

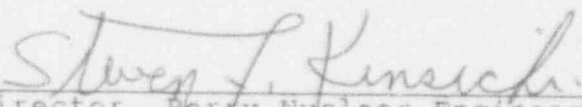
THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

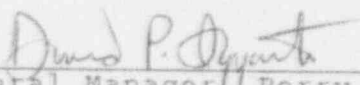
PERRY NUCLEAR POWER PLANT  
UNIT 1

SEMIANNUAL RADIOACTIVE EFFLUENT  
RELEASE REPORT

1992: QUARTERS 3 & 4

Approved By:

  
Director, Perry Nuclear Engineering Dept.

  
General Manager, Perry Nuclear Power Plant

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## INTRODUCTION

This Semiannual Radioactive Effluent Release Report (SRERR), covering the period of July 1 through December 31, 1992, is submitted in accordance with Section 6.9.1.7 of Appendix "A" (Technical Specifications) to Perry Nuclear Power Plant (PNPP) License No. NPF-58. It is designed to meet requirements of Regulatory Guide 1.21, as applicable to the PNPP Technical Specifications. Portions of the Technical Specifications applicable to this report, Sections 3/4.3.7.9, 3/4.3.7.10, 3/4.11, 3/4.12, 6.13.2, 6.14.2, and 6.15.1, are known as the Radiological Effluent Technical Specifications (RETS).

During quarters 3 and 4 the plant produced 4,980,464 Megawatt Hours Electric Gross. The net reactor capacity averaged 92.0 percent. The reactor was critical a total of 4225.1 hours.

Liquid and gaseous radioactive effluent releases to the environment during this reporting period were sampled and analyzed in accordance with the requirements of the Technical Specifications. All radioactive effluent releases were within the concentration and release limits specified in the RETS.

Calculations and terms utilized in this report are those outlined in the PNPP Offsite Dose Calculation Manual (ODCM).

During the fourth quarter of 1992, Perry experienced a minor fuel failure that attributed to the increased iodine and particulate and gaseous doses for the period. The failed fuel pin was removed in January of 1993.

The fourth quarter analysis results for Sr89/90 and Fe55 were not available for the generation of this report. Estimates for Sr89/90 and Fe55 were derived from the third quarter results and utilized in the fourth quarter calculations.

For the second quarter of 1992, the gaseous effluents released  $1.90\text{E-}5$  curies of Sr-89 and  $2.00\text{E-}8$  curies of Sr-90. The second quarter liquid effluents released  $6.50\text{E-}4$  curies of Fe-55.



## RADIOLOGICAL IMPACT ON MAN

Sampling and analysis of liquid and gaseous effluents were performed in accordance with the frequencies, types of analyses, and Lower Limits of Detection (LLD) outlined in the PNPP Unit 1 Technical Specifications.

Radioactive material was detected in some of the liquid and gaseous effluent samples analyzed. Dose calculations, using measured effluent flow and meteorological data, resulted in dose to individuals at levels below 10CFR20 and 10CFR50, Appendix I limits. Direct radiation resulting from plant operation, as measured by environmental thermoluminescent dosimeters located around the plant, did not contribute any measurable dose to members of the public for the reporting period and, as there are no other nearby fuel cycle sources, 40CFR190 limits were not exceeded.

Summaries of maximum individual and population doses resulting from liquid and gaseous radioactive effluent releases are given, in Regulatory Guide 1.21 format, in Attachment 1.

Technical Specification 6.9.1.7 requires assessment of radiation doses from radioactive liquid and gaseous effluent to members of the public while onsite. These onsite doses are assessed relative to offsite dose values, and are adjusted for appropriate dilution, dispersion, and occupancy factors.

### ONSITE DOSE FOR LIQUID EFFLUENTS

The onsite liquid effluent pathway of concern for members of the public is shore exposure while fishing along the Lake Erie coast. Occupancy is assumed to be 60 hours per year and the dilution factor for the point of exposure is 10. Ratioing this exposure pathway to doses calculated for offsite locations yields the following onsite dose values.

	<u>Total Body</u>	<u>Organ</u>
Year 1992	3.6 E-02 mrem	1.1 E-03 mrem (skin)
Quarters 3 & 4	4.1 E-03 mrem	3.6 E-04 mrem (skin)
Quarter 3	3.2 E-03 mrem	1.8 E-04 mrem (skin)
Quarter 4	8.7 E-04 mrem	1.9 E-04 mrem (skin)

## ONSITE DOSE FOR GASEOUS EFFLUENTS

Several cases are considered for onsite gaseous effluent exposure to members of the public including traversing a public road within the site boundary, shoreline fishing, non-plant related training, car pooling, and job interviews. The onsite activity with the highest dose potential, relative to gaseous effluents, is shoreline fishing. Occupancy is again assumed to be 60 hours per year. Accounting for this and the difference between annual average dispersion values for the onsite point of concern,  $6.6 \text{ E-05 s/m}^3$ , the following maximum onsite dose values are generated. The maximum onsite doses for gaseous effluents for the third and fourth quarter may not be cumulative.

	<u>Total Body</u>	<u>Organ</u>
Year 1992	5.1 E-02 mrem	7.4 E-01 mrem(thyroid)
Quarters 3 & 4	4.5 E-02 mrem	5.9 E-01 mrem(thyroid)
Quarter 3	1.1 E-02 mrem	1.9 E-01 mrem(thyroid)
Quarter 4	3.8 E-02 mrem	4.1 E-01 mrem(thyroid)

## AVERAGE INDIVIDUAL TOTAL BODY DOSES

Average total body dose to individual members of the public is determined for the population that lives within fifty miles of the plant for gaseous effluents ( $2.42 \text{ E+06}$  persons) and the population that receives drinking water from intakes within fifty miles for liquid effluents ( $1.82 \text{ E+06}$  persons). These doses are calculated using the total population dose figures found in Attachment 1.

	<u>Gases</u>	<u>Liquids</u>
Year 1992	1.6 E-05 mrem	1.8 E-04 mrem
Quarters 3 & 4	1.0 E-05 mrem	2.4 E-05 mrem
Quarter 3	1.4 E-06 mrem	1.7 E-05 mrem
Quarter 4	9.1 E-06 mrem	6.6 E-06 mrem

Gaseous and Air Dose calculations at the site boundary were performed for two cases. Attachment 1 provides the calculated maximum site boundary dose values for all sectors including those sectors which are totally over water in which no member of the public resides (These are the W, WNW, NW, NNW, N AND NNE SECTORS). Attachment 2 provides the calculated maximum site boundary dose values for the land based sectors in which members of the public reside.

## SUPPLEMENTAL INFORMATION

### Regulatory Limits

Technical Specifications 3/4.11.1 and 3/4.11.2 outline requirements for release of radioactive liquid and gaseous effluents, respectively. Concentration of radioactive material in liquid effluents and dose or dose commitment resultant thereof are limited in unrestricted areas. Dose and dose rate due to radioactive materials released in gaseous effluents are limited in areas at or beyond the site boundary. Technical Specification limits are listed in Attachment 3.

### Maximum Permissible Concentrations

The Maximum Permissible Concentrations (MPCs) in liquids are those outlined in Technical Specification 3.11.1.1 (10CFR20, Appendix B, Table II, Column 2, with the lower of the soluble and insoluble MPC being used; for dissolved and entrained noble gases, concentrations are limited to  $2 \text{ E-04 } \mu\text{Ci/ml}$ ). PNPP Unit 1 Technical Specifications do not contain a concentration requirement for gaseous releases, therefore, MPCs are not used to calculate maximum release rates for radioactive gaseous effluents.

### Average Energy

Average energy requirements for radioactive effluent mixtures do not apply to PNPP Unit 1 Technical Specifications or Off-site Dose Calculation Manual.

### Measurements and Approximations of Total Radioactivity

Analyses of specific radionuclides in effluent samples are used with effluent path flow measurements to evaluate the radioactive composition and concentration of effluents.

### Batch Releases

Liquid effluent releases were considered continuous (runs of Emergency Service Water [ESW] Loops A and B) as well as batch (Liquid Radwaste [LRW] discharges). Although the ESW system is considered to be a continuous release path when in service, it is not run continuously.

All gaseous effluent releases from Perry Nuclear Power Plant were considered continuous.

### LIQUID RELEASES

July 1 - September 30, 1992

	<u>Batch</u>	<u>Continuous</u>
Number of Releases	48	112
Total Time of Releases (min)	1.0 E+04	4.6 E+04*
Minimum Time for a Release (min)	1.0 E+00	5.4 E+01
Average Time for a Release (min)	2.1 E+02	4.1 E+02
Maximum Time for a Release (min)	2.4 E+02	1.2 E+03
Average Effluent Stream Flow During Periods of Release (l/min)	2.6 E+05	2.1 E+05

\* - The total of ESW Loop A (2.0 E+04 min) and ESW Loop B (2.6 E+04 min)

October 1 - December 31, 1992

	<u>Batch</u>	<u>Continuous</u>
Number of Releases	49	88
Total Time of Releases (min)	1.0 E+04	6.9 E+04*
Minimum Time for a Release (min)	2.0 E+00	5.0 E+00
Average Time for a Release (min)	2.1 E+02	7.8 E+02
Maximum Time for a Release (min)	2.3 E+02	6.9 E+03
Average Effluent Stream Flow During Periods of Release (l/min)	2.5 E+05	2.2 E+05

\* - The total of ESW Loop A (3.7 E+04 min) and ESW Loop B (3.1 E+04 min)

### LIQUID EFFLUENTS

For the third quarter of 1992 there were 48 batch and 112 continuous releases. Batch release total waste volume for the third quarter was 5.6 E+06 liters; total continuous release waste volume was 2.1 E+09 liters; total plant discharge during periods of release was 1.2 E+10 liters.

For the fourth quarter of 1992 there were 49 batch and 88 continuous releases. Batch release total waste volume for the fourth quarter was 6.0 E+06 liters; total continuous release waste volume was 2.9 E+09 liters; total plant discharge during periods of release was 1.5 E+10 liters.

Summaries of the radionuclide total curie activities, average diluted concentrations, and percentage of MPC (in Regulatory Guide 1.21 format) are included in Attachment 4.

If a radionuclide was not detected, zero activity was used for that isotope in dose calculations. A zero activity indicates that the radionuclide was not present at a level greater than the Lower Level of Detection (LLD) of the instrumentation used. In all cases, these LLDs were less than the levels required by Technical Specifications. The following are typical LLDs.

<u>Radionuclide</u>	<u>LLD (<math>\mu</math>Ci/ml)</u>
Mn-54	2.4 E-08
Fe-59	5.8 E-08
Co-58	1.9 E-08
Co-60	3.4 E-08
Zn-65	4.6 E-08
Mo-99	2.1 E-07
I-131	2.3 E-08
Cs-134	2.3 E-08
Cs-137	2.6 E-08
Ce-141	3.2 E-08
Ce-144	1.3 E-07
Sr-89	3.0 E-08
Sr-90	3.7 E-08
Fe-55	5.7 E-09
H-3	4.6 E-06
Gross Alpha	6.0 E-08

Estimates of error associated with sample analysis, discharge volume, and dilution volume follow. Analytical error terms are based on split sample analysis results, the majority of which are confirmatory measurements, the others are inter-laboratory comparison results. Discharge and dilution volume (flow rate instrumentation) error is assessed using loop instrumentation accuracy terms.

Gamma Analysis	10%
H-3 Analysis	8%
Sr-89/90 Analysis	10%
Fe-55 Analysis	21%
Gross Alpha Analysis	4%
Service Water Volume (Dilution)	31%
Emergency Service Water Volume (Discharge)	25%
Liquid Radwaste Volume	1%

## GASEOUS EFFLUENTS

Summaries of the radionuclide total curie activities, average release rates (in Regulatory Guide 1.21 format) are included in Attachment 5.

If a radionuclide was not detected, zero activity was used for that isotope in dose calculations. A zero activity indicates that the radionuclide was not present at a level greater than the Lower Level of Detection (LLD) of the instrumentation used. In all cases, these LLDs were less than the levels required by Technical Specifications. The following are typical LLDs.

<u>Radionuclide</u>	<u>LLD (<math>\mu</math>Ci/ml)</u>
Kr-87	1.7 E-08
Kr-88	2.3 E-08
Xe-133	1.8 E-08
Xe-133m	5.3 E-08
Xe-135	6.4 E-09
Xe-138	1.0 E-07
Mn-54	2.7 E-13
Fe-59	5.6 E-13
Co-58	3.2 E-13
Co-60	4.6 E-13
Zn-65	7.7 E-13
Mo-99	2.1 E-12
Cs-134	2.1 E-12
Cs-137	3.1 E-13
Ce-141	3.2 E-13
Ce-144	1.5 E-12
I-131	2.8 E-13
I-133	4.9 E-13
Sr-89	3.8 E-14
Sr-90	6.8 E-14
H-3	3.0 E-10
Gross Alpha	5.4 E-12



Estimates of error associated with sample analysis, sample flow rate, and effluent flow rate follow. Analytical error terms are based on split sample analysis results, the majority of which are confirmatory measurements, the others are interlaboratory comparison results. Flow rate instrumentation error is assessed using loop instrumentation accuracy terms.

Noble Gas Analysis	11%
Particulate Analysis	9%
Iodine Analysis	12%
H-3 Analysis	8%
Sr-89/90 Analysis	10%
Gross Alpha Analysis	4%
Sample Flow Rate	4%
Effluent Flow Rate	4%

#### SOLID WASTE

There were 19 radioactive waste shipments transported from PNPP for the period covered in this report. Three shipments of dry active waste were sent for compaction prior to burial (3,840 cubic feet). There were 19 dewatered liners (3230 cubic feet), which were sent in 14 separate shipments. One dewatered HIC, (132 cubic feet) was sent in 1 separate shipment. One Filter HIC, (51 cubic feet) was sent in 1 separate shipment. There was no irradiated fuel transported from site. See Attachment 6 for volume and activity values.

#### METEOROLOGICAL DATA

Cumulative joint frequency distribution (JFD) tables of wind speed and direction for each stability class, as well as for all stability classes combined, are given in Attachment 7 for the annual and semiannual period and for each quarter of the semiannual period covered by this report.

These JFD tables are the results obtained from the processing of hourly average meteorological data collected at the PNPP site met tower. It should be noted that the 1-3 mph JFD column includes wind speeds down to 0.1 mph and that hours of 0 wind speed appear only in the totals columns. The separate tallies of periods of calm include wind speeds from 0.0 to <0.7 mph. Differential temperature ( $\Delta T$  60 - 10 meters) is generally used for atmospheric stability classification.



## ABNORMAL RELEASES

There was one abnormal release during the reporting period.

On 10/26/92, routine sampling of auxiliary boiler A determined I-131 contamination at a concentration of  $5.07\text{E}-07$  uCi/ml. The boiler was subsequently shut down and drained and refilled until a non-detectable level of contamination was achieved. (All drainage was processed in radwaste) The boiler had been started on 10/24/92 at 1600 and was shut down on 10/26/92 at 1700. Dose calculations were performed using boiler vent and atomizing steam flows and a 10% carryover for the iodine. The total iodine and particulate dose for the event was  $3.17\text{E}-04$  mrem or  $2.1\text{E}-03$  percent of the annual limit. The source of the iodine contamination is believed to be backfeed from the steam seal system. An investigation is currently underway to determine the source and prevent its recurrence. See Attachment 9.

## APPLICABLE TECHNICAL SPECIFICATION REQUIREMENTS

Per PNPP Technical Specifications, certain noncompliance items, changes, and findings are reportable in the Semiannual Radioactive Effluent Release Report.

Radioactive Liquid Effluent Monitoring Instrument Inoperability for greater than 30 days. (PNPP Technical Specification 3.3.7.9, Action b.):

There was one Liquid Effluent Monitoring Instrument inoperable for greater than 30 days during the reporting period.

On 11/16/92, the Radwaste low flow discharge header monitor (OG50-R454) was declared inoperable per Technical Specification 3.3.7.9 (ALCO # 921054). Per Technical Specification 3.3.7.9, effluent releases may continue with valve verification at least every four hours during actual releases and an independent verification of the valve position prior to starting another release. The operability status of the low flow monitor is currently under review.

Radioactive Gaseous Effluent Monitoring Instrument Inoperability for greater than 30 days (PNPP Technical Specification 3.3.7.10, Action b.):

There were no Gaseous Effluent Monitoring Instrument inoperabilities for greater than 30 days during the reporting period.

Liquid Holdup Tanks noncompliance (PNPP Technical Specification 3.11.1.4, Action a.):

There were no outside temporary tanks containing radioactive liquid on the PNPP site during the reporting period.

Radiological Environmental Monitoring Program (REMP) changes (PNPP Technical Specification 3.12.1, Action c.):

For the reporting period, samples were obtained at their respective locations as required by the specified collection frequencies.

During the reporting period, Milk/Feed Silage locations 29, and 31 were deleted, Milk/ Feed Silage location 71 was added and Food Product locations 72,73,74 and 75 were added. These changes were incorporated into the ODCM on 1/21/93 and will be included in the next SRERR.

Land Use Census findings (PNPP Technical Specification 3.12.2, Actions a and b.):

The 1992 Land Use Survey was conducted from July 29, 1992 to August 11, 1992 in accordance with 10 CFR 50 Appendix I and the PNPP Technical Specifications, Section 12. See Attachment 8.

Process Control Program (PCP) changes (PNPP Technical Specification 6.13.2):

There was one change made to the Process Control Program during the reporting period.

On 7/10/92, a TCN was generated for the Process Control Program that allowed for waste packaging for intermediary processing of waste at an offsite vendor.  
See Attachment 10.

Offsite Dose Calculation Manual (ODCM) changes (PNPP Technical Specification 6.14.2):

During the reporting period, no changes were made to the ODCM.

Major Changes to Radioactive Waste Treatment Systems (PNPP Technical Specification 6.15.1):

There were no major changes to radioactive waste treatment systems during this reporting period.

Attachment 1

Radiological Impact on Man (Dose Summaries)

Attachment 1

Radiological Impact on Man (Dose Summaries)

Attachment 1 (Page 1 of 4)  
Radiological Impact on Man (Dose Summaries)  
1992: Quarters 3 & 4

SUMMARY OF MAXIMUM INDIVIDUAL DOSES  
 LAST ACCUMULATIONS FOR PERIODS:  
 LIQUID 92 7 1 1-92123124  
 GASEOUS 92 7 1 1-92123124  
 AIR 92 7 1 1-92123124

EFFLUENT	APPLICABLE ORGAN	ESTIMATED DOSE (MREM)	AGE GROUP	LOCATION DIST DIR (N) (TOWARD)	% OF APPLICABLE LIMIT	LIMIT (MREM)
LIQUID	TOTAL BODY	6.40E-04	TEEN	RECEPTOR 1	2.1E-02	3.0E+00
LIQUID	LIVER	1.03E-03	TEEN	RECEPTOR 1	1.0E-02	1.0E+01
NOBLE GAS	AIR DOSE (GAMMA-MRAD)	6.92E-01		283. WNW	6.9E+00	1.0E+01
NOBLE GAS	AIR DOSE (BETA-MRAD)	6.26E-01		283. WNW	3.1E+00	2.0E+01
NOBLE GAS	T.BODY	4.10E-01	ALL	283. WNW	8.2E+00	5.0E+00
NOBLE GAS	SKIN	9.03E-01	ALL	283. WNW	6.0E+00	1.5E+01
IODINE PARTICULATES	THYROID	4.62E+00	INFANT	283. WNW	3.1E+01	1.5E+01

SUMMARY OF POPULATION DOSES  
 LAST ACCUMULATIONS FOR PERIODS:  
 LIQUID 92 7 1 1-92123124  
 GASEOUS 92 7 1 1-92123124

EFFLUENT	APPLICABLE ORGAN	ESTIMATED POPULATION DOSE (PERSON-REM)
LIQUID	TOTAL BODY	4.3E-02
LIQUID	THYROID	4.1E-02
GASEOUS	TOTAL BODY	2.5E-02
GASEOUS	THYROID	1.9E+00

Note: The dose limits appearing on this page are annual limits.  
 The quarterly limits are listed on page 24 of this report.

Attachment 1 (Continued - Page 2 of 4)  
Radiological Impact on Man (Dose Summaries)  
1992: Quarter 3

SUMMARY OF MAXIMUM INDIVIDUAL DOSES  
 LAST ACCUMULATIONS FOR PERIODS:  
 LIQUID 92 7 1 1-92 93024  
 GASEOUS 92 7 1 1-92 93024  
 AIR 92 7 1 1-92 93024

EFFLUENT	APPLICABLE ORGAN	ESTIMATED DOSE (MREM)	AGE GROUP	LOCATION DIST DIR (M) (TOWARD)	% OF APPLICABLE LIMIT	LIMIT (MREM)
LIQUID	TOTAL BODY	4.38E-04	ADULT	RECEPTOR 1	1.5E-02	3.0E+00
LIQUID	LIVER	7.89E-04	TEEN	RECEPTOR 1	7.9E-03	1.0E+01
NOBLE GAS	AIR DOSE (GAMMA-MRAD)	1.55E-01		283. WNW	1.5E+00	1.0E+01
NOBLE GAS	AIR DOSE (BETA-MRAD)	1.66E-01		283. WNW	8.3E-01	2.0E+01
NOBLE GAS	T.BODY	9.60E-02	ALL	283. WNW	1.9E+00	5.0E+00
NOBLE GAS	SKIN	2.20E-01	ALL	283. WNW	1.5E+00	1.5E+01
IODINE & PARTICULATES	THYROID	1.58E+00	INFANT	273. N	1.1E+01	1.5E+01

SUMMARY OF POPULATION DOSES  
 LAST ACCUMULATIONS FOR PERIODS:  
 LIQUID 92 7 1 1-92 93024  
 GASEOUS 92 7 1 1-92 93024

EFFLUENT	APPLICABLE ORGAN	ESTIMATED POPULATION DOSE (PERSON-REM)
LIQUID	TOTAL BODY	3.1E-02
LIQUID	THYROID	1.6E-02
GASEOUS	TOTAL BODY	3.3E-03
GASEOUS	THYROID	9.4E-01

Note: The dose limits appearing on this page are annual limits.  
 The quarterly limits are listed on page 24 of this report.

Attachment 1 (Continued - Page 3 of 4)  
Radiological Impact on Man (Dose Summaries)  
1992: Quarter 4

SUMMARY OF MAXIMUM INDIVIDUAL DOSES  
 LAST ACCUMULATIONS FOR PERIODS:  
 LIQUID 9210 1 1-92123124  
 GASEOUS 9210 1 1-92123124  
 AIR 9210 1 1-92123124

EFFLUENT	APPLICABLE ORGAN	ESTIMATED DOSE (MREM)	AGE GROUP	LOCATION DIST (M) DIR (TOWARD)	% OF APPLICABLE LIMIT	LIMIT (MREM)
LIQUID	TOTAL BODY	2.05E-04	TEEN	RECEPTOR 1	6.8E-03	3.0E+00
LIQUID	THYROID	4.37E-04	CHILD	RECEPTOR 1	4.4E-03	1.0E+01
NOBLE GAS	AIR DOSE (GAMMA-MRAD)	5.34E-01		273. N	5.6E+00	1.0E+01
NOBLE GAS	AIR DOSE (BETA-MRAD)	4.60E-01		283. WNW	2.3E+00	2.0E+01
NOBLE GAS	T.BODY	3.48E-01	ALL	273. N	7.0E+00	5.0E+00
NOBLE GAS	SKIN	7.14E-01	ALL	273. N	4.8E+00	1.5E+01
IODINES PARTICULATES	THYROID	3.11E+00	CHILD	283. WNW	2.1E+01	1.5E+01

SUMMARY OF POPULATION DOSES  
 LAST ACCUMULATIONS FOR PERIODS:  
 LIQUID 9210 1 1-92123124  
 GASEOUS 9210 1 1-92123124

EFFLUENT	APPLICABLE ORGAN	ESTIMATED POPULATION DOSE (PERSON-REM)
LIQUID	TOTAL BODY	1.2E-02
LIQUID	THYROID	2.5E-02
GASEOUS	TOTAL BODY	2.2E-02
GASEOUS	THYROID	9.6E-01

Note: The dose limits appearing on this page are annual limits.  
 The quarterly limits are listed on page 24 of this report.

Attachment 1 (Continued - Page 4 of 4)  
Radiological Impact on Man (Dose Summaries)  
Year 1992

SUMMARY OF MAXIMUM INDIVIDUAL DOSES  
 LAST ACCUMULATIONS FOR PERIODS:  
 LIQUID 92 1 1 1-92123124  
 GASEOUS 92 1 1 1-92123124  
 AIR 92 1 1 1-92123124

EFFLUENT	APPLICABLE ORGAN	ESTIMATED DOSE (MREM)	AGE GROUP	LOCATION DIST DIR (M) (TOWARD)	% OF APPLICABLE LIMIT	LIMIT (MREM)
LIQUID	TOTAL BODY	5.00E-03	ADULT	RECEPTOR 1	1.7E-01	3.0E+00
LIQUID	LIVER	9.29E-03	TEEN	RECEPTOR 1	9.3E-02	1.0E+01
NOBLE GAS	AIR DOSE (GAMMA-MRAD)	8.33E-01		283. WNW	8.3E+00	1.0E+01
NOBLE GAS	AIR DOSE (BETA-MRAD)	8.69E-01		283. WNW	4.3E+00	2.0E+01
NOBLE GAS	T.BODY	4.55E-01	ALL	283. WNW	9.1E+00	5.0E+00
NOBLE GAS	SKIN	1.02E+00	ALL	283. WNW	6.8E+00	1.5E+01
IODINE & PARTICULATES	THYROID	5.84E+00	INFANT	283. WNW	3.9E+01	1.5E+01

SUMMARY OF POPULATION DOSES  
 LAST ACCUMULATIONS FOR PERIODS:  
 LIQUID 92 1 1 1-92123124  
 GASEOUS 92 1 1 1-92123124

EFFLUENT	APPLICABLE ORGAN	ESTIMATED POPULATION DOSE (PERSON-REM)
LIQUID	TOTAL BODY	3.3E-01
LIQUID	THYROID	7.7E-02
GASEOUS	TOTAL BODY	3.9E-02
GASEOUS	THYROID	2.5E+00

Note: The dose limits appearing on this page are annual limits.  
 The quarterly limits are listed on page 24 of this report.



Attachment 2

Radiological Impact on Man (Land Based Sectors)

Attachment 2 (Page 1 of 2)  
Radiological Impact on Man (Land Based Sectors)

Quarters 3 & 4

SUMMARY OF MAXIMUM INDIVIDUAL DOSES  
 LAST ACCUMULATIONS FOR PERIODS:  
 LIQUID 92 1 1 1-92123124  
 GASEDUS 92 7 1 1-92123124  
 AIR 92 7 1 1-92123124

EFFLUENT	APPLICABLE ORGAN	ESTIMATED DOSE (MREM)	AGE GROUP	LOCATION DIST (M) DIR (TOWARD)	% OF APPLICABLE LIMIT	LIMIT (MREM)
NOBLE GAS	AIR DOSE (GAMMA-MRAD)	1.07E-01		678. NE	1.1E+00	1.0E+01
NOBLE GAS	AIR DOSE (BETA-MRAD)	7.16E-02		678. NE	3.6E-01	2.0E+01
NOBLE GAS	T.BODY	5.19E-02	ALL	678. NE	1.0E+00	5.0E+00
NOBLE GAS	SKIN	1.05E-01	ALL	678. NE	7.0E-01	1.5E+01
IODINE & PARTICULATES	THYROID	1.66E+00	INFANT	678. NE	1.1E+01	1.5E+01

Quarter 3

SUMMARY OF MAXIMUM INDIVIDUAL DOSES  
 LAST ACCUMULATIONS FOR PERIODS:  
 LIQUID 92 1 1 1-92123124  
 GASEDUS 92 7 1 1-92 93024  
 AIR 92 7 1 1-92 93024

EFFLUENT	APPLICABLE ORGAN	ESTIMATED DOSE (MREM)	AGE GROUP	LOCATION DIST (M) DIR (TOWARD)	% OF APPLICABLE LIMIT	LIMIT (MREM)
NOBLE GAS	AIR DOSE (GAMMA-MRAD)	2.59E-03		900. WSW	2.6E-02	1.0E+01
NOBLE GAS	AIR DOSE (BETA-MRAD)	3.68E-03		900. WSW	1.8E-02	2.0E+01
NOBLE GAS	T.BODY	1.55E-03	ALL	1420. S	3.1E-02	5.0E+00
NOBLE GAS	SKIN	4.06E-03	ALL	900. WSW	2.7E-02	1.5E+01
IODINE & PARTICULATES	THYROID	8.16E-01	INFANT	678. NE	5.4E+00	1.5E+01

Note: The dose limits appearing on this page are annual limits.  
 The quarterly limits are listed on page 24 of this report.

Attachment 2 (Page 2 of 2)  
Radiological Impact on Man (Land Based Sectors)

Quarter 4

SUMMARY OF MAXIMUM INDIVIDUAL DOSES  
 LAST ACCUMULATIONS FOR PERIODS:  
 LIQUID 92 1 1 1-92123124  
 GASEOUS 9210 1 1-92123124  
 AIR 9210 1 1-92123124

EFFLUENT	APPLICABLE ORGAN	ESTIMATED DOSE (MREM)	AGE GROUP	LOCATION DIST (M) DIR (TOWARD)	% OF APPLICABLE LIMIT	LIMIT (MREM)
NOBLE GAS	AIR DOSE (GAMMA-MRAD)	1.06E-01		678. NE	1.1E+00	1.0E+01
NOBLE GAS	AIR DOSE (BETA-MRAD)	7.08E-02		678. NE	3.5E-01	2.0E+01
NOBLE GAS	T.BODY	5.11E-02	ALL	678. NE	1.0E+00	5.0E+00
NOBLE GAS	SKIN	1.04E-01	ALL	678. NE	6.9E-01	1.5E+01
IODINE & PARTICULATES	THYROID	8.41E-01	INFANT	678. NE	5.6E+00	1.5E+01

Year 1992

USER: J SUMMARY OF MAXIMUM INDIVIDUAL DOSES  
 LAST ACCUMULATIONS FOR PERIODS:  
 LIQUID 92 1 1 1-92123124  
 GASEOUS 92 1 1 1-92123124  
 AIR 92 1 1 1-92123124

EFFLUENT	APPLICABLE ORGAN	ESTIMATED DOSE (MREM)	AGE GROUP	LOCATION DIST (M) DIR (TOWARD)	% OF APPLICABLE LIMIT	LIMIT (MREM)
NOBLE GAS	AIR DOSE (GAMMA-MRAD)	1.12E-01		678. NE	1.1E+00	1.0E+01
NOBLE GAS	AIR DOSE (BETA-MRAD)	8.08E-02		678. NE	4.0E-01	2.0E+01
NOBLE GAS	T.BODY	5.32E-02	ALL	678. NE	1.1E+00	5.0E+00
NOBLE GAS	SKIN	1.09E-01	ALL	678. NE	7.3E-01	1.5E+01
IODINE & PARTICULATES	THYROID	1.90E+00	INFANT	900. WSW	1.3E+01	1.5E+01

Note: The dose limits appearing on this page are annual limits.  
 The quarterly limits are listed on page 24 of this report.

Attachment 3

Technical Specification Limits

Attachment 3 (Page 1 of 1)  
Technical Specification Limits

LIQUID EFFLUENTS:

- |  |   |
|--|---|
| ⇒ Concentration < 10CFR20<br>Appendix B, Table II,<br>Column 2 | ⇒ release rate limit<br>TS 3.11.1.1       |
| ⇒ $\leq$ 1.5 mrem total body<br>$\leq$ 5 mrem any organ        | ⇒ quarterly dose limit<br>per TS 3.11.1.2 |
| ⇒ $\leq$ 3 mrem total body<br>$\leq$ 10 mrem any organ         | ⇒ annual dose limit<br>per TS 3.11.1.2    |

GASEOUS EFFLUENTS:

Noble Gases

- |  |  |
|--|--|
| ⇒ $\leq$ 500 mrem/yr total body<br>$\leq$ 3000 mrem/yr any organ | ⇒ dose rate limit<br>per TS 3.11.2.1             |
| ⇒ $\leq$ 5 mrad air gamma<br>$\leq$ 10 mrad air beta             | ⇒ quarterly air dose<br>limit per TS<br>3.11.2.2 |
| ⇒ $\leq$ 10 mrad air gamma<br>$\leq$ 20 mrad air beta            | ⇒ annual air dose<br>limit per TS<br>3.11.2.2    |

I-131, I-133, H-3, Particulates with Halflives >8 Days

- |                                 |   |
|---------------------------------|---|
| ⇒ $\leq$ 1500 mrem/yr any organ | ⇒ dose rate limit per<br>TS 3.11.2.1      |
| ⇒ $\leq$ 7.5 mrem any organ     | ⇒ quarterly dose limit<br>per TS 3.11.2.3 |
| ⇒ $\leq$ 15 mrem any organ      | ⇒ annual dose limit<br>per TS 3.11.2.3    |

- \* - Dissolved or entrained noble gas concentration  
is limited to  $\leq 2 \text{ E-4 } \mu\text{Ci/ml}$ .

Attachment 4

Liquid Effluents

Attachment 4 (Page 1 of 2)  
Liquid Effluents

QUARTER 3 : START DATE 92070101    END DATE 92093024  
 QUARTER 4 : START DATE 92100101    END DATE 92123124

EFFLUENT AND WASTE DISPOSAL REPORT

LIQUID EFFLUENTS -- SUMMATION OF ALL RELEASES

UNITS	QUARTER 3	QUARTER 4
-------	-----------	-----------

A. FISSION AND ACTIVATION PRODUCTS

1. TOTAL RELEASE (EXCL. TRIT., GASES, ALPHA)	CI	7.78E-03	6.01E-03
2. AVERAGE DILUTED CONC. DURING PERIOD	UCI/ML	6.53E-10	4.02E-10
3. PERCENT OF APPLICABLE LIMIT	%	0.00E+00	0.00E+00

B. TRITIUM

1. TOTAL RELEASE	CI	1.94E+00	2.55E+00
2. AVERAGE DILUTED CONC. DURING PERIOD	UCI/ML	1.63E-07	1.71E-07
3. PERCENT OF APPLICABLE LIMIT	%	5.43E-03	5.69E-03

C. DISSOLVED AND ENTRAINED GASES

1. TOTAL RELEASE	CI	4.24E-03	2.07E-02
2. AVERAGE DILUTED CONC. DURING PERIOD	UCI/ML	3.56E-10	1.92E-09
3. PERCENT OF APPLICABLE LIMIT	%	1.78E-04	9.59E-04

D. GROSS ALPHA RADIOACTIVITY

1. TOTAL RELEASE	CI	0.00E+00	0.00E+00
------------------	----	----------	----------

E. VOLUME WASTE RELEASED (PRIOR TO DILUTION)	LITERS	2.11E+09	2.92E+09
--	--------	----------	----------

F. VOLUME DILUTION WATER USED DURING PERIOD	LITERS	1.19E+10	1.50E+10
---	--------	----------	----------

Attachment 4 (Continued - Page 2 of 2)  
Liquid Effluents

QUARTER 3 : START DATE 92070101    END DATE 92093024  
 QUARTER 4 : START DATE 92100101    END DATE 92123124  
 DATE OF REPORT: FEB. 10, 1993  
 PREPARED BY:

CONTINUOUS MODE				BATCH MODE	
NUCLIDES RELEASED	UNITS	QUARTER 3	QUARTER 4	QUARTER 3	QUARTER 4
H3	CI	0.00E+00	0.00E+00	1.94E+00	2.55E+00
CR51	CI	0.00E+00	0.00E+00	1.87E-03	3.19E-04
MN54	CI	0.00E+00	0.00E+00	1.97E-04	5.94E-05
FE55	CI	0.00E+00	0.00E+00	6.54E-04	6.64E-04
CO58	CI	0.00E+00	0.00E+00	1.60E-05	1.82E-05
CO60	CI	0.00E+00	0.00E+00	3.75E-05	3.53E-03
ZN65	CI	0.00E+00	0.00E+00	7.89E-04	1.02E-01
I131	CI	0.00E+00	0.00E+00	1.81E-04	3.51E-04
I133	CI	0.00E+00	0.00E+00	5.49E-05	0.00E+00
CS134	CI	0.00E+00	0.00E+00	3.34E-05	0.00E+00
CS137	CI	0.00E+00	0.00E+00	5.18E-05	5.33E-06
CS138	CI	0.00E+00	0.00E+00	0.00E+00	4.63E-04
LA140	CI	0.00E+00	0.00E+00	1.06E-04	3.40E-04
CE141	CI	0.00E+00	0.00E+00	0.00E+00	3.09E-05
NP239	CI	0.00E+00	0.00E+00	0.00E+00	1.19E-04
TOTAL FOR PERIOD (ABOVE)	CI	0.00E+00	0.00E+00	1.95E+00	2.56E+00
* XE133	CI	0.00E+00	0.00E+00	2.62E-03	1.55E-02
* XE135	CI	0.00E+00	0.00E+00	1.62E-03	1.30E-02
* XE133M	CI	0.00E+00	0.00E+00	0.00E+00	5.24E-05



Attachment 5

Gaseous Effluents

## Attachment 5 (Page 1 of 2)

Gaseous Effluents

QUARTER 3 : START DATE 92070101      END DATE 92093024

QUARTER 4 : START DATE 92100101      END DATE 92123124

## EFFLUENT AND WASTE DISPOSAL REPORT

## GASEOUS EFFLUENTS -- SUMMATION OF ALL RELEASES

	UNITS	QUARTER 3	QUARTER 4
A. FISSION AND ACTIVATION GASES			
1. TOTAL RELEASE	CI	1.50E+01	1.39E+02
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	1.89E+00	2.30E+01
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	0.00E+00	0.00E+00
B. IODINES			
1. TOTAL IODINE-131	CI	1.74E-02	3.34E-02
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	2.19E-03	4.20E-03
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	0.00E+00	0.00E+00
C. PARTICULATES			
1. PARTICULATES WITH HALF-LIVES 30 DAYS	CI	1.32E-04	2.48E-01
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	1.66E-05	3.11E-02
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	0.00E+00	0.00E+00
4. GROSS ALPHA RADIOACTIVITY	CI	3.40E-05	3.90E-05
D. TRITIUM			
1. TOTAL RELEASE	CI	0.00E+00	0.00E+00
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	0.00E+00	0.00E+00
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	0.00E+00	0.00E+00

Attachment 5 (Continued - Page 2 of 2)  
Gaseous Effluents

QUARTER 3 : START DATE 92070101    END DATE 92093024  
QUARTER 4 : START DATE 92100101    END DATE 92123124  
CONTINUOUS MODE                      BATCH MODE

NUCLIDES RELEASED	UNITS	QUARTER 3	QUARTER 4	QUARTER 3	QUARTER 4
----------------------	-------	--------------	--------------	--------------	--------------

1. FISSION AND ACTIVATION GASES

KR85M	CI	2.52E+00	5.58E+00	-----	-----
KR87	CI	5.50E-03	3.27E-01	-----	-----
KR88	CI	4.55E-01	1.80E+00	-----	-----
XE131M	CI	0.00E+00	4.51E-02	-----	-----
XE133M	CI	2.01E-01	1.68E-01	-----	-----
XE133	CI	7.16E+00	2.57E+01	-----	-----
XE135M	CI	3.08E-01	4.87E+01	-----	-----
XE135	CI	4.36E+00	8.12E+01	-----	-----
XE137	CI	0.00E+00	1.07E-01	-----	-----
XE138	CI	4.00E-02	2.48E+01	-----	-----
TOTAL FOR PERIOD (ABOVE)	CI	1.50E+01	1.89E+02	-----	-----

2. IODINES

I131	CI	1.74E-02	3.34E-02	-----	-----
I133	CI	2.15E-02	6.50E-02	-----	-----
* I132	CI	0.00E+00	1.21E-02	-----	-----
* I135	CI	0.00E+00	4.22E-03	-----	-----
TOTAL FOR PERIOD (ABOVE)	CI	3.89E-02	1.15E-01	-----	-----

3. PARTICULATES

SR89	CI	1.31E-04	1.14E-04	-----	-----
SR90	CI	7.63E-07	6.68E-07	-----	-----
* CS138	CI	0.00E+00	1.22E-01	-----	-----
* BA139	CI	0.00E+00	1.15E-01	-----	-----
* SR91	CI	0.00E+00	4.99E-03	-----	-----
* Y91M	CI	0.00E+00	4.76E-03	-----	-----
* LA140	CI	0.00E+00	2.63E-04	-----	-----
TOTAL FOR PERIOD (ABOVE)	CI	1.32E-04	2.48E-01	-----	-----

Attachment 6

Solid Waste

Attachment 6 (Page 1 of 4)  
Solid Waste

Solid Waste Shipped Offsite for Disposal During  
 Period from July 1 to December 31, 1992

WASTE STREAM:  
 Resins, Filters, & Evap. Bottoms

Waste Class	Cu. Feet	Cu. Meters	Curies Shipped	% Error (Ci)
A	3285.0	93.0	2.87 E+02	+ 25%
B	132.4	3.7	4.19 E+02	+ 25%
C	0	0	0	N/A
ALL	3417.4	96.7	7.05 E+02	+ 25%

WASTE STREAM:  
 Dry Active Waste

Waste Class	Cu. Feet	Cu. Meters	Curies Shipped	% Error (Ci)
A	3840.0	108.7	1.41 E+00	+ 25%
B	0	0	0	N/A
C	0	0	0	N/A
ALL	3840.0	108.7	1.41 E+00	+ 25%

NOTE: 3840.0 cubic feet have been shipped for processing at SEG and Quadrex. A 9 to 1 reduction factor is expected.

WASTE STREAM:  
 Irradiated Fuel

Waste Class	Cu. Feet	Cu. Meters	Curies Shipped	% Error (Ci)
A	0	0	0	N/A
B	0	0	0	N/A
C	0	0	0	N/A
ALL	0	0	0	N/A

WASTE STREAM:  
 Other Waste

Waste Class	Cu. Feet	Cu. Meters	Curies Shipped	% Error (Ci)
A	0	0	0	N/A
B	0	0	0	N/A
C	0	0	0	N/A
ALL	0	0	0	N/A

Attachment 6 (Continued - Page 2 of 4)  
Solid Waste

Estimates of Major Radionuclides by Waste Type  
WASTE TYPE: Resins, Filters, & Evap. Bottoms

<u>Waste Class</u>	<u>Nuclide Name</u>	<u>Percent Abundance</u>	<u>Curies</u>
A	Fe-55	41.573	1.19 E+02
	Zn-65	29.283	8.39 E+01
	Co-60	13.524	3.88 E+01
	Mn-54	4.923	1.41 E+01
	Cr-51	4.587	1.31 E+01
	Cs-137	1.620	4.64 E+00
	Cs-134	1.569	4.50 E+00
	Co-58	1.481	4.24 E+00
	H-3	.658	1.89 E+00
	Ni-63	.154	4.42 E-01
	C-14	.106	3.05 E-01
	Sr-90	.053	1.52 E-01
	Tc-99	.000	1.37 E-06
	I-129	.000	1.77 E-08
	Cm-242	.000	0.00 E+00
	Pu-241	.000	0.00 E+00
	Nb-94	.000	0.00 E+00
	Ni-59	.000	0.00 E+00

Attachment 6 (Continued - Page 3 of 4)  
Solid Waste

Estimates of Major Radionuclides by Waste Type  
WASTE TYPE: Resins, Filters, & Evap. Bottoms

<u>Waste Class</u>	<u>Nuclide Name</u>	<u>Percent Abundance</u>	<u>Curies</u>
B			
	Zn-65	38.212	1.60 E+02
	Fe-55	20.109	8.42 E+01
	Co-60	17.482	7.32 E+01
	Cr-51	12.729	5.33 E+01
	Mn-54	4.132	1.73 E+01
	Cs-137	2.333	9.77 E+00
	Cs-134	2.149	9.00 E+00
	Co-58	1.970	8.25 E+00
	Ni-63	.179	7.48 E-01
	Pu-241	.076	3.18 E-01
	Sr-90	.045	1.94 E-01
	H-3	.001	3.00 E-03
	C-14	.000	1.14 E-03
	Cm-242	.000	0.00 E+00
	I-129	.000	0.00 E+00
	Tc-99	.000	0.00 E+00
	Nb-94	.000	0.00 E+00
	Ni-59	.000	0.00 E+00

Attachment 6 (continued page 4 of 4)  
SOLID WASTE

WASTE TYPE: Dry Active Waste

<u>Waste Class</u>	<u>Nuclide Name</u>	<u>Percent Abundance</u>	<u>Curies</u>
A			
	Fe-55	85.269	1.20 E+00
	Co-60	8.676	1.22 E-01
	Mn-54	6.054	8.53 E-02
	C-14	0.000	3.61 E-06
	H-3	0.000	2.47 E-06
	Tc-99	0.000	2.57 E-07
	Cm-242	0.000	0.00 E+00
	Pu-241	0.000	0.00 E+00
	Cs-137	0.000	0.00 E+00
	I-129	0.000	0.00 E+00
	Sr-90	0.000	0.00 E+00
	Nb-94	0.000	0.00 E+00
	Ni-63	0.000	0.00 E+00
	Ni-59	0.000	0.00 E+00

Solid Waste Disposal Summary

<u>No. of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
7	Truck	Barnwell
12	Truck	Richland
0	N/A	Beatty
0	N/A	Other



Attachment 7

Meteorological Data

Attachment 7 (Page 1 of 16)  
Joint Frequency Distribution Tables - 1992: Quarters 3 & 4

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92070101-92123124  
 STABILITY CLASS: ALL DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	12	61	47	11	0	0	131
NNE	9	81	47	0	0	0	138
NE	27	98	89	9	0	0	223
ENE	51	102	49	3	0	0	205
E	111	94	12	0	0	0	217
ESE	147	116	21	5	0	0	289
SE	86	134	64	22	15	1	322
SSE	106	132	114	14	1	0	367
S	72	153	113	25	1	0	368
SSW	48	224	183	26	0	0	481
SW	22	120	182	34	2	1	361
WSW	15	91	132	92	8	3	343
W	18	92	216	54	1	0	372
WNW	6	70	111	53	5	0	245
NW	6	56	65	33	11	0	171
NNW	11	61	29	19	0	0	121
TOTAL	757	1685	1474	400	54	5	4391

PERIODS OF CALM(HOURS): 35  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 25

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92070101-92123124  
 STABILITY CLASS: A DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	2	0	0	0	0	2
NNE	0	1	5	0	0	0	6
NE	0	0	17	4	0	0	21
ENE	0	1	1	1	0	0	3
E	0	2	2	0	0	0	4
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	1	0	0	0	0	1
WSW	0	12	1	0	0	0	13
W	1	0	1	1	0	0	3
WNW	0	0	1	0	0	0	1
NW	0	1	0	0	0	0	1
NNW	0	1	0	0	0	0	1
TOTAL	1	21	28	6	0	0	56

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 25

Attachment 7 (Continued - Page 2 of 16)  
Joint Frequency Distribution Tables - 1992: Quarters 3 & 4

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92070101-92123124  
 STABILITY CLASS: B DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	10	2	1	0	0	13
NNE	0	11	17	0	0	0	28
NE	0	5	26	2	0	0	33
ENE	0	4	22	0	0	0	26
E	1	6	0	0	0	0	7
ESE	0	1	0	0	0	0	1
SE	0	0	0	0	0	0	0
SSE	0	0	1	2	0	0	3
S	0	2	0	0	0	0	2
SSW	1	1	0	0	0	0	2
SW	0	0	1	0	0	0	1
WSW	0	0	1	2	0	0	3
W	0	1	20	2	1	0	24
WNW	0	2	4	0	0	0	6
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
TOTAL	2	45	86	11	1	0	145

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION: 0  
 HOURS OF MISSING DATA: 25

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92070101-92123124  
 STABILITY CLASS: C DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	9	8	2	0	0	19
NNE	0	9	7	0	0	0	16
NE	0	6	11	0	0	0	17
ENE	2	8	5	1	0	0	16
E	0	3	0	0	0	0	3
ESE	0	3	2	0	0	0	5
SE	1	2	8	3	1	0	15
SSE	0	2	6	1	0	0	9
S	0	0	1	1	0	0	2
SSW	1	1	3	5	0	0	10
SW	0	1	5	0	0	0	6
WSW	0	3	7	12	0	0	22
W	0	4	46	10	0	0	60
WNW	0	9	19	4	0	0	32
NW	0	12	2	0	0	0	14
NNW	1	5	4	0	0	0	10
TOTAL	5	81	134	39	1	0	260

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION: 0  
 HOURS OF MISSING DATA: 25

Attachment 7 (Continued - Page 3 of 16)  
Joint Frequency Distribution Tables - 1992: Quarters 3 & 4

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92070101-92123124  
 STABILITY CLASS: D DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	7	29	32	8	0	0	76
NNE	4	45	18	0	0	0	67
NE	11	67	33	3	0	0	114
ENE	11	54	26	1	0	0	92
E	16	30	8	0	0	0	54
ESE	7	28	13	5	0	0	53
SE	3	47	46	18	14	1	129
SSE	29	48	67	8	1	0	153
S	10	49	70	11	1	0	141
SSW	9	72	135	21	0	0	237
SW	3	66	147	32	2	0	250
WSW	3	46	106	71	7	1	234
W	8	66	135	41	10	0	260
WNW	1	55	67	44	5	0	172
NW	1	37	31	30	11	0	110
NNW	1	40	23	18	0	0	82
TOTAL	126	779	977	311	51	2	2246

PERIODS OF CALM(HOURS): 1  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 25

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92070101-92123124  
 STABILITY CLASS: E DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	4	11	5	0	0	0	20
NNE	3	15	0	0	0	0	18
NE	13	17	2	0	0	0	32
ENE	9	34	15	0	0	0	58
E	33	42	2	0	0	0	77
ESE	23	47	6	0	0	0	76
SE	12	60	10	1	0	0	83
SSE	14	60	40	3	0	0	117
S	26	84	42	13	0	0	166
SSW	18	128	45	0	0	0	191
SW	11	49	29	2	0	1	92
WSW	8	24	17	7	1	2	59
W	6	21	14	0	0	0	41
WNW	3	4	11	3	0	0	21
NW	2	3	8	3	0	0	16
NNW	7	15	2	1	0	0	25
TOTAL	192	614	248	33	1	3	1092

PERIODS OF CALM(HOURS): 2  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 25

Attachment 7 (Continued - Page 4 of 16)  
Joint Frequency Distribution Tables - 1992: Quarters 3 & 4

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92070101-92123124  
 STABILITY CLASS: F DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	1	0	0	0	0	0	1
NNE	1	0	0	0	0	0	1
NE	2	3	0	0	0	0	5
ENE	12	4	0	0	0	0	17
E	29	4	0	0	0	0	33
ESE	33	27	0	0	0	0	60
SE	18	13	0	0	0	0	31
SSE	23	14	0	0	0	0	37
S	15	16	0	0	0	0	31
SSW	14	19	0	0	0	0	34
SW	7	3	0	0	0	0	10
WSW	1	2	0	0	0	0	3
W	3	0	0	0	0	0	4
WNW	2	0	1	0	0	0	3
NW	1	0	0	0	0	0	1
NNW	1	0	0	0	0	0	1
TOTAL	169	105	1	0	0	0	279

PERIODS OF CALM(HOURS): 5  
 VARIABLE DIRECTION: 0  
 HOURS OF MISSING DATA: 25

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92070101-92123124  
 STABILITY CLASS: G DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	0	0	0	0	0	0
NNE	1	0	0	0	0	0	2
NE	1	0	0	0	0	0	1
ENE	17	0	0	0	0	0	18
E	42	2	0	0	0	0	45
ESE	78	10	0	0	0	0	89
SE	52	12	0	0	0	0	65
SSE	40	18	0	0	0	0	58
S	21	2	0	0	0	0	23
SSW	5	3	0	0	0	0	8
SW	1	0	0	0	0	0	1
WSW	3	2	0	0	0	0	7
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	1	0	0	0	0	1
NNW	1	0	0	0	0	0	2
TOTAL	262	40	0	0	0	0	313

PERIODS OF CALM(HOURS): 27  
 VARIABLE DIRECTION: 0  
 HOURS OF MISSING DATA: 25

Attachment 7 (Continued - Page 5 of 16)  
Joint Frequency Distribution Tables - 1992: Quarter 3

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92070101-92093024  
 STABILITY CLASS: ALL DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	10	53	28	2	0	0	93
NNE	5	48	27	0	0	0	81
NE	18	49	50	2	0	0	119
ENE	35	60	27	0	0	0	124
E	76	52	3	0	0	0	132
ESE	96	67	8	0	0	0	173
SE	52	79	26	0	0	0	158
SSE	78	49	29	0	0	0	156
S	36	67	43	1	0	0	151
SSW	25	113	58	12	0	0	209
SW	13	50	52	4	0	1	120
WSW	10	61	63	34	0	0	170
W	9	65	115	16	0	0	211
WNW	4	49	46	10	0	0	109
NW	3	42	31	17	0	0	93
NNW	8	51	15	6	0	0	81
TOTAL	478	956	631	104	0	1	2186

PERIODS OF CALM(HOURS): 33  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 22

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92070101-92093024  
 STABILITY CLASS: A DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	2	0	0	0	0	2
NNE	0	1	4	0	0	0	5
NE	0	0	13	2	0	0	15
ENE	0	1	1	0	0	0	2
E	0	2	2	0	0	0	4
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	12	0	0	0	0	12
W	0	0	1	1	0	0	2
WNW	0	0	1	0	0	0	1
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
TOTAL	0	18	22	3	0	0	43

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 22

Attachment 7 (Continued - Page 6 of 16)  
Joint Frequency Distribution Tables - 1992: Quarter 3

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92070101-92093024  
 STABILITY CLASS: B DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	10	1	0	0	0	11
NNE	0	9	14	0	0	0	23
NE	0	5	18	0	0	0	23
ENE	0	2	2	0	0	0	4
E	1	3	0	0	0	0	4
ESE	0	1	0	0	0	0	1
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	1	0	0	0	0	1
SSW	0	1	0	0	0	0	1
SW	0	0	1	0	0	0	1
WSW	0	0	0	0	0	0	0
W	0	0	16	2	0	0	18
WNW	0	2	10	0	0	0	12
NW	0	1	4	0	0	0	5
NNW	0	0	0	0	0	0	0
TOTAL	1	37	66	2	0	0	106
PERIODS OF CALM(HOURS):	0						
VARIABLE DIRECTION	0						
HOURS OF MISSING DATA:	2 2						

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92070101-92093024  
 STABILITY CLASS: C DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	8	6	0	0	0	14
NNE	0	9	4	0	0	0	13
NE	0	5	6	0	0	0	11
ENE	1	3		0	0	0	4
E	0	4	0	0	0	0	4
ESE	0	3	1	0	0	0	4
SE	0	2	3	0	0	0	5
SSE	0	2	1	0	0	0	3
S	0	0	0	0	0	0	0
SSW	1	1	1	4	0	0	7
SW	0	1	5	0	0	0	6
WSW	0	4	5	5	0	0	14
W	0	3	36	7	0	0	46
WNW	0	9	15	4	0	0	28
NW	0	11	2	0	0	0	13
NNW	1	4	1	0	0	0	6
TOTAL	3	69	90	20	0	0	182
PERIODS OF CALM(HOURS):	0						
VARIABLE DIRECTION	0						
HOURS OF MISSING DATA:	22						

Attachment 7 (Continued - Page 7 of 16)  
Joint Frequency Distribution Tables - 1992: Quarter 3

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92070101-92093024  
 STABILITY CLASS: D DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	6	24	16	2	0	0	48
NNE	2	20	8	0	0	0	27
NE	5	23	13	0	0	0	41
ENE	6	28	14	0	0	0	48
E	7	20	0	0	0	0	27
ESE	2	17	3	0	0	0	22
SE	0	27	15	0	0	0	42
SSE	26	14	13	0	0	0	53
S	3	13	17	0	0	0	33
SSW	4	22	30	8	0	0	64
SW	1	25	29	2	0	0	57
WSW	1	24	47	23	0	0	95
W	0	45	61	6	0	0	112
WNW	1	34	17	5	0	0	57
NW	0	28	17	14	0	0	59
NNW	1	33	13	6	0	0	53
TOTAL	70	397	310	66	0	0	843

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 22

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92070101-92093024  
 STABILITY CLASS: E DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	3	9	5	0	0	0	17
NNE	2	9	0	0	0	0	11
NE	10	14	0	0	0	0	24
ENE	5	22	8	0	0	0	35
E	24	18	1	0	0	0	43
ESE	19	22	4	0	0	0	45
SE	10	37	6	0	0	0	53
SSE	8	25	15	0	0	0	48
S	9	42	26	1	0	0	78
SSW	7	73	27	0	0	0	107
SW	6	21	17	2	0	1	47
WSW	7	17	11	6	0	0	41
W	4	18	11	0	0	0	33
WNW	2	4	3	1	0	0	10
NW	2	2	8	3	0	0	15
NNW	5	14	1	0	0	0	20
TOTAL	123	347	143	13	0	1	628

PERIODS OF CALM(HOURS): 2  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 22



Attachment 7 (Continued - Page 8 of 16)  
Joint Frequency Distribution Tables - 1992: Quarter 3

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92070101-92093024  
 STABILITY CLASS: F DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	1	0	0	0	0	0	1
NNE	1	0	0	0	0	0	1
NE	2	2	0	0	0	0	4
ENE	9	4	0	0	0	0	14
E	16	2	0	0	0	0	18
ESE	22	19	0	0	0	0	42
SE	7	6	0	0	0	0	13
SSE	14	7	0	0	0	0	21
S	7	9	0	0	0	0	16
SSW	9	13	0	0	0	0	23
SW	5	3	0	0	0	0	8
WSW	1	2	0	0	0	0	3
W	0	0	0	0	0	0	1
WNW	1	0	0	0	0	0	1
NW	1	0	0	0	0	0	1
NNW	1	0	0	0	0	0	1
TOTAL	97	67	0	0	0	0	168

PERIODS OF CALM(HOURS): 5  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 22

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92070101-92093024  
 STABILITY CLASS: G DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	1
NE	1	0	0	0	0	0	1
ENE	14	0	0	0	0	0	15
E	28	1	0	0	0	0	30
ESE	25	5	0	0	0	0	59
SE	25	7	0	0	0	0	43
SSE	30	1	0	0	0	0	31
S	17	2	0	0	0	0	22
SSW	4	3	0	0	0	0	7
SW	1	0	0	0	0	0	1
WSW	1	2	0	0	0	0	5
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	1
TOTAL	184	21	0	0	0	0	216

PERIODS OF CALM(HOURS): 20  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 22

Attachment 7 (Continued - Page 9 of 16)  
Joint Frequency Distribution Tables - 1992: Quarter 4

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92100101-92123124  
 STABILITY CLASS: ALL DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND		WIND SPEED(MPH)						
DIRECTION--	1-3	4-7	8-12	13-18	19-24	>24	TOTAL	
N	4	8	19	9	0	0	38	
NNE	4	33	20	0	0	0	57	
NE	9	49	39	7	0	0	104	
ENE	16	42	22	3	0	0	83	
E	45	42	9	0	0	0	96	
ESE	51	49	13	5	0	0	118	
SE	34	55	38	22	15	1	165	
SSE	28	83	55	14	1	0	211	
S	36	86	70	24	1	0	217	
SSW	23	111	125	14	0	0	273	
SW	9	70	130	30	2	0	241	
WSW	5	30	69	58	8	3	173	
W	9	26	91	33	12	0	175	
WNW	1	11	66	46	5	0	130	
NW	3	14	34	16	11	0	78	
NNW	3	10	14	13	0	0	40	
TOTAL	279	729	843	296	54	4	2205	

PERIODS OF CALM(HOURS): 2  
 VARIABLE DIRECTION: 0  
 HOURS OF MISSING DATA: 3

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92100101-92123124  
 STABILITY CLASS: A DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

		WIND SPEED(MPH)					
WIND DIRECTION	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	1	0	0	0	1
NE	0	0	4	2	0	0	6
ENE	0	0	0	1	0	0	1
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	1	0	0	0	0	1
WSW	0	0	1	0	0	0	1
W	1	0	0	0	0	0	1
WNW	0	0	0	0	0	0	0
NW	0	1	0	0	0	0	1
NNW	0	1	0	0	0	0	1
TOTAL	1	3	6	3	0	0	13

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION: 0  
 HOURS OF MISSING DATA: 3

Attachment 7 (Continued - Page 10 of 16)  
Joint Frequency Distribution Tables - 1992: Quarter 4

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92100101-92123124  
 STABILITY CLASS: B DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	0	1	1	0	0	2
NNE	0	2	3	0	0	0	5
NE	0	0	8	2	0	0	10
ENE	0	2	0	0	0	0	2
E	0	1	0	0	0	0	1
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	1	2	0	0	3
S	0	1	0	0	0	0	1
SSW	1	0	0	0	0	0	1
SW	0	0	0	0	0	0	0
WSW	0	0	1	2	0	0	3
W	0	1	4	0	1	0	6
WNW	0	0	2	2	0	0	4
NW	0	1	0	0	0	0	1
NNW	0	0	0	0	0	0	0
TOTAL	1	8	20	9	1	0	39

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 3

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92100101-92123124  
 STABILITY CLASS: C DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	1	2	2	0	0	5
NNE	0	0	3	0	0	0	3
NE	0	1	5	0	0	0	6
ENE	1	2	3	1	0	0	7
E	0	4	0	0	0	0	4
ESE	0	0	1	0	0	0	1
SE	1	0	3	3	1	0	8
SSE	0	0	5	1	0	0	6
S	0	0	1	1	0	0	2
SSW	0	0	2	1	0	0	3
SW	0	0	0	0	0	0	0
WSW	0	1	2	7	0	0	10
W	0	1	10	3	0	0	14
WNW	0	0	4	0	0	0	4
NW	0	1	0	0	0	0	1
NNW	0	1	3	0	0	0	4
TOTAL	2	12	44	19	1	8	78

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 3

Attachment 7 (Continued - Page 11 of 16)  
Joint Frequency Distribution Tables - 1992: Quarter 4

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92100101-92123124  
 STABILITY CLASS: D DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	1	5	16	6	0	0	28
NNE	2	25	13	0	0	0	40
NE	6	44	20	3	0	0	73
ENE	5	26	12	1	0	0	44
E	9	10	8	0	0	0	27
ESE	5	11	10	5	0	0	31
SE	3	20	31	18	14	1	87
SSE	3	34	34	8	1	0	100
S	7	36	53	11	1	0	108
SSW	5	50	105	13	0	0	173
SW	2	41	118	30	2	0	193
WSW	2	22	59	42	7	1	139
W	2	21	24	33	10	0	113
WNW	0	21	50	39	5	0	115
NW	3	9	34	16	11	0	73
NNW	0	7	10	12	0	0	29
TOTAL	56	382	667	245	51	2	1403

PERIODS OF CALM(HOURS): 1  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 3

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92100101-92123124  
 STABILITY CLASS: E DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	1	2	0	0	0	0	3
NNE	1	6	0	0	0	0	7
NE	3	3	2	0	0	0	8
ENE	4	12	7	0	0	0	23
E	9	24	1	0	0	0	34
ESE	4	25	2	0	0	0	31
SE	2	23	4	1	0	0	30
SSE	6	35	25	3	0	0	69
S	17	42	16	12	0	0	87
SSW	11	55	18	0	0	0	84
SW	5	28	12	0	0	0	45
WSW	1	7	6	1	1	2	18
W	2	3	3	0	0	0	8
WNW	1	0	8	2	0	0	11
NW	0	1	0	0	0	0	1
NNW	2	1	1	1	0	0	5
TOTAL	69	267	105	20	1	2	464

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 3

Attachment 7 (Continued - Page 12 of 16)  
Joint Frequency Distribution Tables - 1992: Quarter 4

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92100101-92123124  
 STABILITY CLASS: F DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	1	0	0	0	0	1
ENE	3	0	0	0	0	0	3
E	17	8	0	0	0	0	25
ESE	11	7	0	0	0	0	18
SE	9	7	0	0	0	0	16
SSE	8	7	0	0	0	0	15
SSW	5	6	0	0	0	0	11
SW	2	0	0	0	0	0	2
WSW	0	0	0	0	0	0	0
W	3	0	0	0	0	0	3
WNW	1	0	0	0	0	0	1
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
TOTAL	72	38	1	0	0	0	111

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION: 0  
 HOURS OF MISSING DATA: 3

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92100101-92123124  
 STABILITY CLASS: G DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	0	0	0	0	0	0
NNE	1	0	0	0	0	0	1
NE	0	0	0	0	0	0	0
ENE	3	0	0	0	0	0	3
E	14	1	0	0	0	0	15
ESE	25	5	0	0	0	0	30
SE	17	5	0	0	0	0	22
SSE	10	7	0	0	0	0	17
S	4	0	0	0	0	0	4
SSW	1	0	0	0	0	0	1
SW	0	0	0	0	0	0	0
WSW	2	0	0	0	0	0	2
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	1	0	0	0	0	1
NNW	1	0	0	0	0	0	1
TOTAL	78	19	0	0	0	0	97

PERIODS OF CALM(HOURS): 1  
 VARIABLE DIRECTION: 0  
 HOURS OF MISSING DATA: 3

Attachment 7 (Continued - Page 13 of 16)  
Joint Frequency Distribution Tables - Year 1992

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92010101-92123124  
 STABILITY CLASS: ALL DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	33	143	105	28	1	0	330
NNE	34	152	136	3	0	0	327
NE	65	191	193	40	1	0	493
ENE	130	249	138	25	0	0	543
E	234	188	20	0	0	0	447
ESE	243	195	49	6	0	0	498
SE	155	212	143	43	15	1	572
SSE	174	234	186	32	1	0	628
S	127	228	172	50	1	0	583
SSW	78	309	384	45	1	0	720
SW	54	216	257	82	4	1	614
WSW	41	174	221	150	L9	3	610
W	46	188	405	108	18	0	767
WNW	37	196	373	107	16	0	839
NW	36	190	325	96	12	2	562
NNW	33	184	137	42	0	0	397
TOTAL	1520	3272	2943	879	92	7	8749

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 35

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92010101-92123124  
 STABILITY CLASS: A DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	3	1	0	0	0	4
NNE	0	2	12	1	0	0	15
NE	0	0	26	11	1	0	38
ENE	0	2	2	1	0	0	5
E	1	3	2	0	0	0	6
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	1	3	0	0	0	4
WSW	0	12	2	0	0	0	14
W	1	1	4	1	0	0	7
WNW	0	1	1	0	0	0	2
NW	0	5	0	0	0	0	5
NNW	0	2	0	0	0	0	2
TOTAL	2	32	53	14	1	0	102

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 35

Attachment 7 (Continued - Page 14 of 16)  
Joint Frequency Distribution Tables - Year 1992

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92010101-92123124  
 STABILITY CLASS: B DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	15	6	1	0	0	22
NNE	1	16	36	0	0	0	53
NE	0	8	38	7	0	0	53
ENE	0	5	4	0	0	0	9
E	1	7	0	0	0	0	8
ESE	0	1	0	0	0	0	1
SE	0	0	0	0	0	0	0
SSE	0	1	1	2	0	0	4
S	0	2	1	0	0	0	3
SSW	2	1	0	0	0	0	3
SW	0	1	1	0	0	0	2
WSW	0	0	2	2	0	0	4
W	0	4	3	5	3	0	15
WNW	0	3	2	4	0	0	9
NW	0	7	7	1	0	0	15
NNW	0	0	0	0	0	0	0
TOTAL	4	71	152	22	3	0	252

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 35

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92010101-92123124  
 STABILITY CLASS: C DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	20	18	2	0	0	40
NNE	0	15	32	0	0	0	47
NE	0	11	36	2	0	0	49
ENE	2	6	9	2	0	0	19
E	0	11	0	0	0	0	11
ESE	0	6	3	0	0	0	9
SE	1	3	10	6	1	0	21
SSE	0	4	13	2	0	0	19
S	0	1	2	2	0	0	5
SSW	1	2	4	5	0	0	12
SW	0	4	10	1	0	0	15
WSW	0	5	11	14	1	0	31
W	1	7	8	20	0	0	111
WNW	1	18	49	9	0	0	77
NW	1	19	15	3	0	0	38
NNW	2	9	8	0	0	0	19
TOTAL	9	141	303	68	2	0	523

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 35

Attachment 7 (Continued - Page 15 of 16)  
Joint Frequency Distribution Tables - Year 1992

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92010101-92123124  
 STABILITY CLASS: D DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	18	100	75	25	1	0	219
NNE	17	93	54	2	0	0	166
NE	20	131	86	20	0	0	257
ENE	25	140	100	22	0	0	287
E	23	75	16	0	0	0	115
ESE	15	54	33	6	0	0	108
SE	10	77	100	36	14	1	238
SSE	36	79	107	19	1	0	242
S	14	86	116	31	1	0	248
SSW	14	112	216	40	0	0	382
SW	17	115	206	71	4	0	413
WSW	14	104	178	124	17	1	438
W	18	79	136	81	15	0	319
WNW	11	154	187	112	19	0	483
NW	19	139	195	89	12	2	456
NNW	13	144	124	41	0	0	322
TOTAL	285	1742	2059	718	84	4	4893

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 35

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92010101-92123124  
 STABILITY CLASS: E DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	10	23	5	7	0	0	38
NNE	9	25	2	1	0	0	36
NE	27	34	7	6	0	0	68
ENE	31	75	23	0	0	0	129
E	66	76	22	0	0	0	145
ESE	39	77	13	0	0	0	130
SE	19	89	33	1	0	0	142
SSE	25	103	65	9	0	0	202
S	42	107	52	17	0	0	219
SSW	30	164	64	0	1	0	259
SW	18	85	37	10	0	1	151
WSW	15	48	27	10	1	2	103
W	18	34	18	2	0	0	73
WNW	21	23	12	4	0	0	60
NW	10	19	8	3	0	0	41
NNW	14	29	5	1	0	0	49
TOTAL	394	1011	373	57	2	3	1845

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 35



Attachment 7 (Continued - Page 16 of 16)  
Joint Frequency Distribution Tables - Year 1992

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92010101-92123124  
 STABILITY CLASS: F DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	2	1	0	0	0	0	3
NNE	4	1	0	0	0	0	5
NE	8	5	0	0	0	0	13
ENE	31	13	0	0	0	0	45
E	58	13	0	0	0	0	71
ESE	54	39	0	0	0	0	94
SE	31	22	0	0	0	0	54
SSE	33	28	0	0	0	0	61
S	22	26	1	0	0	0	49
SSW	16	24	0	0	0	0	41
SW	14	9	0	0	0	0	23
WSW	8	3	1	2	0	0	12
W	6	2	0	0	0	0	9
WNW	4	0	1	0	0	0	5
NW	5	0	0	0	0	0	5
NNW	1	0	0	0	0	0	1
TOTAL	297	186	3	0	0	0	491

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 35

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 92010101-92123124  
 STABILITY CLASS: G DT/DZ  
 ELEVATION: SPEED:SPD10P DIRECTION:DIR10P LAPSE:DT50M

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	3	1	0	0	0	0	4
NNE	3	0	0	0	0	0	3
NE	10	2	0	0	0	0	12
ENE	41	8	0	0	0	0	50
E	85	3	0	0	0	0	91
ESE	135	18	0	0	0	0	156
SE	94	21	0	0	0	0	117
SSE	80	19	0	0	0	0	100
S	49	6	0	0	0	0	59
SSW	15	6	0	0	0	0	23
SW	5	1	0	0	0	0	6
WSW	4	2	0	0	0	0	6
W	1	1	0	0	0	0	2
WNW	0	0	0	0	0	0	0
NW	1	1	0	0	0	0	2
NNW	3	0	0	0	0	0	4
TOTAL	529	89	0	0	0	0	643

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 35

Attachment 8

Annual Land Use Census

THE CLEVELAND ELECTRIC ILLUMINATING COMPANY  
PERRY NUCLEAR POWER PLANT

M E M O R A N D U M

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TO: E. M. Root      ROOM: E220      FROM: B. G. Nyerges      DATE: 9/3/92  
PHONE: 5513      ROOM: E240  
SUBJECT: Annual Land Use Survey 1992

Attached is the Annual Land Use Report for 1992. This report was prepared in accordance with the PNPP Technical Specification Section 3/4.12, Radiological Environmental Monitoring, Subsection 3.12.2, Land Use Census.

The results of this survey showed that no significant change has occurred since last year with the exception of greatly increased residential growth in the Perry School system area. The results of this survey will be included in the Annual Radiological Environmental Operating Report pursuant to PNPP Technical Specification 6.9.1.6.

cc: J. J. Traverso E290  
R. R. Bowers E220  
J. D. Anderson PTC  
J. T. Ratchen CCB125

ANNUAL  
LAND-USE SURVEY  
1992

Prepared by: Brian Nyerges 8-24-92  
Date

Prepared by: Jamie Balstad 8-25-92  
Date

Prepared by: Derek Graham 8-25-92  
Date

Reviewed by: James Traverso 8/2/92  
Date

Reviewed by: James Webb 8-25-92  
Date

### PNPP 1992 Land Use Survey

The 1992 Land Use Survey was conducted from July 29 to August 11, 1992. The survey was conducted in accordance with 10 CFR 50 Appendix I and the PNPP Technical Specifications, Section 12.

There are sixteen meteorological sectors which have their origin at the centerline of the Unit 1 and Unit 2 reactor buildings. The nearest residence, milk animal and garden\* were identified in each of these sectors where possible. This information is used in the assessment of potential radiological doses to the public. In addition, all produce growers, recreational areas, and public drinking water facilities within a five mile radius around the plant were identified to provide information for use in emergency planning.

The survey was conducted by visual inspection while traveling over all major roads within a five mile radius of PNPP, referring to previous years' reports, and talking with local residents.

The following general observations of current land use were made:

- o Areas between 4 miles and 5 miles in the ENE, WSW, SW, and SSW sectors of the plant are highly populated residential areas.
- o The area between 3 miles and 4 miles in the WSW sector is primarily heavy industrial.
- o The land along Route 20 or North Ridge Road is used mainly for commercial operations.
- o Commercial nurseries which provide a large variety of stock to both wholesale and retail markets make up the predominant land use for this area.
- o The remaining area within the five mile radius of the plant is rural farm land with moderate to low population density.
- o Major residential development is occurring in the Perry area. Many new houses were seen being built, all within the last year. In addition, a new High School is under construction in Perry.

Table 1 lists the nearest residence, Table 2 lists the nearest milk animal, and Table 3 lists the nearest garden in each of the sixteen meteorological sectors. Table 4 lists all of the produce growers and Table 5 lists recreational areas and public drinking water facilities within the five mile radius.

\* A garden is defined as 50 square meters or 500 square feet in area to be recognized for this survey.

The dispersion and deposition values shown in the tables are taken from Appendix A of the PNPP Offsite Dose Calculation Manual (ODCM). These values represent the Seven-Site-Year annual average based on the onsite meteorological data base.

It can be concluded from this survey that the land within the five mile radius of the plant has not changed significantly since last year except for residential growth and the construction of a new High School in the Perry area.

TABLE 1: NEAREST RESIDENCE

<u>Meteorological Sector (1)</u>	<u>Address of Location</u>	<u>Distance from PNPP</u>	<u>Chi/Q Value (Sec/m<sup>3</sup>)</u>	<u>Map Locator</u>
NE	4384 Lockwood Rd.	0.8 miles	2.17E-6	2
ENE	4602 Lockwood Rd.	1.0 miles	1.13E-6	4
E	2684 Antioch Rd.	1.1 miles	6.67E-7	17
ESE	2774 Antioch Rd.	1.2 miles	4.44E-7	26
SE	4495 N. Ridge Rd.	1.2 miles	3.89E-7	34
SSE	3119 Parmly Rd.	0.9 miles	1.89E-6	36
S	3121 Center Rd.	0.9 miles	2.25E-6	40
SSW	3850 Clark Rd.	0.9 miles	1.11E-6	46
SW	3440 Clark Rd.	1.2 miles	4.98E-7	51
WSW	2815 Perry Park	1.0 miles	1.72E-6	57

(1) Sectors which extend over Lake Erie include: W, WNW, NW, NNW, N, and NNE.

Note: There was no change to this table from the previous year.

TABLE 2: NEAREST MILK ANIMAL

<u>Meteorological</u> <u>Sector (1,2)</u>	<u>Address of</u> <u>Location</u>	<u>Distance</u> <u>from PNPP</u>	<u>D/Q Value</u> <u>per m<sup>2</sup></u>	<u>Map</u> <u>Locator</u>
--	--------------------------------------	-------------------------------------	--	------------------------------

There were no milk producing animals identified within a five mile radius of the plant.

(1) W, WNW, NW, NNW, N, and NNE sectors extend over Lake Erie.



TABLE 3: NEAREST GARDEN

<u>Meteorological Sector (1)</u>	<u>Address of Location</u>	<u>Distance from PNPP</u>	<u>D/Q Value per m<sup>2</sup></u>	<u>Map Locator</u>
NE	4398 Lockwood Rd.	0.8 miles	1.09E-8	3
ENE	4650 Lockwood Rd.*	1.1 miles	4.77E-9	5
E	2684 Antioch Rd.*	1.1 miles	5.29E-9	18
ESE	2774 Antioch Rd.	1.2 miles	3.41E-9	26
SE	4613 N. Ridge Rd.	1.2 miles	2.90E-9	35
SSE	3119 Parmly Rd.	0.9 miles	1.23E-8	36
S	3121 Center Rd.	0.9 miles	1.31E-8	40
SSW	3735 N. Ridge Rd.*	1.6 miles	1.32E-9	47
SW	3440 Clark Rd.	1.2 miles	2.24E-9	51
WSW	3424 Parmly Rd.	1.0 miles	5.44E-9	59

(1) W, WNW, NW, NNW, N, and NNE sectors extend over Lake Erie.

\* Indicates a new location for 1992.

TABLE 4: PRODUCE GROWERS

<u>Name of Facility</u>	<u>Address of Location</u>	<u>Sector/Distance</u>	<u>Map Locator</u>
Shreve Farm	2431 Antioch Rd.	ENE 1.2 miles	6
Resident*	4762 Lockwood Road	ENE/1.4 miles	7
Gerlica Farm	4860 Lockwood Rd.	ENE/1.5 miles	8
Rainbow Farms	Townline Road	ENE/1.9 miles	9
Twins Creek Farm	2299 Haines Road	ENE/3.2 miles	13
Resident*	1848 Hubber Road	ENE/5.0 miles	16
Orosz Farm	2674 Antioch Road	E/1.2 miles	18
Mobile stand*	Corner of McMackin & North Ridge Rd (Rt 20)	E/2.5 miles	19
Forget-Me-Not Florist and Greenhouse*	North Ridge Road	E/2.7 miles	20
Sabo Farm	5674 North Ridge Rd.	E/2.9 miles	21
Woodworth Farm	Middle Ridge Road	E/4.6 miles	22
Wayman Farm Produce	Across from 2605 Hubbard Road	E/4.8 miles	23
Hub Ridge Market & Garden Center	Intersection of North Lake Street (Rt 528) & Middle Ridge Road	E/4.8 miles	25
Resident (Secor)	5009 North Ridge Rd.	ESE/1.8 miles	27
Secor Nursery	North Ridge Road	ESE/1.8 miles	28
Resident (Owens)	3815 Townline Road	ESE/2.3 miles	29
Resident	5674 Middle Ridge Road	ESE/3.2 miles	30
Resident	6030 Middle Ridge Rd.	ESE/3.9 miles	31
Resident (Ziemba)*	5964 South Ridge Road (Rt 84)	ESE/4.1 miles	32

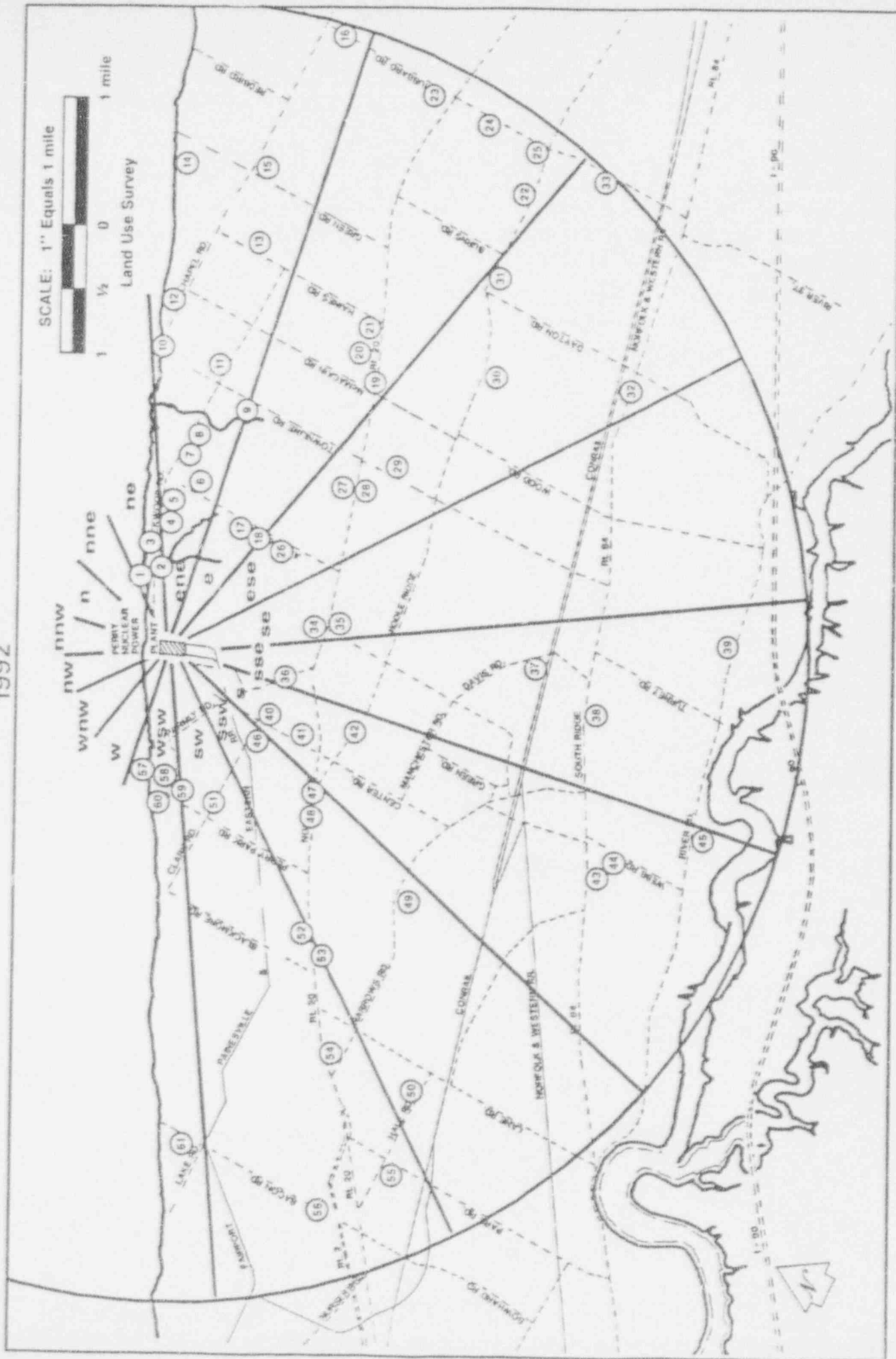
Hart's Acres Produce*	North Lake Street (Rt 528)	ESE/5.0 miles	33
Leekala Farm	4830 Davis Road	SSE/3.0 miles	37
Peg's Produce*	Across from Horvath farm 4665 South Ridge Road (Rt 84)	SSE/3.2 miles	38
Resident (Lawver)*	5347 River Road	SSE/4.3 miles	39
Resident	3269 Center Road	S/1.2 miles	41
Brookside Fruit Farm	Middle Ridge Road	S/1.7 miles	42
84 Garden Spot	South Ridge Road	S/3.8 miles	43
Resident	4648 Webb Road	S/3.8 miles	44
Garden Center	Corner Narrows Rd. & North Ridge Rd.	SW/3.6 miles	46
Champion Nursery	North Ridge Road	SSW/1.8 miles	47
Golding Farm	North Ridge Road Perry Park Road	SSW/1.7 miles SW/1.5 miles	48
Resident	3576 Narrows Road	SSW/2.8 miles	49
Resident (Ermson)	2671 Hale	SSW/3.7 miles	50
Resident (Sasu)	3191 North Ridge Rd.	SW/2.4 miles	52
West Orchard Fruit Market	3096 North Ridge Rd. Perry Park/Clark Rds.	SW/2.7 miles SW/1.6 miles	53
Resident*	860 Park Road	SW/4.4 miles	55

\* Indicates a new location for 1992.

TABLE 5: RECREATIONAL AREAS & PUBLIC DRINKING WATER FACILITIES

<u>Name of Facility</u>	<u>Address of Location</u>	<u>Sector/Distance</u>	<u>Map Locator</u>
North Perry Park	Lockwood Road	NE/0.7 miles	1
North Townline Park	Townline Road	ENE/2.3 miles	10
Lake Metro Park	Lockwood Road	ENE/1.7 miles	11
Camp Isaac Jogues	Chapel Road	ENE/3.2 miles	12
Tuttle Park	Tuttle Park Road	ENE/3.7 miles	14
Madison Country Club	Chapel/Green Roads	ENE/4.0 miles	15
Madison Village Water Plant	2934 Hubbard Road	E/4.8 miles	24
Lake County YMCA Outdoor Center	4540 River Road	S/4.6 miles	45
Fairway Pines Golf Course	Corner of Blase/ Nemeth and Bacon Rds.	SW/4.8 miles	56
Perry Township Park	Perry Park Road	WSW/1.1 miles	58
Camp Roosevelt	Perry Park Road	WSW/1.4 miles	60
Lake County Water Treatment Plant	Bacon Road	WSW/3.9 miles	61

Note: There was no change to this table from the previous year.



Attachment 9

Abnormal Release

SUMMARY OF MAXIMUM INDIVIDUAL DOSES  
 LAST ACCUMULATIONS FOR PERIODS:  
 CHILDREN 0.001039 0.001039 0.001039  
 ADULTS 0.001039 0.001039 0.001039  
 SENIORS 0.001039 0.001039 0.001039

EFFLUENT	APPLICABLE ORGAN	ESTIMATED DOSE (MREM)	AGE GROUP	LOCATION DIST (M) DIR (TOWARD)	% OF APPLICABLE LIMIT	LIMIT (MREM)
IODINE	THYROID	3.17E-04	CHILD	294. N	2.1E-03	1.5E+01
PARTICULATES						

DATE OF REPORT: FEB. 12, 1993  
 PREPARED BY:  
 QUARTER 3 : START DATE 00000000 END DATE 00000000  
 QUARTER 4 : START DATE 92102415 END DATE 92102618

# EFFLUENT AND WASTE DISPOSAL REPORT

## GASEOUS EFFLUENTS -- SUMMATION OF ALL RELEASES

UNITS	QUARTER 3	QUARTER 4	EST. TOTAL ERROR, %
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### A. FISSION AND ACTIVATION GASES

1. TOTAL RELEASE	CI	0.00E+00	0.00E+00	1.00E+01
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	0.00E+00	0.00E+00	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	0.00E+00	0.00E+00	

### B. IODINES

1. TOTAL IODINE-131	CI	0.00E+00	3.15E-06	1.00E+01
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	0.00E+00	1.68E-05	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	0.00E+00	0.00E+00	

### C. PARTICULATES

1. PARTICULATES WITH HALF-LIVES >8 DAYS	CI	0.00E+00	0.00E+00	1.00E+01
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	0.00E+00	0.00E+00	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	0.00E+00	0.00E+00	
4. GROSS ALPHA RADIOACTIVITY	CI	0.00E+00	0.00E+00	

### D. TRITIUM

1. TOTAL RELEASE	CI	0.00E+00	0.00E+00	1.00E+01
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	0.00E+00	0.00E+00	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	0.00E+00	0.00E+00	

ENTER: [RETURN] CONTINUE, [SO] START OVER, [EX] TO EXIT  
 SO



## EFFLUENT AND WASTE DISPOSAL REPORT

GASEOUS EFFLUENTS FOR RELEASE POINT: 1 LOCATION: UNIT 1  
 QUARTER 3 : START DATE 00000000 END DATE 00000000  
 QUARTER 4 : START DATE 92102415 END DATE 92102618  
 DATE OF REPORT: FEB. 12, 1993  
 PREPARED BY:

CONTINUOUS MODE				BATCH MODE	
NUCLIDES RELEASED	UNITS	QUARTER 3	QUARTER 4	QUARTER 3	QUARTER 4

## 2. IODINES

I131	CI	-----	3.15E-06	-----	-----
TOTAL FOR PERIOD (ABOVE)	CI	-----	3.15E-06	-----	-----

\* DENOTES SUPPLEMENTAL ISOTOPES

ENTER: [RETURN] CONTINUE, [SD] START OVER, [EX] TO EXIT

01/24/93 12:37

PERIOD OF RECORD = 92102416-92102617  
STABILITY CLASS: DT/DZ  
ELEVATION: SPEED: 892109 DIRECTION: 010109 LARGE: 0109

	WIND SPEED (MPH)						
WIND DIRECTION	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NNE E	0	0	0	0	0	0	0
NNE W	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0

```
PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 0
ENTER: [RETURN] CONTINUE, [SD] START OVER, [CX] TO EXIT
```

01/20/93 12:57

REMARKS: WIND DIRECTION: 090 WIND SPEED: 10 KNOTS  
 METHOD OF RECORD: 92102616-92102617  
 PROBABILITY CLASS: BT/BZ  
 ELEVATION: 87800000 DIRECTION: 010000 LARGE: 010000

```
PERIODS OF CALM(HOURS):      0
VARIABLE DIRECTION          0
HOURS OF MISSING DATA:      0
ENTER: [RETURN] CONTINUE, [SD] START OVER, [EX] TO EXIT
```

01/23/93 12:58

PERIOD OF RECORD: 4 92102416-92102417  
STABILITY CLASS: C DT/DZ  
ELEVATION: 5000 SPEED: 50100 DIRECTION: DIR100 LARGE: DT000

[illegible]

```
PERIODS OF CALM(HOURS):      0
VARIABLE DIRECTION:          0
HOURS OF MISSING DATA:      0
ENTER: [RETURN] CONTINUE, [END] START OVER, [EXIT] TO EXIT
```

01/20/93 12:58

PERIOD OF RECORD = 921023416-921026417  
STABILITY CLASS: D DT/DT  
ELEVATION: SPEED: 0.010F DIRECTION: 0.010F LAT: 0.010F

[illegible]

```
PERIODS OF CALM(HOURS):      0
VARIABLE DIRECTION          0
HOURS OF MISSING DATA:     0
ENTER: [RETURN] CONTINUE, [SO] START OVER, [EX] TO EXIT
```

01/28/93 12:53

NUMBER AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD # 92102816-92102817  
IDENTITY CLASS: B D/DZ  
LOCATION: GROUND PERIOD DIRECTION: 035400 LATITUDE: 031000

[illegible]

```
PERIODS OF CALM(HOURS):      0
VARIABLE DIRECTION          0
HOURS OF HISsing DATA:      0
ENTER: [RETURN] CONTINUE, [S0] START OVER, [EX] TO EXIT
```

01/28/93 12:30

[illegible]

WIND		WIND SPEED (MPH)					
DIRECTION	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0

```
PERIODS OF CALM(HOURS):      0
VARIABLE DIRECTION          0
HOURS OF MISSING DATA:      0
ENTER: [RETURN] CONTINUE, [SO] START OVER, [EX] TO EXIT
```





24/25/93 12:45

PERIOD OF RECORD = 92102416-92102617

*(continued)*

STABILITY CHECKED 05/07/02

ELEVATION: 00000 SPEED: 000100 DIRECTION: 010100 LAKE ELEV: 00000

[illegible]

```
PERIODS OF CALM(HOURS):      0
VARIABLE DIRECTION      0
HOURS OF MISSING DATA:    0
ENTER: [RETURN] CONTINUE, [SO] START OVER, [EX] TO EXIT
SO
```

Attachment 10

Process Control Program