposed. The source activity is presented in Table C9-19 (See Response to Request C9) for the initial mixing zone, Lakeview Summer Camp, Selkirk State Park, and for an average lake dilution 5 miles from the discharge structure for recreational boating and fishing and 25 miles for commercial fishing.

B.1.3.1 Fishing and Boating

The fishing and boating model assumes a disc source 50 feet in diameter, with a depth of 3 feet from the surface of the water. Dose ratio at points 1, 2, and 3 feet above the water are calculated to approximate the location of fishermen and boaters. Attenuation by the boat is neglected.

As expected, the dose rate is almost constant at the three receptor points considered, indicating that the source model is essentially semi-infinite in this analysis. These dose rate levels are approximately half of the submerged dose rates calculated for swimmers, as would be intuitively expected.

In computing the population dose from fishing, an estimate of the number of hours of exposure is made as follows. An estimated total of 3.2×10^6 fisherman-days in 1960 is reported on page 8.4-5 of the NMP2-ER (ref.2). This number is assumed to double to a value of 6.4×10^6 for the purposes of this analysis.

Each fisherman is assumed to spend 2.5 hours per day on the lake. This results in a population usage of 1.6×10^7 person-hours per year. An average lake dilution factor of 1.0×10^4 is used in this analysis.

In computing the population dose from boating, a twelve week season is assumed. An estimated 1,000 persons are assumed to spend an average of 2 hours per weekday boating during this season. On weekends, 10,000 persons are assumed to use Lake Ontario for boating within a 50 mile radius for an average time of 4 hours per weekend. These assumptions result in a total of 6.0×10^5 person-hours per year for boating.

A lake dilution factor of 90.0 is estimated, corresponding to an average distance of 5 miles from the discharge. These are demonstrably conservative assumptions.

B.1.3.2 Swimming

The COHORT-II Monte Carlo program (ref. 25) is used to calculate the dose rate for swimming. A cylindrical source

5 ft in radius is enclosed in an annular mass of water of 10 ft in outside radius. The economics of computer time resulted in limiting the source region to the 5 ft radius cylinder. The attenuation of this much water can readily be shown to be a sufficient representation of source contributions to a submerged receptor on the axis of the cylinder. The 10 ft outer cylinder is added to include backscattering into the source region, in the Monte Carlo analysis. A receptor point 2 ft below the surface is used. The fact that this model accurately predicts the submerged dose rate is further confirmed by the excellent agreement with the model described earlier for boating and fishing. As expected, the submerged dose rate is approximately twice the dose rate above the surface of the water.

An estimated 1,000 persons are assumed to swim at Selkirk State Park each week during a 10 week season, as stated on page 5.2-5 of the NMP2-ER (ref. 2). Adults are assumed to spend 2 hours per day swimming and children and teenagers are assumed to spend 4 hours per day swimming.

At Lakeview Summer Camp, 11,200 person-days are assumed for adults and 22,400 person-days for teenagers and children.

In addition, it is assumed that 10 teenagers swim 8 hours per weekend during a 10 week season, in the vicinity of the mixing zone.

The large dilution afforded by the lake at more distant recreational areas within the 50 mile radius is sufficient to make additional contributions to population man-rem estimates of negligible proportions.

B.1.4 <u>Shoreline Recreation</u>

Near the NMP2 site, there are two predominant beach areas. The Lakeview Summer Camp, located 4,500 feet southwest of the station, is occupied for approximately 10 weeks per year. Maximum usage is 500 persons/weekday and 1,500 persons/weekend (Page 2.2-6, ref. 2). This yields an average of approximately 800 persons per day during the 10 week period each year. It is assumed that of these, 160 are adults, 320 are teenagers, and 320 are children. An adult usage of two hours per day is assumed; for teenagers and children a usage of four hours per day is assumed. This is conservative, since the combined swimming and shoreline usage is eight hours per day.

Using Regulatory Guide 1.EE (ref. 9), a lake dilution factor of 17.0 is calculated. A decay time of 3.1 hours is assumed.

Selkirk State Park is located 10 miles east-northeast of the station. According to page 2.1-4 of the NMP2-PSAR (ref. 1), an estimated 10,000 people use the park each weekend; based on a 10-week season, the total usage is assumed to be

100,000 person-days. Age group distribution of 62 percent adult, 14 percent teenager, and 24 percent child is used, as discussed in Response to Request C1. Usages of 8.3, 47.0 and 9.5 hours per year are assumed for adults, teenagers and children, respectively.

Regulatory Guide 1.EE serves as a basis for calculation of a lake dilution factor of 120.0; a decay time of 37.0 hours is used.

The model used for estimating population doses from this pathway is in accordance with Regulatory Guide 1.AA. A shore width factor of 0.3 is used (Table A-5, Regulatory Guide 1.AA). For the buildup time, a power plant lifetime midpoint of 15 years is assumed (Page 1.109-9, Regulatory Guide 1.109).

The footnote on Page A-9 of Regulatory Guide 1.AA identifies a necessity to account for secular equilibrium of parent and daughter. In lieu of the NRC model, dose factors of each parent isotope are increased by that of its daughter isotope, where appropriate. This model has the advantage of accurately modeling a situation where the parent release is small and the daughter release large.

The concentration, C_{is}, pCi/m^2, in the shoreline sediment of isotope i is:

$$C_{is} = \frac{3.18 \times 10^3}{F\ D} \frac{(1-e^{-\lambda_i t})}{\lambda_i} Q_i W e^{-\lambda_i t_p}$$

where:

Q_i is the release rate of isotope i, Ci/yr

is the decay constant of isotope i, hr^{-1}

t is the buildup time, 1.31×10^5 hrs (Page 1.109-9, Regulatory Guide 1.109)

t_p is the holdup time, hr

W is the shore width factor, 0.3 (Table A-5, Regulatory Guide 1.AA)

D is the lake dilution factor

F is the flow rate of the release stream, 46.0 ft^3/sec

$3.18x10^3$ is a factor for conversion from $(Ci/yr)/(ft^3/sec)$ to pCi/liter and to account for the proportionality constant used in the sediment radioactivity model.

The dose, R_{aj}, mrem/yr, to an organ j (total body or thyroid) of an average individual of age group a, due to the release of isotope i, is:

$$R_{aj} = \sum_i C_{is} U_a D_{aij}$$

where:

C_{is} is the concentration in the sediment, pCi/m^2

U_a is the usage factor for age group a, as previously defined, hr/yr

D_{aij} is the external dose factor for isotope i, organ j, $(mrem/hr)/(pCi/m^2)$ (Table A-7, Regulatory Guide 1.109).

The dose, D_j^p, man-rem/yr, described above to the population using the recreational facility is:

$$D_j^p = 0.001\ P \sum_a f_a R_{aj}$$

where:

P is the population using the recreational facility

f_a is the fraction of the population in age group a

R_{aj} is the dose to an average individual, mrem/yr

0.001 is a factor for converting mrem to rem.

B.2 GASEOUS EFFLUENTS

B.2.1 Exposure to Noble Gases

Noble gas exposure (total body) population doses, D_T^P, man–rem/yr, are calculated based on a semi-infinite cloud model. This model provides a good approximation over a 50–mile region. The appropriate equation is:

$$D_T^P = 1.11 \times 0.001 \times 3.2 \times 10^4 \, S_F \sum_i DFB_i \sum_{r,\theta} P_{r,\theta} \, Q^*_{i_{r,\theta}}$$

where:

$$Q^*_{i_{r,\theta}} = \left(Q_i \, (\chi/Q)_{r,\theta}\right)_{stack} + \left(Q_i \, (\chi/Q)_{r,\theta}\right)_{\text{reactor bldg vent}} + \left(Q_i (\chi/Q)_{r,\theta}\right)_{\text{radwaste bldg vent}}$$

(Ci-sec)/(m³-yr)

Q_i is the release rate of isotope i, Ci/yr

χ/Q is the atmospheric dispersion factor, sec/m³, for the sector centered at distance r, angle θ

DFB_i is the total body dose factor for isotope i, (mrem/yr)/(pCi/m³) (Table B-1, Regulatory Guide 1.AA)

$P_{r,\theta}$ is the population of sector (r,θ)

S_F is a shielding and occupancy factor, 0.5 (Page D-11, Regulatory Guide 1.AA)

0.001 is the factor to convert from mrem to rem

3.2×10^4 is the factor to convert (Ci/yr) to (pCi/sec)

1.11 is the ratio of tissue tc air energy absorption coefficient (Page 1.109-42, Regulatory Guide 1.109).

B.2.2 Inhalation Doses

Inhalation doses, D^p, man-rem/yr are:

$$D^P = 3.2 \times 10^4 \sum_a \sum_i \sum_{r,\theta} U_a \, D_{aij} \, P_{r,\theta} \cdot Q^*_{i_{r,\theta}}$$

where:

$$Q^*_{i_{r,\theta}} = \left(Q_i \, (\chi/Q)_{r,\theta}\right)_{radwaste\ vent} + \left(Q_i \, (\chi/Q)_{r,\theta}\right)_{reator\ vent} + \left(Q_i \, (\chi/Q)_{r,\theta}\right)_{stack}$$

(Ci-sec)/(m³-yr)

Q_i is the release rate of isotope i, Ci/yr

χ/Q is the atmospheric dispersion factor, sec/m³, associated with the sector centered at r, angle θ

U is the usage factor for age group a, m³/yr air. These factors are, for adult, teen, and child, 7,300, 5,100, 2,700, respectively

D_{aij} is the inhalation dose factor for age group a, isotope i, organ j, mrem/pCi inhaled (Table C-1, Regulatory Guide 1.AA)

$P_{r,\theta}$ is the population occupying the sector centered at (r, θ)

3.2×10^4 is the factor required to convert (Ci/yr) to (pCi/sec)

0.001 is the factor to convert from mrem to rem.

B.2.3 Deposition on Ground

Dose factors are adjusted to account for secular equilibrium.

The total body exposure dose, D^P, man-rem/yr, due to deposition on ground is:

$$D^P = 0.001\, S_F\, 1.0 \times 10^{12} \sum_{r,\theta} \delta^*_{r,\theta}\, P_{r,\theta} \sum_i Q_i \frac{(1-e^{-\lambda_i t})}{\lambda_i} D_{ij}$$

where:

$$\delta^*_{r,\theta} = \left(\delta_{r,\theta}\right)_{stack} + \left(\delta_{r,\theta}\right)_{\text{reactor bldg vent}} + \left(\delta_{r,\theta}\right)_{\text{radwaste bldg vent}} \; m^{-2}$$

$\delta_{r,\theta}$ is the relative deposition rate, m^{-2}, for the sector centered at r, angle θ

S_F is the shielding and occupancy factor, 0.5 (Page D-12, Regulatory Guide 1.AA)

λ_i is the decay constant of nuclide i, hr^{-1}

t is the buildup time, 1.31×10^5 hrs (Page 1.109-9, Regulatory Guide 1.109)

Q_i is the release rate, Ci/yr

D_{ij} is the total body dose factor, (mrem/hr)/(pCi/m^2) (Table A-3, Regulatory Guide 1.AA). These factors have been adjusted to account for secular equilibrium between parent and daughter, where appropriate.

$P_{r,\theta}$ is the population in sector (r,θ)

0.001 is the conversion factor from mrem to rem

1.0×10^{12} is the conversion factor from Ci to pCi.

B.2.4 Ingestion of Milk

Distribution of milk production in the 160 subregions has been obtained using county data, as discussed in Response to Request C3. The area of each subregion is ratioed to the

area of the county, and an appropriate percentage of the county production is calculated.

The average cow consumes 50 kg/day of feed; during the six-month grazing season, the cow's diet is assumed to be comprised of pasture grass only. For the remaining six months no direct intake of pasture grass is assumed. Crop yields of 0.75 and 2.0 kg/m² are assumed for fresh and stored feed, respectively. A surface density for soil was taken to be 240 kg/m². No holdup time is assumed for pasture grass; it is assumed, however, that on the average, 90 days pass between harvest and consumption of stored grain. A growing season of 30 days is applied for all feed. Four days are allowed for distributing the milk.

The above data represent values of Appendix C and Table D-2 from Regulatory Guide 1.AA (ref. 6). For conservatism, it is assumed that all milk is sold fresh (i.e., no canning or other processing); 100 percent fresh daily feed is also a conservative assumption.

The concentration, C_{iF}, pCi/kg, in feed (fresh or stored) for any isotope except tritium or C-14 is determined by:

$$C_{iF} = 1.1 \times 10^{8}\ \delta^{*}_{r,\theta}\ Q_i f_i \left[\frac{r(1-e^{-\lambda_{Ei} t_E})}{\lambda_{Ei} Y_v} + \frac{B_{iv}(1-e^{-\lambda_i t_b})}{\lambda_i P}\right] e^{-\lambda_i t_h}$$

where:

$\delta^{*}_{r,\theta} = (\delta_{r,\theta})_{stack} + (\delta_{r,\theta})_{\substack{reactor \\ bldg\ vent}} + (\delta_{r,\theta})_{\substack{radwaste \\ bldg\ vent}}$ m^{-2}

$\delta_{r,\theta}$ is the relative deposition rate of sector (r,θ)

Q_i is the release of isotope i, Ci/yr

f_i is the fraction of the isotopic release available for deposition, as follows:
- 0.5 for iodines
- 1.0 for other nuclides (Page 1.109-54, Regulatory Guide 1.109)

r is the retention factor:
0.2 for particulates
1.0 for other nuclides (Page 1.109-9, Regulatory Guide 1.109)

λ_i is the effective decay constant, hr^{-1}

λ_{Ei} is the effective decay constant for isotope i, adjusted to account for weathering effects, as follows:

$\lambda_{Ei} = \lambda_i + .0021$ hr^{-1} (Page 1.109-10, Regulatory Guide 1.109)

λ_i is the decay constant for nuclide i, hr^{-1}

t_E is the crop (pasture) exposure time, 720 hrs (Page C-10, Regulatory Guide 1.AA)

Y_v is the crop yield, 2.0 kg/m^2 for stored feed and 0.75 kg/m^2 (Page C-10, Regulatory Guide 1.AA)

B_{iv} is the concentration factor from soil to crops for isotope i (Table C-2, Regulatory Guide 1.AA)

t_b is the buildup time, 1.31×10^5 hrs (Page 1.109-9, Regulatory Guide 1.109)

P is the effective surface density for soil, 240 kg/m^2 (Page 7, Regulatory Guide 1.AA)

t_h is the holdup time from harvest to consumption, 0.0 hrs for pasture and 2160 hrs for stored feed (Page C-10, Regulatory Guide 1.AA)

1.1×10^8 is a factor to convert (Ci/yr) to (pCi/hr).

For tritium the concentration $C_{iF_{r,\theta}}$, pCi/kg, is:

$$C_{iF_{r,\theta}} = \frac{1.7 \times 10^7}{H} Q^*_{i_{r,\theta}}$$

where:

$$Q^*_{i_{r,\theta}} = (Q_i (\chi/Q)_{r,\theta})_{stack} + (Q_i (\chi/Q)_{r,\theta})_{\substack{reactor \\ bldg\ vent}} + (Q_i (\chi/Q)_{r,\theta})_{\substack{radwaste \\ bldg\ vent}}$$
(Ci-sec) /m^3-yr)

H is the absolute humidity in the atmosphere, 5.87 gm/m^3

Q_i is the release of isotope i, Ci/yr

$(X/Q)_{r,\theta}$ is the atmospheric dispersion factor associated with the sector centered at (r,θ), sec/m³

All other parameters are as defined above.

For C-14 the concentration, $C_{iF_{r,\theta}}$, pCi/kg is:

$$C_{iF_{r,\theta}} = 2.2 \times 10^7 \; Q^*_{i_{r,\theta}}$$

All parameters are as defined above for tritium.

For a six month grazing season the concentration $C'_{iF_{r,\theta}}$, pCi/kg, is:

$$C'_{iF_{r,\theta}} = \frac{C_{iF_{r,\theta}} + C_{is_{r,\theta}}}{2}$$

where:

$C_{iF_{r,\theta}}$ is the concentration of nuclide i in fresh feed, pCi/kg in sector (r, θ)

$C_{is_{r,\theta}}$ is the concentration of nuclide i in stored feed, pCi/kg in sector (r, θ).

The concentration, $C_{im_{r,\theta}}$, pCi/liter, in milk is:

$$C_{im_{r,\theta}} = F_m \, C'_{iF_{r,\theta}} Q_F \, e^{-\lambda_i t}$$

where:

F_m is the uptake factor from feed to milk, days/liter (Tables C-2 and C-3, Regulatory Guide 1.AA)

Q_F is the animal's daily feed, kg/day (Page C-10, Regulatory Guide 1.AA)

t   is the distribution transport time, 96.0 hours (Table D2, Regulatory Guide 1.AA).

The 50-mile average concentration, $\overline{C}_{im}$, pCi/liter, in milk is approximated by:

$$\overline{C}_{im} = \sum_{r,\theta} \frac{m_{r,\theta}}{M_{50}} C_{im_{r,\theta}}$$

where:

$m_{r,\theta}$ is the quantity of milk produced in the sector defined by (r, θ), liters/yr

M_{50} is the quantity produced within 50 miles, liters/yr.

The concept of effective population was applied for this pathway, as recommended in Appendix D of Regulatory Guide 1.AA. The effective population, P*, is used when the 50-mile population does not consume the total production. The equation used is:

$$P^* = \frac{M_{50}}{\sum_a f_a U_a}$$

where:

M_{50} is the quantity produced within 50 miles, liter/yr

f_a is the fraction of persons in age group a

U_a is the usage factor for age group a. Values of 110, 200, and 170 liters/yr were applied for adult, teenager, and child, respectively. (Table A-2, Regulatory Guide 1.109)

P* for milk is calculated to be 4.45×10^6.

The dose, D_j^p , man-rem/yr to the population from the milk pathway is:

$$D_j^p = 0.001\ P_{50} \sum_i \sum_a \overline{C}_{im}\ U_a\ f_a\ D_{aij}$$

where:

P_{50} is the 50 mile population

D_{aij} is the ingestion dose factor for age group a, isotope i, organ j, (mrem/hr)/(pCi/kg) (Table A-3, Regulatory Guide 1.AA)

All other parameters are as previously defined.

B.2.5 Ingestion of Vegetation

Vegetable production is obtained using county data as described in Reponse to Request C4. Five categories of vegetables are considered, and parameters which vary with the vegetable type are presented in Table C9-20 (see Response to Request C9). A retention factor of 1.0 and a soil surface density of 240 kg/m² are applied in all calculations. A growing season of 60 days is assumed (Page C-10, Regulatory Guide 1-AA), and the midpoint of plant operation is 15 years (Page 1.109-9, Regulatory Guide 1.109).

The model for calculating the concentration of an isotope on vegetation is the same as that for concentration in feed, described in the previous section.

The dose, D_v^p , man-rem/yr, is computed by the following equation:

$$D_v^p = 0.001\ P_{50} \sum_i \sum_a \overline{C}_{iv}\ U_a\ f_a\ D_{aij}$$

where:

C_{iv} is the average concentration in vegetation over the 50-mile region, pCi/kg

All other parameters are as previously defined.

B.2.6 Ingestion of Meat

The model for calculating the dose to the population due to ingestion of meat is identical to that presented in Section B.2.4 of this appendix. County distribution data are used (See Response to Request C4). Beef cattle, pigs, sheep, lambs, and hogs are considered; feeding habits of beef cattle are assumed for all livestock. Twenty days are allowed for distribution of the meat. Usages of 95, 59, and 37 kg/yr are assumed for adults, teenagers, and children, respectively. Stable element transfer data for meat are taken from Table C-2 of Regulatory Guide 1.AA. All other parameters are identical to those used in the milk ingestion calculation.

An estimate for the dose from ingestion of eggs has been made. Chickens are assumed to eat ten percent of their body weight daily. Because their diet is all stored feed, and because of relatively low production, this dose is a negligible contribution to the meat dose.

APPENDIX C9-2

The Liquid Radwaste System is shown in Figure A1-3. The floor drain filter, which is shown out of service, is used only after an administrative procedure has determined that the radionuclide concentration in the floor drain tanks is negligible. Therefore, for the purpose of this analysis, the flow is assumed to be zero through this filter.

The assumptions used in estimating the liquid radionuclide releases are given below. The assumptions used are based on the recommendations given in Regulatory Guide 1-CC (ref. 7).

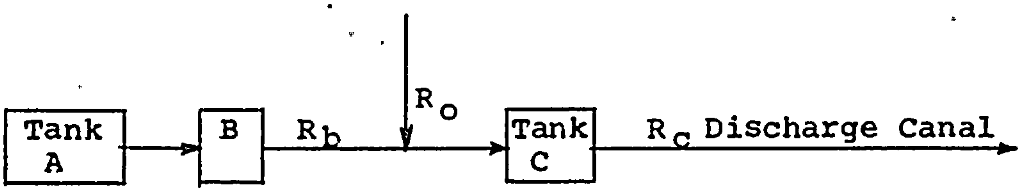
Collection Time

Collection time prior to processing is based on the input flows. The redundant tanks are assumed to be filled to 80 percent capacity.

Waste Collector Tanks	15 hours
Floor Drain Collector Tanks	76 hours
Regenerant Waste Tanks	343 hours

PROCESS AND DISCHARGE TIME

Processing and discharge of liquid wastes is calculated as follows:



A = Capacity of initial tank in flow scheme

B = Limiting process based on equipment flow capacity

C = Capacity of final tank in flow scheme prior to discharge

R_b = Equipment flow capacity of process B

R_o = Rate of flow of additional wastes inputs to Tank C

R_c = Flow capacity of Tank C discharge pump

T_p = Process time credited for decay

T_d = Discharge time

Process Time (T_p)

$T_p = 0.8A \text{ gal}/R_b \text{ gpd}$

Regenerant Evaporator	12.0 hours
Waste Evaporator	12.0 hours
Radwaste Demineralizer	3.3 hours

Discharge Time (T_d) For Decay

$T_d = 0.0$

All Streams	0.0 hours

Fraction Discharged

The Liquid Waste System is designed for maximum waste recycle and the system capacity is sufficient to process wastes for reuse during equipment downtime and anticipated operational occurrences. A discharge route is also provided. The fraction discharged is assumed to be ten percent for all streams.

Decontamination Factors

Evaporators	
Iodine	1,000
Other Nuclides	10,000

Demineralizers (High-Purity Stream)

Anion	100
Cs and Rb	10
Other Nuclides	100

Evaporator Polishing Demineralizer

Iodine	10
Other Nuclides	10

Floor Drain Inputs	Gallons/Day	Activity Fraction (PCA)
Drywell	700	1.00
Reactor Building	2,000	0.01
Turbine Building	1,000	0.01
Lab Drains	600	0.02
Total	6,300	

Equipment Drain Inputs	Gallons/Day	Activity Fraction (PCA)
Drywell	3,400	1.00
Reactor Building	3,720	0.01
Radwaste Building	1,060	0.01
Turbine Building	2,960	0.01
Total	11,140	

Dilution Factor

A prompt lake dilution factor of 10 is used assuming a submerged, high velocity effluent discharge point in deep water (Table A-1, Regulatory Guide 1.AA, ref. 6).

The radioactive liquid waste discharge will be diluted with cooling tower blowdown and service water bypass before discharge into the lake through the discharge structure. The average dilution flow rate is 21,107 gallons per minute (see Response to Request A3).

Part D Effluent Treatment Systems

Request D1

Provide detailed cost estimate sheets, similar to attachments A and B, listing all parameters (and their bases) used in determining capital, operating, and maintenance costs associated with all augments considered in the cost-benefit analysis. All costs should be stated in terms of 1975 dollars.

Response D1

Table D1-9 summarizes the augments to the gaseous and liquid radwaste systems analyzed.

Gaseous Augments

Three gaseous augments were analyzed using Regulatory Guide 1.FF (ref. 10).

These are as follows:

1. 100 percent filtration of the reactor building exhaust
2. 100 percent filtration of the turbine building exhaust
3. 100 percent filtration of the condenser vacuum pump.

The detailed cost estimate sheets of these three augments are provided in the attached Tables D1-1 through D1-6.

Liquid Augment

One augment to the liquid radwaste system was analyzed using Regulatory Guide 1.FF. This augment consists of installing one 100 gallons per minute (gpm) demineralizer in addition to the existing demineralizer in the high purity stream. This augment puts two demineralizers in the high purity stream at all times. The detailed cost estimate sheets are provided in Tables D1-7 and D1-8.

Cost Benefit

The potential reduction to the annual population exposure based on items of augmentation described above are shown in Table D1-10. Table D1-10 also shows the "benefit" of each augment calculated by multiplying the dose reduction by $1000 per man-rem or $1000 per man-thyroid-rem as appropriate. As shown in Tables D1-9, D1-10, and D1-11, the "benefit" of each augment is much less than the corresponding annualized

cost, resulting in cost-benefit ratics orders of magnitude larger than one. Therefore, any addition of items of reasonably demcnstrated technology which have the potential of reducing population dose would not be cost-benefit effective.

Request D2

Provide the cost of borrowed money used in the cost analysis and the method of arriving at this cost.

Response D2

Niagara Mohawk Power Corporation has established that the allowed rate of return is levelized at 9.6 percent. This represents the cost of money during the construction of Nine Mile Point Nuclear Station - Unit 2.

Request D3

Describe the methods and parameters used in the cost-benefit analysis and provide bases for all parameters. Include the following information:

a. Decontamination factors assigned to each augment and fraction of "on-line" time assumed, i.e., hours per year used.

b. Parameters and method used to determine the Indirect Cost Factor and the Capital Recovery Factor.

Response D3

a. Decontamination Factors and "On-Line" Time

Gaseous Augments

A decontamination factor of 10 for iodine and 100 for particulate was used in each gaseous augment which is consistent with Regulatory Guide 1.CC (ref. 7). The "on-line" time is assumed to be 100 percent.

Liquid Augment

A decontamination factor 10 for Anion, 10 for Cs and Rb, and 10 for other nuclides was used for the liquid augment which is consistent with Regulatory Guide 1.CC. The "on-line" time is assumed to be 100 percent.

b. The Indirect Cost Factor (ICF) was based on a three-unit site, each with a unitized radwaste system. A value for ICF of 1.58 was obtained using the method presented in Regulatory Guide 1.FF (ref. 10).

The Capital Recovery Factor (CRF) was determined using 9.6 percent as the cost of borrowed money and a service life of 25 years. A CRF of value of 0.1068 was obtained using the method presented in Regulatory Guide 1.FF.

Request D4

Ventilation and Exhaust Systems

For each building housing systems that contain radioactive materials, the BWR turbine gland seal exhaust and mechanical vacuum pump, the Steam Generator Blowdown System vent exhaust (PWR), and the Main Condenser Air Removal System (BWR) provide the following:

a. Ventilation system flow rates and provisions incorporated to reduce radioactivity releases through the ventilation or exhaust systems.

b. Decontamination factors assumed and the bases (include charcoal absorbers, HEPA filters, mechanical devices).

c. Release rates for radioiodine, noble gases, and radioactive particulates (Ci/yr), and the bases.

d. Release points to the environment including location, height of release, inside dimension of release point exit, effluent temperature, and exit velocity.

e. For the containment building, provide the building free volume (ft^3) and a thorough description of the internal recirculation system (if provided) including the recirculation rate, charcoal bed depth, operating time assumed, and mixing efficiency. Indicate the expected purge and venting frequencies and duration and continuous purge rate (if used).

f. If HEPA filters are used downstream of pressurized storage tanks, provide the decontamination factor used in your evaluation.

Response D4a

BUILDING VENTILATION EXHAUST SYSTEMS

1. Reactor Building

The reactor building ventilation consists of one supply air system, two exhaust air systems, and one emergency recirculation air system.

The supply air system consists of a glycol heating coil, prefilters, high efficiency filters, and three vaneaxial fans. Normally, two supply air fans will be in operation and are capable of supplying adequate air for reactor building ventilation. The third supply air fan will be in standby and will start automatically whenever either one of the normally operating supply air fans is stopped.

Each of the two exhaust systems consists of two vaneaxial fans. Normally, each system has one fan in operation and the other in standby. The standby fan will start automatically whenever the primary fan stops.

The emergency recirculation air system is designed for operation under accident conditions in conjunction with the standby gas treatment system.

140,000 cubic feet per minute (cfm) is supplied to the reactor building to provide equipment cooling as required. Air is induced from areas of low contamination to areas of progressively higher contamination.

70,000 cfm is exhausted from the refueling level through grilles located high on the wall adjacent to the spent fuel pool. The second exhaust system is also sized for 70,000 cfm, and its grilles are strategically located throughout the reactor building. Both exhaust systems discharge directly to the atmosphere without charcoal filtration through the reactor building vent.

The normal ventilation exhaust from the reactor building is monitored for radiation. The refueling level branch exhaust is provided with a minimum ten second delay duct and additional radiation monitors upstream of the delay duct. These monitors will activate the standby gas treatment system and close the supply and exhaust air valves to prevent exhausting to the atmosphere any contaminated effluent which may rise from the surface of the fuel pool and be entrained in the normal ventilation air exhaust.

A negative pressure of 0.25 inch water column (in wc) will be maintained in the reactor building by bypassing supply air around the supply fans thereby reducing the

supply air. A damper in the recirculation duct is modulated in response to building static pressure.

Local fan coil recirculating air coolers utilizing service water will supplement ventilation air cooling where required.

2. Radwaste Building

The radwaste building ventilation system consists of one supply air system and two exhaust air systems.

The supply air system includes a glycol heating coil, prefilter, high efficiency filter, and two 40,000 cfm vaneaxial fans. One fan will serve as standby.

The normal building exhaust system consists of two units. Each unit includes a prefilter, HEPA filter, and a 35,000 cfm vaneaxial fan. One unit is standby.

Exhaust air from potentially contaminated tanks and equipment vents will be collected together and handled by a separate exhaust system. This system consists of two units. Each unit includes a prefilter, HEPA filter, and a 5,000 cfm vaneaxial fan. One unit is standby. Both exhaust systems discharge directly without charcoal filtration to atmosphere through the radwaste building vent located above the reactor building roof.

A radiation monitor is provided in the radwaste building exhaust vent duct. The radwaste building ventilation is shut down manually when radiation levels exceed the preset limits.

3. Turbine Building

The turbine building ventilation system consists of one supply air system and one exhaust air system.

The supply air system consists of a glycol heating coil, prefilters, high efficiency filters, and three 80,000 cfm vaneaxial fan of which two normally run. The third fan is in standby and starts automatically whenever either normally operating fan stops.

The exhaust air system consists of three 80,000 cfm vaneaxial fans also. The third fan is standby and starts automatically when either of the primary fans stop. The exhaust air system is ducted from return air grilles strategically located throughout the building to induce air from clean areas to areas where potential contamination is highest. The exhaust system discharges directly to the atmosphere through the main stack without charcoal filtration.

A negative pressure of 0.125 in wc will be maintained in the turbine building by bypassing supply air around the supply fans thereby reducing the supply air. A damper in the bypass duct is modulated in response to building static pressure.

Local fan coil recirculating air coolers utilizing service water will supplement ventilation air cooling where required.

PROVISIONS TO REDUCE RADIOACTIVE RELEASE

Gland Sealing System

Provision of a gland sealing system is incorporated to reduce radioactivity releases in the turbine building. The gland seal system consists of two 100 percent clean steam reboilers to generate clean steam for sealing and two 100 percent exhauster units. The main feed to the clean steam reboiler is taken from the condensate system. The total maximum flow of sealing steam is 45,000 pounds per hour (lb/hr).

Each 100 percent exhauster unit consists of a condenser and two 100 percent exhauster blowers. Normal operation consists of one blower running with the other on standby. The effluent from the exhauster which normally consists of 4250 lb/hr of air and 750 lb/hr of steam at 183°F and 1 inch mercury absolute (HgA) back pressure will be discharged directly to the stack. The gland sealing system uses main steam as on emergency auxiliary source.

Response D4b

No credit has been taken for filtration devices in ventilation systems. No decontamination factors were assumed or used.

The holdup times for the offgas system charcoal delay beds are discussed in the Response to Request D4c.

Response D4c

Table D4c-1 summarized the calculated release rates for radioiodine, noble gases, and radioactive particulates (Ci/yr).

The reactor building release rates are based on the summation of the containment and auxiliary building release rates as described in Appendix B of Regulatory Guide 1.CC (ref. 7).

The release rates for the turbine and radwaste buildings and the mechanical vacuum pump are taken directly from Regulatory Guide 1.CC.

The release rates for the offgas system are based on Regulatory Guide 1.CC using the following parameters:

Weight of charcoal	48 tons
Operating temperature	70°F
Dew point	-20°F
Number of shells in the main condenser	3

The calculated holdup times are 28 hours for Krypton and 533 hours for Xenon.

Response D4d

There are three release points for gaseous effluents, the reactor building vent, the radwaste building vent, and the main stack. The reactor building ventilation exhaust is released via the reactor building vent. The radwaste building ventilation exhaust is released via the radwaste building vent. The turbine building ventilation exhaust, the mechanical vacuum pump exhaust, and the off-gas system exhaust are released via the main stack.

These release points are described as follows:

1. Reactor Building Vent

   Location - See Figure D4d-1
   Height - 187 ft above grade (El. 447'-0)
   ID of Vent - 76 in. x 76 in.
   Effluent Temperature - 80-90 $^{\circ}$F (average, depending upon ambient conditions)
   Exit Velocity - 3,500 ft per minute

2. Radwaste Building Vent

   Location - See Figure D4d-1
   Height - 187 ft above grade (El. 477'-0)
   ID of Vent - 42 in. x 42 in.
   Effluent Temperature - 80°F (average)
   Exit Velocity - 3,450 ft per minute

3. Main Stack

   Location - See Figure D4d-1
   Height - 416 ft above grade
   ID of Vent - 2 meters
   Effluent Temperature - ambient
   Exit Velocity (average) - 10 meters per second

Response D4e

Primary Containment Cooling System

The primary containment volume is approximately 540,000 cubic feet (cu ft) above the water level in the suppression chamber. The volume of the drywell is approximately 340,000 cu ft.

The cooling system in the drywell utilizes unit coolers connected to ductwork throughout the drywell. Cooled air circulation will be provided to all equipment within the drywell to areas around the reactor recirculation pumps and piping, the control rod drive area, the annular spaces between the reactor pressure vessel support skirt and the biological shield and to the areas above and below the refueling seal. Return air is ducted from all areas where hot air is likely to pocket.

The system includes the following unit coolers:

One active and one standby unit at 8,500 cfm
Four active units at 11,000 cfm
Four active units at 16,750 cfm.

The total air circulated by all of the active unit coolers is 119,500 cfm which is 21 air changes per hour in the drywell. Included in the active capacity is a 30 percent safety factor.

Each unit cooler includes a temporary air filter, a cooling coil, and a direct-connected fan. The coils will be supplied with cooling water from the reactor building closed loop cooling water system.

Primary Containment Purge System

The primary containment purge supply system consists of one full-capacity 3,500 cfm fan supplying filtered outside air from the reactor building ventilation system to the primary containment for purging and ventilation during reactor shutdown and refueling periods. The exhaust air will be passed through the standby gas treatment system and discharged through the stack.

The purge supply and exhaust piping to the primary containment will each be provided with two fast-acting pneumatic cylinder-operated butterfly valves in series in each of the two branches (one to the suppression chamber and one to the drywell) for integrity.

Response D4f

The Nine Mile Point Nuclear Station - Unit 2 design does not use pressurized storage tanks.

TABLE D4c-1

CALCULATED RELEASES OF RADIOACTIVE MATERIALS IN GASEOUS EFFLUENTS

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation

ANNUAL RELEASE (Ci/yr)

Radionuclide	Reactor (1) Building	Turbine (2) Building	Radwaste (3) Building	Mechanical (2) Vacuum Pump	Offgas (2) System	Total
Kr-83m	A	A	A		1.4×10^{0}	1.4×10^{0}
Kr-85m	6.0×10^{0}	6.8×10^{1}	A		1.1×10^{3}	1.2×10^{3}
Kr-85	A	A	A		2.7×10^{2}	2.7×10^{2}
Kr-87	6.0×10^{0}	1.9×10^{2}	A		6.8×10^{-2}	2.0×10^{2}
Kr-88	6.0×10^{0}	2.3×10^{2}	A		3.0×10^{2}	5.3×10^{2}
Kr-89	A	A	A			A
Xe-131m	A	A	A		5.0×10^{1}	5.9×10^{1}
Xe-133m	A	A	A		4.1×10^{0}	4.1×10^{0}
Xe-133	1.3×10^{2}	2.8×10^{2}	1.0×10^{1}	2.3×10^{3}	6.6×10^{3}	9.3×10^{3}
Xe-135m	9.2×10^{1}	6.5×10^{2}	A			7.4×10^{2}
Xe-135	6.8×10^{1}	6.3×10^{1}	4.5×10^{1}	3.5×10^{2}		1.1×10^{3}
Xe-137	A	A	A			A
Xe-138	1.4×10^{1}	1.4×10^{3}	A			1.5×10^{3}
I-131	3.4×10^{-1}	1.9×10^{-1}	4.5×10^{-2}	3.0×10^{-2}		6.1×10^{-1}
I-133	1.4×10^{0}	7.6×10^{-1}	1.8×10^{-1}			2.3×10^{0}
Co-60	2.0×10^{-2}	2.0×10^{-2}	9.0×10^{-2}			1.1×10^{-1}
Co-58	1.2×10^{-3}	6.0×10^{-4}	4.5×10^{-3}			6.3×10^{-3}
Cr-51	6.0×10^{-4}	1.3×10^{-2}	9.0×10^{-3}			2.3×10^{-2}
Mn-54	6.0×10^{-3}	6.0×10^{-4}	3.6×10^{-2}			4.3×10^{-2}
Fe-59	8.0×10^{-4}	5.0×10^{-4}	1.5×10^{-2}			1.6×10^{-2}
Zn-65	4.0×10^{-3}	2.0×10^{-4}	1.0×10^{-3}			5.2×10^{-3}
Zr-95	8.0×10^{-4}	1.0×10^{-4}	5.0×10^{-5}			9.5×10^{-4}
Sr-89	1.8×10^{-4}	6.0×10^{-3}	5.0×10^{-4}			6.7×10^{-3}
Sr-90	1.0×10^{-5}	2.0×10^{-5}	3.0×10^{-4}			3.3×10^{-4}
Sb-124	4.0×10^{-4}	3.0×10^{-4}	5.0×10^{-5}			7.5×10^{-4}
Cs-134	8.0×10^{-3}	3.0×10^{-4}	4.5×10^{-3}			1.3×10^{-2}
Cs-136	6.0×10^{-4}	5.0×10^{-5}	4.5×10^{-4}			1.1×10^{-3}
Cs-137	1.0×10^{-2}	6.0×10^{-4}	9.0×10^{-3}			2.0×10^{-2}
Ba-140	8.0×10^{-4}	1.1×10^{-2}	1.0×10^{-4}			1.2×10^{-2}
Ce-141	2.0×10^{-4}	6.0×10^{-4}	2.6×10^{-3}			3.4×10^{-3}
C-14					9.5×10^{0}	9.5×10^{0}
Ar-41	2.5×10^{-1}					2.5×10^{1}
H-3			4.2×10^{1}			4.2×10^{1}

(1) - Released via reactor building vent (see Response to Request D4d)
(2) - Released via main stack (see Response to Request D4d)
(3) - Released via radwaste building vent (see Response to Request D4d)

Note: For Noble Gases "A" represents less than 1 curie.

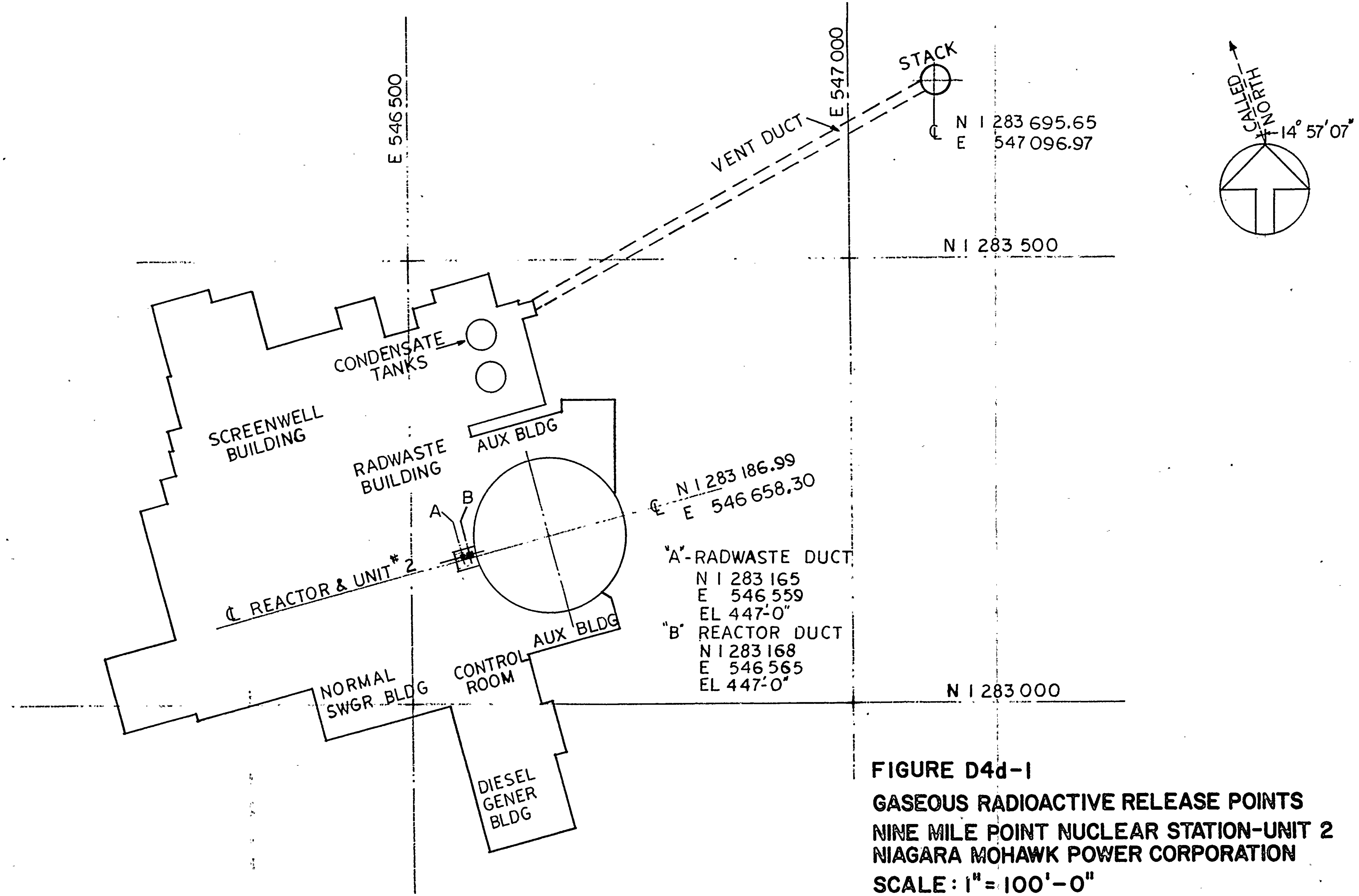


FIGURE D4d-1

GASEOUS RADIOACTIVE RELEASE POINTS

NINE MILE POINT NUCLEAR STATION-UNIT 2
NIAGARA MOHAWK POWER CORPORATION

SCALE: 1" = 100'-0"

Request D5

Pressurized Water Reactor Blowdown System

For a pressurized water reactor having recirculating U-tube steam generators and employing all volatile treatment (AVT) to main secondary coolant chemistry, provide the following information:

a. Expected blowdown rate (lb/hr) and method of processing blowdown.

b. Number and type of condensate demineralizers (if applicable) and flow rate of condensate through polishing demineralizers (lb/hr).

c. Expected frequency of resin regeneration or replacement, volumes and radioactivity of regenerant and rinse solutions, sluice water, or backwash water per batch of resin regenerated or replaced.

d. Method of collection, processing and disposal of liquid wastes, including decontamination factors assumed for process operations.

e. P&ID's and process flow diagrams for the steam generator blowdown system and condensate polishing system.

Response D5

This request does not apply to Nine Mile Point Nuclear Station Unit 2.

REFERENCES

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4. Nine Mile Point Nuclear Station Preliminary Hazards Summary Report, Niagara Mohawk Power Corporation, Docket Number 50-220.

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6 Draft Regulatory Guide 1.AA, "Calculation of Annual Average Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Implementing Appendix I," U.S. Nuclear Regulatory Commission, 9/23/75.

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21. "New York Agriculture Statistics, 1974," New York Crop Reporting Service, Albany, New York, July, 1975.

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26. "Final Environmental Statement Related to Construction of Nine Mile Point Nuclear Station-Unit 2," U.S. Atomic Energy Commission, June, 1973.

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