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WNP-2 SEMI-ANNUAL EFFLUENT

REPORT

JULY TO DECEMBER 1987

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

LICENSE NO. NPF-21

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1.0 INTRODUCTION

This report is submitted in compliance with Technical Specification 6.9.1.11. It includes a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from WNP-2 during the previous six months of operation with data summarized on a quarterly basis.

2.0 LIQUID EFFLUENTS

The radwaste liquid effluents were released in a batch mode only during the reporting period. Twelve batch releases occurred during the third calendar quarter and 3 batch releases during the fourth calendar quarter. The total time period for the batch releases was 28.8 hours, with the maximum time period being 2.20 hours for a release, the minimum time period being 0.02 hours for a release and the average time period was 1.70 hours. The volume of dilution water used, is the total volume of recirculating cooling tower blowdown flow for the period. The average flow rate of the Columbia River during July through December 1987 was 89,125 cubic feet per second.

Periodic LADTAP II computer runs were performed to verify compliance with Technical Specification limits. The calculated dose to the adult individual due to liquid releases for the third quarter was 4.0E-03 mrem whole body and 7.6E-03 mrem for the maximum organ. The fourth quarter calculated dose was 5.1E-04 mrem whole body and 1.1E-03 mrem for the maximum organ.

The liquid batch releases were recirculated prior to sampling. A representative sample was obtained and analyzed for each batch release. A composite of tank samples for each quarter was analyzed for strontium and iron. The method for measurement of total radioactivity was by gamma spectroscopy, liquid scintillation and proportional counters.

The percent of MPC limit is based on the total MPC fractions using those nuclides in Table 2-2 and concentrations listed in 10CFR20, Appendix B, Table 2, Column 2.

The percent of estimated total errors are listed in Table 2-1. These estimated errors are based on counting statistics, tank volume, and in obtaining a representative sample prior to discharge.

The estimated total errors were calculated by obtaining the square root of the sum of the squares of the errors of the individual contributors and multiplying by 1.96 for a 95% confidence level.

Table 2-1

WNP-2 LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

July - December 1987

	Unit	3rd Quarter	4th Quarter	Est. Total Error* %
A. Fission and activation products				
1. Total release (not including tritium, gases, alpha)	Ci	3.1E-03	6.3E-04	2.2 E+01
2. Average diluted concentration during period	uCi/ml	6.6E-09	1.5E-09	
3. Percent of MPC limit	%	2.0E-02	2.7E-03	
B. Tritium				
1. Total release	Ci	3.3E-01	1.4E-01	2.2 E+01
2. Average diluted concentration during period	uCi/ml	7.0E-07	3.3E-07	
3. Percent of MPC limit	%	2.3E-02	1.1E-02	
C. Dissolved and entrained gases				
1. Total release	Ci	<1.8E-04	1.0E-05	2.2 E+01
2. Average diluted concentration during period	uCi/ml	<3.8E-10	2.3E-11	
3. Percent of MPC limit	%	1.9E-04	1.2E-05	
D. Gross alpha radioactivity				
1. Total release	Ci	3.8E-08	1.8E-09	2.3 E+01
E. Volume of waste (prior to dilution)	liters	6.6E+05	1.8E+05	1.5 E+01
F. Volume of dilution water used during period	liters	4.7E+08	4.3E+08	1.5 E+01

*At 95% confidence level

Table 2-2

WNP-2 LIQUID EFFLUENTS - SOURCE TERMS

July - December 1987 BATCH MODE

Nuclides Released	Unit	3rd Quarter	4th Quarter
Strontium-89	Ci	1.0E-04	3.6E-06
Strontium-90	Ci	7.8E-06	1.6E-07
Cesium-134	Ci	< 5.2 E-05	< 1.2 E-05
Cesium-137	Ci	< 4.4 E-05	< 8.1 E-06
Iodine-131	Ci	< 3.5 E-05	< 9.2 E-06
Cobalt-58	Ci	1.5 E-04	4.8 E-05
Cobalt-60	Ci	2.6 E-04	5.6 E-05
Iron-59	Ci	< 5.3 E-05	< 1.3 E-05
Zinc-65	Ci	2.2 E-03	4.1 E-04
Manganese-54	Ci	5.3 E-05	< 1.2 E-05
Chromium-51	Ci	2.9 E-04	< 7.6 E-05
Zirconium-Niobium-95	Ci	< 7.0 E-05	< 1.8 E-05
Molybdenum-99	Ci	< 3.3 E-04	< 8.7 E-05
Technetium-99m	Ci	< 2.5 E-05	< 7.7 E-06
Barium-Lanthanum-140	Ci	< 1.3 E-04	< 3.1 E-05
Cerium-141	Ci	< 4.7 E-05	< 1.1 E-05

TABLE 2-2 (Continued)

Others			
Cerium-144	Ci	< 1.9 E-04	< 4.5 E-05
Iron-55	Ci	2.6 E-05	1.5 E-05
Sodium-24	Ci	< 5.0 E-08	1.0 E-04
Total for Period (Above)	Ci	3.1 E-03	6.3 E-04
Xenon-133	Ci	< 1.2 E-04	< 3.0 E-05
Xenon-135	Ci	< 6.2 E-05	1.0 E-05
Tritium	Ci	3.3 E-01	1.4 E-01

NOTE: Less than (<) values are not included in the Total For Period values.

3.0 GASEOUS EFFLUENTS

The gaseous radwaste effluents from WNP-2 were released in a continuous mode. There are three (3) release points at WNP-2:

1. Main Plant Vent - mixed mode release
2. Turbine Building - ground level release
3. Radwaste Building - ground level release

The gaseous source terms from each release point are listed in Tables 3-1 to 3-3. Table 3-4 provides a summation of the total activity released, the average release rate, the percent of Technical Specification limit, gross alpha radioactivity and the estimated total error associated with the measurements of radioactivity in the gaseous effluents.

Radioactivity measurements for gaseous effluent releases are performed for fission and activation gases by collecting the samples on charcoal traps and analyzing them using gamma spectroscopy. Tritium is sampled by freeze trapping and analyzed by liquid scintillation counting. Particulates and iodines are sampled using particulate filters and charcoal cartridges and analyzed by gamma spectroscopy.

The "Percent of Technical Specification Limit" calculations were based on exposure at specified locations. Air dose due to noble gases was determined at the site boundary with the quarterly limit of 5 mrads for gamma being the more restrictive for each time period. The gamma air dose from noble gases for the third quarter was 1.8E-03 mrads and 1.0E-01 mrad for the fourth quarter. Iodines, particulates and tritium calculations were determined at Taylor Flats, located 4.2 miles east southeast. A limit of 7.5 mrems per quarter to any organ was used in these calculations. The maximum organ dose to a "Member of the Public" was 7.7E-03 mrem for the third quarter and 8.4E-02 mrem for the fourth quarter.

To verify compliance with Technical Specification limits, calculations were performed for each month's releases using the GASPAR computer program and parameters as outlined in the ODCM. Doses were determined at two special locations.

1. The Site Boundary at 1.2 miles from the plant and for the sector with the maximum X/Q value.

2. Taylor Flats - at 4.2 miles ESE.

There were no abnormal releases of gaseous effluent during the third and fourth quarters of 1987.

The increase in total curie output for noble gases in the fourth quarter was due to a leak in a fuel pin. On the 12th of November a small increase was noted in the post treatment monitors activity. The following day, during a power descent for condensate filter demineralizer changes, the activity on the post treatment monitors increased significantly. Analysis at several points in the off gas system confirmed the main plant vent monitors increase was due to the additional noble gases from the leak.

The resulting effluent dose calculations demonstrated that all levels were well within the 10CFR20 and 10CFR50 Appendix I limits. The beta air dose was 7.3E-02 mrad and the gamma air dose was 1.0E-01 mrad for the fourth quarter. These results are < 1% of the quarterly limit (10 mrad/quarter) for beta and 2% of the quarterly limit (5 mrad/quarter) for gamma.

An NCR, 287-291, was issued for an effluent monitor sample rack, WEA-SR-25, being out of service for longer than the four hours allowed by the Technical Specifications. At the time the sample rack was removed from service, we entered Plant Technical specification action 3.3.7.12.b (Table 3.3.7.12-1, Item 5.b and Action Statement 112). The action required was to restore the unit to service within four hours or continuously collect samples with auxiliary iodine and particulate sampling equipment. Two mechanics were assigned to perform the work on the fan and Operations informed HP/Chemistry of the auxiliary sampling equipment requirement. The fan was removed and sent to the Maintenance Shop at 0700 hours. Shift change then occurred and two different mechanics were assigned to the job. However, one of the mechanics had also been scheduled for training that day and, therefore, was not available. Although the auxiliary sampling equipment requirement had been passed on during HP/Chemistry shift change, the information was not monitored. It was then discovered, after the four-hour period had passed, that the sample pump was still disconnected and the tubing on the sample skid was disconnected such that it was not possible to set up an auxiliary sampler. The Control Room was notified and Radwaste Building Ventilation secured. Maintenance was notified and two other mechanics were then assigned to the job, which was completed at 1412 hours. The cause was miscommunication between Operations, Maintenance and HP/Chemistry personnel. The total out of service time was seven hours before the Radwaste Building exhaust was secured. The pump and sample rack were deemed operable two hours later. Evaluation of the pre and post out of service building effluent activities, indicates no abnormal gaseous effluent releases occurred. Additionally, there were no changes in the in-plant air samplers during the out of service time period. There was no cause for any concern to the health and safety of the public, plant personnel or the plant.

Total error estimates are based on grab samples, gamma spectrometry, analyzer detectors, and beta scintillation readings. The overriding uncertainty in all cases is the measurement of the effluent and sample volumes. The estimated error was determined to be 36% at the 95% confidence level.

In addition to the reactor site, WNP-2 has a permanent laundry facility located approximately 0.75 miles from the site. Its ventilation system contains HEPA filters on the discharge and is continuously monitored for particulates. Also at this location is a backup chemistry lab within the EOF. The radiochemical hood containing HEPA filters is monitored for radioactive releases when in operation. Gamma spectrometry indicated no isotopes present other than those attributable to natural background.

The average energy for fission and activation product gases in airborne effluents was 0.4360 Mev.

Table 3-1

WNP-2 GASEOUS EFFLUENTS
SOURCE TERMS - MIXED MODE RELEASES
MAIN PLANT VENT

July - December 1987

		CONTINUOUS MODE	
Nuclides Released	Unit	3rd Quarter	4th Quarter
1. Fission gases			
Krypton-85	Ci	< 3.9 E-01	< 2.3 E+00
Krypton-85m	Ci	9.9 E-01	1.2 E+01
Krypton-87	Ci	6.7 E-01	1.3 E+00
Krypton-88	Ci	1.2 E+00	1.1 E+01
Xenon-131m	Ci	< 1.2 E-01	1.8 E-01
Xenon-133	Ci	1.4 E+00	3.0 E+02
Xenon-133m	Ci	2.1 E+00	6.1 E+00
Xenon-135	Ci	7.2 E-01	5.8 E+01
Xenon-135m	Ci	5.0 E-02	3.4 E-01
Xenon-138	Ci	3.1 E+00	3.7 E+00
Argon-41	Ci	< 1.2E-04	2.9E-02
Total for period	Ci	1.0 E+01	3.9 E+02
2. Iodines			
Iodine-131	Ci	5.7 E-05	5.2 E-03
Iodine-133	Ci	3.6 E-04	5.2 E-03
Iodine-135	Ci	< 5.0 E-03	< 5.0 E-03
Total for period	Ci	4.2 E-04	1.0 E-02

NOTE: Kr-85 value is a fission product ratio from other fission gas isotopes.

Table 3-1 (Continued)

3. Particulates

Strontium-89	Ci	< 1.7 E-06	< 1.2 E-05
Strontium-90	Ci	< 2.4 E-06	< 1.2 E-06
Cesium-134	Ci	< 1.8 E-04	< 2.0 E-04
Cesium-137	Ci	< 1.4 E-04	< 1.6 E-04
Barium-Lanthanum-140	Ci	< 5.0 E-04	< 5.0 E-04
Molybdenum-99	Ci	< 1.2 E-03	< 2.5 E-03
Cerium-141	Ci	< 1.4 E-04	< 2.0 E-04
Cerium-144	Ci	< 5.6 E-04	< 7.3 E-04
Cobalt-58	Ci	1.8 E-04	9.9 E-04
Cobalt-60	Ci	9.1 E-04	1.2 E-03
Iron-59	Ci	< 3.3 E-04	< 3.2 E-04
Manganese-54	Ci	1.4 E-04	1.5 E-04
Zinc-65	Ci	1.6 E-03	3.3 E-03
Others			
Chromium-51	Ci	< 9.9 E-04	3.7 E-03
Zirconium-95	Ci	1.9 E-04	< 2.6 E-04
Copper-64	Ci	< 2.0 E-03	2.0 E-03
Cesium-138	Ci	5.7 E-03	1.8 E-02
Arsenic-76	Ci	< 6.1 E-05	1.0 E-05
Technetium-99m	Ci	4.4 E-04	2.8 E-03
Sodium-24	Ci	1.3 E-04	4.6 E-04
Bromine-82	Ci	4.5 E-06	1.3 E-05
Iodine-132	Ci	< 1.4 E-05	2.0 E-04
Zinc-69m	Ci	4.8 E-06	< 1.8 E-04
Total for period	Ci	9.3 E-03	3.3 E-02

Table 3-1 (Continued)

3. Particulates

4. Tritium	Ci	2.1 E-03	1.3 E-01
Total building release	Ci	1.0 E+01	3.9 E+02

NOTE: Less than (<) values are not included in the Total For Period values.

Table 3-2

WNP-2 GASEOUS EFFLUENTS
SOURCE TERMS GROUND LEVEL RELEASES
TURBINE BUILDING

July - December 1987

CONTINUOUS MODE

Nuclides Released	Unit	3rd Quarter	4th Quarter
1. Fission gases			
Krypton-85	Ci	< 5.9 E-01	< 5.5 E-01
Krypton-85m	Ci	< 4.2 E-01	1.9 E-02
Krypton-87	Ci	1.0 E+00	9.7 E-01
Krypton-88	Ci	1.6 E+00	1.6 E+00
Xenon-133	Ci	2.0 E+00	4.6 E+00
Xenon-133m	Ci	2.8 E+00	3.5 E+00
Xenon-135	Ci	3.7 E-01	1.5 E+00
Xenon-135m	Ci	< 3.6 E-01	7.4 E-02
Xenon-138	Ci	4.9 E+00	2.6 E+00
Total for period	Ci	1.3 E+01	1.5 E+01
2. Iodines			
Iodine-131	Ci	3.4 E-05	2.3 E-04
Iodine-133	Ci	2.2 E-04	5.6 E-04
Iodine-135	Ci	< 3.0 E-03	< 2.1 E-03
Total for period	Ci	2.5 E-04	7.9 E-04

NOTE: Kr-85 value is a fission product ratio from other fission gas isotopes.

Table 3-2 (Continued)

3. Particulates

Strontium-89	Ci	< 2.0 E-05	< 5.0 E-05
Strontium-90	Ci	< 1.4 E-05	< 5.1 E-06
Cesium-134	Ci	< 1.7 E-04	< 1.9 E-04
Cesium-137	Ci	< 1.5 E-04	< 1.6 E-04
Barium-Lanthanum-140	Ci	< 5.5 E-04	< 6.8 E-04
Molybdenum-99	Ci	< 2.0 E-03	< 1.7 E-03
Cerium-141	Ci	< 1.9 E-04	< 2.5 E-04
Cerium-144	Ci	< 7.8 E-04	< 1.0 E-03
Cobalt-58	Ci	< 1.6 E-04	< 1.7 E-04
Cobalt-60	Ci	< 2.2 E-04	1.3 E-04
Iron-59	Ci	< 4.3 E-04	< 3.6 E-04
Manganese-54	Ci	< 1.5 E-04	3.2 E-05
Zinc-65	Ci	< 4.2 E-04	4.8 E-04
Others			
Chromium-51	Ci	< 1.5 E-03	< 2.3 E-03
Zirconium-95	Ci	< 2.5 E-04	< 2.8 E-04
Cesium-138	Ci	1.1 E-02	2.2 E-01
Technetium-99m	Ci	< 1.5 E-05	1.9 E-04
Arsenic-76	Ci	2.3 E-05	< 3.5 E-04
Total for period	Ci	1.1 E-02	2.2 E-01

4. Tritium	Ci	1.2 E+01	6.3 E+00

Total building release	Ci	2.5 E+01	2.2 E+01

NOTE: Less than (<) values are not included in the Total For Period values.

Table 3-3

WNP-2 GASEOUS EFFLUENTS
SOURCE TERMS GROUND LEVEL RELEASES
RADWASTE BUILDING

July - December 1987

CONTINUOUS MODE

Nuclides Released	Unit	3rd Quarter	4th Quarter
1. Fission gases			
Krypton-85	Ci	< 1.6 E-01	< 4.1 E-01
Krypton-85m	Ci	< 1.2 E-01	2.7 E-01
Krypton-87	Ci	3.5 E-01	1.0 E+00
Krypton-88	Ci	3.9 E-01	7.3 E-01
Xenon-133	Ci	3.4 E-01	1.7 E+00
Xenon-133m	Ci	9.0 E-01	1.0 E+00
Xenon-135	Ci	4.7 E-01	2.2 E+00
Xenon-135m	Ci	3.2 E-01	1.5 E+00
Xenon-138	Ci	2.2 E+00	1.9 E+00
Total for period	Ci	5.0 E+00	1.0 E+01
2. Iodines			
Iodine-131	Ci	2.1 E-05	6.4 E-04
Iodine-133	Ci	1.5 E-04	7.4 E-04
Iodine-135	Ci	< 5.9 E-04	< 9.1 E-04
Total for period	Ci	1.7 E-04	1.4 E-03

NOTE: Kr-85 value is a fission product ratio from other fission gas isotopes.

Table 3-3 (Continued)

3. Particulates

Strontium-89	Ci	< 5.9 E-07	< 7.9 E-07
Strontium-90	Ci	< 4.3 E-07	< 3.9 E-07
Cesium-134	Ci	< 1.6 E-05	< 7.3 E-05
Cesium-137	Ci	< 1.4 E-05	1.0 E-05
Barium-Lanthanum-140	Ci	< 4.9 E-05	< 2.6 E-04
Molybdenum-99	Ci	< 1.7 E-04	< 8.7 E-04
Cerium-141	Ci	< 1.7 E-05	< 9.3 E-05
Cerium-144	Ci	< 6.9 E-05	< 3.6 E-04
Cobalt-58	Ci	< 1.4 E-05	< 6.1 E-05
Cobalt-60	Ci	< 2.1 E-05	< 9.6 E-05
Iron-59	Ci	< 3.6 E-05	< 1.5 E-04
Manganese-54	Ci	< 1.5 E-05	< 6.6 E-05
Zinc-65	Ci	< 3.6 E-05	< 1.7 E-04
Others			
Chronium-51	Ci	< 1.1 E-04	< 5.6 E-04
Zirconium-95	Ci	< 2.5 E-05	< 1.0 E-04
Total for period	Ci	0.0 E-00	1.0 E-05

4. Tritium	Ci	6.1 E-01	3.8 E-01

Total building release	Ci	5.6 E+00	1.0 E+01

NOTE: Less than (<) values are not included in the Total For Period values.

Table 3-4

WNP-2 GASEOUS EFFLUENTS
SUMMATION OF ALL RELEASES

July - December 1987

	Unit	3rd Quarter	4th Quarter	Est. Total Error %*
A. Fission & activation gases				
1. Total release	Ci	2.8 E+01	4.2 E+02	3.6 E+01
2. Average release rate for period	uCi/sec	3.5 E+00	5.3 E+01	
3. Percent of Tech. Spec. limit	%	3.6 E-02	2.0 E+00	
B. Iodines				
1. Total iodine (131, 133)	Ci	8.4 E-04	1.2 E-02	3.6 E+01
2. Average release rate for period	uCi/sec	1.1 E-04	1.5 E-03	
3. Percent of Tech. Spec. limit	%	1.0 E-01	1.1 E+00	
C. Particulates				
1. Particulates	Ci	2.0 E-02	2.5 E-02	3.6 E+01
2. Average release rate for period	uCi/sec	2.5 E-03	3.1 E-02	
3. Percent of Tech. Spec. limit	%	1.0 E-01	1.1 E+00	
4. Gross alpha radioactivity	Ci	3.5 E-05	1.6 E-06	
D. Tritium				
1. Total releases	Ci	1.3 E+01	6.8 E+00	3.6 E+01
2. Average release rate for period	uCi/sec	1.6 E+00	8.6 E-01	
3. Percent of Tech. Spec. limit	%	1.0 E-01	1.1 E+00	

* At 95% confidence level

Table 3-5

WNP-2 GASEOUS EFFLUENTS
BATCH RELEASES

July - December 1987

Type	Number	Total Time (hrs)	Maximum Time (hrs)	Minimum Time (hrs)	Mean Time (hrs)
Purge	9	1365.1	62	6.5	24.6
Vent	155	378.1	5.1	0.2	1.8

4.0 SOLID WASTE

A total volume of 5977.5 ft^3 (169.22 m^3) of solid waste was transported in 21 shipments during the July 1 through December 31, 1987 reporting period. The total activity of the waste shipped was 425.849 Ci; 425.322 Ci contained in dewatered spent resins, 0.524 Ci in Dry Active Waste (DAW), and 3.48 E-3 Ci in other (absorbed liquids).

A. Dewatered Spent Resin

Dewatered resins accounted for 3967.5 ft^3 (112.3 m^3) of the radioactive wastes shipped during the reporting period. The burial containers were LSA-190 and ES-142 liners provided by NUPAC Services, Inc. The total activity of the resins shipped during the reporting period was 425.322 Ci. The principle nuclides and their percent contribution to the total activity are listed in Table 4-3. The solid wastes were shipped to the U.S. Ecology, Hanford burial site using flat bed trailers, and NUPAC 14-210H, or NUPAC 10-142 casks as appropriate.

The counting error associated with the total activity has been found to be less than 1.0% at one standard deviation in previous effluent reports and to decrease with increasing activity. The statistical counting error is assumed to be 1% for the purpose of this error evaluation.

Other parameters considered in estimating the total error of the activity shipped included the error in measuring the absolute volume, the weight of the waste in the liners, the representativeness of the sample taken, the homogeneity of the nuclide distribution within a batch or liner and the geometry error in the gamma spectroscopy analysis. The gamma spectroscopy calibration error was approximately 5%. The best estimate of the total error in the activity of spent resin shipped was assumed to be less than or equal to 20%.

B. Dry Active Waste (DAW)

A total of 1980 ft^3 (56.07 m^3) of DAW was shipped in 48 Container Products Corporation, B-25 steel boxes. The total activity of the DAW shipped was 0.524 Ci. The values for the activities shipped were determined by using dose rate-to-curie conversion factors. The conversion factors were based on a nuclide distribution taken from reactor coolant sample analyses which are representative for the time period in which the waste was generated. Short lived nuclides were eliminated based on decay of the DAW prior to shipment. A meaningful counting error cannot be generated for the DAW, however, the total error may be assumed to be less than or equal to 20% since DAW would be subjected to similar error contributions as the spent resins.

C. Absorbed Liquids

A total of 30 ft^3 (0.85 m^3) of absorbed liquids was shipped during the reporting period. The total activity of the shipped absorbed liquid was 3.48E-3 Ci. The liquid consisted of sump sludges absorbed in Aqueset and Aqueset II in 55 gallon Type 7A drums in order to meet burial ground requirements. The drums were 17C, 17H and 17E/H designation but, were shipped only as strong tight containers (STCs) per DOT requirements.

The values for the activities shipped were determined by using dose-rate-to-curie conversion factors and were based on sample analysis of the liquid at time of absorption. As with DAW, the total error is assumed to be less than or equal to 20% due to the likelihood of similar contributing errors to those associated with resins.

4.1 Scaling Factor Methodology

Scaling factors are based on outside laboratory (TMA/Norcal) analysis of hard-to-measure nuclides. The process of updating scaling factors is being initiated. For those waste streams where the scaling or the scaled nuclide concentration is not sufficient to provide a viable scaling factor, the final EPRI Report "Radionuclide Correlations in Low Level Radwaste", NP-4037, June 1985 has been used as a basis for the determination of a scaling factor.

H-3

Sampling of individual waste streams was performed with analysis performed by an outside lab. The H-3 concentration was measured per gram of waste material. This value was compared to the Reactor Coolant System H-3 concentration. The scaling factor is derived from the ratio of the H-3 concentration in the waste stream to RCS H-3 concentration.

C-14, Tc-99, I-129

Sampling of the individual waste stream was performed with analysis by off-site lab to determine isotopic concentration. Ratios were developed between the scaled nuclide to the scaling nuclide concentration determined by analysis. In those cases where the scaling nuclide is not available in large enough quantities to develop reliable (viable) scaling factors, the recommendations made in section 7 of the referenced EPRI report for the plant in the initial stages of operation are used.

TRU, Sr-90, Ni-63

TRU nuclides would be scaled to Ce-144. As recommended by the AIF report "Methodolgies for Classification of Low Level Radioactive Waste from Nuclear Power Plants". These nuclides are not considered to be present if the scaled values are less than: 1 nCi/g for TRU, 35 nCi/g for Pu-241 or 200 nCi/g for Cf-242. TRU nuclides will be reported if the scaling nuclide (Ce-144) is reliably detected and Cs-137 is also present.

Sampling of individual waste streams has been performed with analysis by an outside labortory. Cs-137 and Sr-90 were not available in sufficient concentrations to allow development of reliable scaling factors. The values obtained in the referenced EPRI report were used for scaling factors. Co-60 and Ni-63 concentrations were measured in each of the sampled waste streams. The ratio of Co-60 to Ni-63 has been determined and is used as the scaling factor for Ni-63 from Co-60.

Table 4-1 lists those scaling factors by waste stream for those nuclides that are required to be reported. Table 4-2 lists those scaling factors for the conditional nuclides that are reported only when the scaling nuclide is found to be present.

4.2 Process Control Program

The Process Control Program (PCP) used to control solidification at WNP-2 will be provided by the vendor waste processor, Pacific Nuclear Inc. in accordance with Contract C-20452, and will be subjected to POC review prior to any solidification of radwaste. Two Pacific Nuclear generic solidification PCP's, TP-04, "Portable Solidification System and TP-05, "Radwaste Solidification System" are currently under NRC review. As an alternative, approved High Integrity Containers (HIC's) could be used for the transport of wastes requiring stabilization. Other portions of the radwaste program are controlled by the WNP-2 procedures PPM 1.12.1, "Radwaste Management Program", PPM 1.12.2, "Radwaste Process Control Program", and 1.12.3, "Contract (Vendor) Waste Processing". No significant changes have occurred in these procedures during this reporting period.

Table 4-1

Scaling Factors for Required Nuclides

	DAW	RWCU Powder Resin	CFD Powder Resin	EDR/FDR Powder Resin	EDR/FDR Bead Resin	OIL
Co-60/C-14	5.9 E-4	1.7 E-4	1.0 E-4 +	1.0 E-4 +	1.0 E-4	1.0 E-4 +
Cs-137/Tc-99	3.0 E-5	3.0 E-5 +	3.0 E-5 +	3.0 E-5 +	3.0 E-5 +	3.0 E-5 +
Cs-137/I-129	2.0 E-5 +	2.0 E-5 +	2.0 E-5 +	2.0 E-5 +	2.0 E-5 +	2.0 E-5 +
Rx Coolant/H-3	4.4 E-1	1.75 E-1 ++	1.75 E-1	1.0 E-1	2.25 E-1	4.0 E-5 +++

Table 4-2

Scaling Factors for Conditional Nuclides

	DAW	RWCU Powder Resin	CFD Powder Rs	EDR/FDR Powder Resin	EDR/FDR Bead Resin	OIL
Co-60/Ni-63	6.5 E-2	9.0 E-3	4.0 E-2	1.8 E-1	1.7 E-2	2.0 E-2 +
Ce-144/Pu-238	8.0 E-3 +	8.0 E-3 +	8.0 E-3 +	8.0 E-3 +	8.0 E-3 +	8.0 E-3 +
Ce-144/Pu-239	5.0 E-3 +	5.0 E-3 +	5.0 E-3 +	5.0 E-3 +	5.0 E-3 +	5.0 E-3 +
Ce-144/Pu-241	5.5 E-1 +	5.5 E-1 +	5.5 E-1 +	5.5 E-1 +	5.5 E-1 +	5.5 E-1 +
Ce-144/Am-241	3.0 E-3 +	3.0 E-3 +	3.0 E-3 +	3.0 E-3 +	3.0 E-3 +	3.0 E-3 +
Ce-144/Cm-242	1.5 E-2 +	1.5 E-2 +	1.5 E-2 +	1.5 E-2 +	1.5 E-2 +	1.5 E-2 +
Ce-144/Cm-244	3.5 E-3 +	3.5 E-3 +	3.5 E-3 +	3.5 E-3 +	3.5 E-3 +	3.5 E-3 +
Cs-137/Sr-90	6.0 E-3 +	6.0 E-3 +	6.0 E-3 +	6.0 E-3 +	6.0 E-3 +	6.0 E-3 +

\+ Scaling Nuclide not present in enough concentration to make determination of scaling factor. In these cases the scaling factor obtained from the final EPRI Report "Radionuclide Correlations in Low Level Radwaste" (NP-4037, June 1985), will continue to be used as the WNP-2 scaling factors.

++ The report from TMA/Norcal, showed a concentration of H-3 in RWCU resin of 2.35 times the Rx Coolant H-3 concentration. The resin mix used in RWCU and CFD is the same and the reactor coolant and condensate H-3 concentration are approximately the same. The scaling factor for CFD powdered resins is 1.75 E-1 which is more representative of H-3 retention on the dried powdered resins.

+++ Oil is processed at WNP-2 by filtration and dewatering. This process removes the water from oil. The report from TMA/Norcal was less than 4.0 E-5 for H-3. The 4.0 E-5 factor was chosen and should be conservative in determining H-3 concentrations in oil.

Table 4-3
WNP-2 SOLID WASTE SHIPMENTS

July - December 1987

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL

1. Type of Waste

Waste Stream	Unit	6-month Period	Est. Total Error, %
a. Spent resins, filter sludges, evaporator bottoms, etc.	m^3 Ci	112.3 425.322	20
b. Dry active waste, contaminated equip., etc.	m^3 Ci	56.07 0.524	20
c. Irradiated components, control rods, etc.	m^3 Ci	No Shipment	
d. Other, (absorbed aqueous liquid)	m^3 Ci	0.85 3.48E-3	20

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

a. Dewatered Spent Resins

Nuclide	%	Ci
1 Zn-65	66.07	281.00
2 Co-60	16.25	69.10
3 Co-58	4.80	20.05
4 Cr-51	4.68	19.90
5 Nb-95	2.84	12.10
6 Mn-54	1.69	7.20
7 Zr-95	1.59	6.77
8 Ag-100m	1.11	4.72
9 Ni-63*	0.468	1.99
10 Sb-125	0.181	0.768
11 Sn-113	0.120	0.510
12 Sb-124	0.0470	0.200
13 Co-57	0.0242	0.103
14 La-140	0.0128	5.46E-02

*Indicates scaled nuclide

b. Dry Active Wastes (DAW)

Nuclide	%	Ci
1 Zn-65	44.1	0.231
2 Co-60	32.1	0.168
3 Co-58	7.90	4.14E-2
4 Cr-51	5.61	2.94E-2
5 H-3*	3.68	1.93E-2
6 Ni-63*	2.12	1.11E-2
7 Mn-54	1.76	9.24E-3
8 Nb-95	1.291	6.77E-3
9 Sb-124	0.979	5.13E-3
10 Zr-95	0.258	1.38E-3

c. Irradiated Components - None

d. Other - Absorbed Liquids

Nuclide	%	Ci
1 Zn-65	43.97	1.53E-3
2 Co-60	37.36	1.30E-3
3 Ni-63*	2.32	8.07E-5
4 H-3*	1.55	5.39E-4
5 Nb-95	0.546	1.90E-5

3. Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
21	Flat bed trailer (3) 14-210H Cask (17) 10-142 Cask (2)**	US Ecology Richland, WA

B. IRRADIATED FUEL SHIPMENTS (Disposition)

None

*Indicates scaled nuclide
**Activity for one of the two shipments was quantified in June 1987 and included in the January 1 to June 30, 1987 release curie amounts. The actual shipment in the 10-142 cask was made on July 1, 1987.

5.0 METEOROLOGY

The meteorological data contained in Tables 5-1 through 5-10 were obtained from the WNP-2 meteorological tower located 2500 ft. west of WNP-2. Data were recovered from 33 ft. and 245 ft. levels. The meteorological data is a composite file from both manual and automated data recovery systems.

The first three quarters of 1987 were drier than normal with moderate precipitation arriving in the fourth quarter. The 1987 dispersion conditions compared well with historical dispersion conditions. The automated annual data recovery system continued to function at greater than 90% joint data recovery for the joint frequency parameters. Data recovery in quarters 1-4 at the 33 foot level was 90%, 91%, 88% and 98% respectively.

Tables 5-1 through 5-8 list the joint frequency distribution at the 33 ft. and 245 ft. levels for 1987 by quarters. Additionally, this report includes Tables 5-9 through 5-10 which list the joint frequency distribution for all of 1987. The tabulated stability classes, A-G, are denoted by numerals 1-7 respectively. Numerals 1-7 were used for the wind subfields as is noted at the top of each sensor level reported. The 16 compass sectors in Tables 5-1 through 5-8 pertain to the direction the wind is coming from.

Calibrations performed in 1987 produced no values exceeding WNP-2 FSAR meteorological equipment tolerances. Therefore, no correction has been made to the raw data. The NRC Delta Temperature Stability Classification scheme was utilized in the production of all joint frequency tables.

TABLE 5-1 . 1ST QUARTER 1987 JOINT FREQUENCY DISTRIBUTION FOR THE 33 FT LEVEL
CALCULATED FROM HOURLY AVERAGES FROM TAPE

MAXIMUM WIND SPEEDS FOR EACH CATEGORY IN MPH ARE:
1 - 0.6 2 - 3.0 3 - 7.0 4 - 12.0 5 - 18.0 6 - 24.0

NUMBERS GIVEN ARE HOURS

STAB CLASS	WIND CAT	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
1	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	2	1.	1.	0.	0.	0.	0.	2.	0.	1.	2.	0.	2.	0.	1.	0.	1.
1	3	2.	1.	4.	0.	0.	3.	2.	3.	6.	2.	3.	2.	1.	5.	4.	3.
1	4	0.	2.	1.	0.	0.	0.	0.	4.	11.	4.	2.	6.	0.	6.	0.	1.
1	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	6.	1.	0.	0.	2.	0.	0.
1	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	2	0.	0.	1.	1.	0.	1.	1.	1.	0.	1.	0.	0.	0.	0.	0.	1.
2	3	0.	0.	0.	2.	0.	0.	3.	1.	0.	1.	0.	0.	0.	1.	6.	0.
2	4	1.	0.	0.	0.	0.	0.	1.	4.	3.	0.	3.	1.	1.	0.	0.	0.
2	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
2	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	2	0.	2.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.	2.	0.	0.
3	3	0.	0.	0.	0.	0.	0.	1.	1.	3.	0.	1.	0.	0.	1.	3.	2.
3	4	0.	0.	0.	0.	0.	0.	0.	2.	3.	1.	2.	0.	0.	1.	0.	0.
3	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.	0.	2.	1.	0.
3	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	7	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	2	3.	1.	0.	2.	6.	1.	1.	6.	4.	4.	1.	4.	4.	8.	5.	5.
4	3	3.	1.	1.	2.	1.	3.	7.	11.	12.	7.	5.	5.	7.	21.	23.	13.
4	4	2.	1.	0.	0.	0.	1.	0.	7.	7.	10.	5.	0.	7.	8.	0.	3.
4	5	0.	0.	0.	0.	0.	0.	0.	1.	4.	1.	5.	0.	0.	0.	3.	1.
4	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	1	1.	0.	0.	0.	0.	2.	1.	1.	0.	1.	3.	1.	0.	1.	2.	2.
5	2	14.	14.	13.	6.	6.	6.	11.	9.	9.	12.	6.	9.	12.	30.	43.	35.
5	3	20.	19.	20.	3.	4.	6.	23.	29.	16.	18.	17.	9.	16.	56.	63.	22.
5	4	0.	0.	0.	0.	0.	0.	3.	7.	15.	16.	15.	2.	11.	18.	14.	1.
5	5	0.	0.	0.	0.	0.	0.	0.	0.	1.	4.	5.	0.	0.	0.	2.	2.
5	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	1	2.	0.	0.	0.	0.	0.	0.	0.	3.	2.	1.	3.	0.	3.	0.	1.
6	2	15.	12.	8.	2.	2.	2.	11.	15.	21.	17.	21.	14.	12.	28.	30.	43.
6	3	6.	5.	2.	3.	1.	5.	21.	44.	31.	13.	11.	9.	4.	23.	23.	21.
6	4	0.	0.	0.	0.	0.	0.	4.	15.	21.	5.	3.	0.	0.	2.	0.	0.
6	5	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.	0.
6	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	1.	0.	1.
7	2	9.	6.	0.	1.	1.	3.	3.	21.	11.	5.	11.	9.	4.	17.	14.	11.
7	3	6.	9.	4.	0.	0.	1.	8.	35.	19.	6.	5.	4.	1.	4.	21.	6.
7	4	0.	0.	0.	0.	0.	0.	0.	7.	4.	2.	0.	0.	0.	0.	0.	0.
7	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL NUMBER OF HOURS
USED = 1930 MISSING = 28 CALM = 6 VARIABLE = 31

TABLE 5-2 1ST QUARTER 1987 [illegible]NT FREQUENCY DISTRIBUTION FOR THE 245 FT L[illegible]
CALCULATED FROM HOURLY AVERAGES FROM TAPE

MAXIMUM WIND SPEEDS FOR EACH CATEGORY IN MPH ARE:
1 - 0.6 2 - 3.0 3 - 7.0 4 - 12.0 5 - 18.0 6 - 24.0

NUMBERS GIVEN ARE HOURS

STAB CLASS	WIND CAT	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
1	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	2	1.	1.	0.	0.	0.	0.	1.	2.	0.	1.	2.	0.	1.	0.	1.	1.
1	3	3.	1.	2.	2.	0.	1.	1.	1.	3.	2.	2.	2.	1.	2.	4.	2.
1	4	0.	2.	2.	0.	0.	0.	1.	0.	4.	8.	4.	3.	6.	1.	5.	3.
1	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	6.	2.	0.	0.	3.	1.
1	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	4.	0.	0.	0.	0.	0.
1	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	2	0.	0.	0.	0.	1.	1.	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.
2	3	0.	0.	0.	1.	1.	1.	0.	3.	2.	0.	1.	0.	0.	0.	3.	4.
2	4	1.	0.	0.	0.	0.	0.	0.	1.	1.	1.	0.	1.	2.	0.	0.	0.
2	5	0.	0.	0.	0.	0.	0.	0.	0.	3.	1.	1.	1.	1.	0.	0.	0.
2	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
2	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	2	0.	1.	1.	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.	1.	0.	0.
3	3	0.	0.	1.	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.	2.	4.
3	4	0.	0.	0.	0.	1.	0.	0.	1.	4.	2.	3.	0.	1.	1.	0.	0.
3	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.	1.
3	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.	1.	0.
3	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	2	3.	0.	0.	1.	2.	3.	2.	2.	4.	3.	1.	1.	1.	3.	0.	9.
4	3	2.	3.	0.	4.	7.	1.	9.	14.	6.	10.	6.	7.	5.	8.	15.	14.
4	4	1.	2.	2.	0.	2.	0.	0.	1.	6.	12.	4.	4.	3.	10.	12.	2.
4	5	4.	0.	0.	1.	0.	0.	0.	0.	2.	4.	10.	5.	1.	5.	0.	1.
4	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	0.	0.	0.	0.	0.	0.
4	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	1	0.	1.	0.	0.	1.	0.	0.	1.	1.	1.	0.	0.	2.	0.	0.	0.
5	2	21.	14.	12.	19.	6.	3.	3.	3.	6.	5.	4.	7.	8.	11.	26.	23.
5	3	37.	22.	30.	12.	14.	1.	9.	12.	12.	8.	12.	10.	10.	12.	21.	43.
5	4	4.	2.	1.	0.	0.	3.	3.	15.	25.	9.	19.	12.	8.	11.	33.	29.
5	5	10.	1.	0.	0.	0.	0.	0.	0.	1.	12.	11.	10.	8.	16.	8.	5.
5	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.	2.	0.	0.	0.
5	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.	2.	0.	1.	0.	1.
6	2	17.	13.	9.	8.	10.	4.	8.	8.	15.	14.	13.	11.	16.	6.	3.	19.
6	3	36.	11.	10.	6.	6.	3.	8.	19.	20.	17.	10.	10.	10.	6.	11.	22.
6	4	4.	0.	0.	2.	1.	1.	4.	6.	18.	13.	14.	8.	5.	7.	13.	15.
6	5	0.	0.	0.	0.	0.	0.	0.	0.	1.	12.	13.	3.	0.	6.	1.	0.
6	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.
6	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	1	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.
7	2	1.	4.	3.	2.	4.	5.	3.	3.	9.	14.	14.	8.	6.	4.	2.	7.
7	3	16.	7.	5.	5.	0.	2.	0.	4.	18.	24.	9.	9.	4.	6.	2.	4.
7	4	2.	2.	1.	0.	0.	1.	0.	2.	5.	12.	6.	0.	0.	5.	2.	5.
7	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	4.	6.	0.	0.	0.	0.	2.
7	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL NUMBER OF HOURS
USED = 1900 MISSING = 20 CALM = 44 VARIABLE = 15

TABLE 5-3 2ND QUARTER 1987 JOINT FREQUENCY DISTRIBUTION FOR THE 33 FT LEVEL
CALCULATED FROM HOURLY AVERAGES FROM TAPE

MAXIMUM WIND SPEEDS FOR EACH CATEGORY IN MPH ARE:
1 - 0.6 2 - 3.0 3 - 7.0 4 - 12.0 5 - 18.0 6 - 24.0

NUMBERS GIVEN ARE HOURS

STAB CLASS	WIND CAT	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
1	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	2	5.	4.	2.	0.	3.	13.	14.	11.	8.	5.	3.	2.	3.	7.	7.	5.
1	3	18.	16.	11.	6.	8.	12.	16.	29.	30.	15.	11.	8.	3.	3.	7.	10.
1	4	1.	0.	0.	0.	0.	1.	5.	11.	24.	11.	3.	4.	0.	1.	0.	0.
1	5	0.	0.	0.	0.	0.	0.	0.	0.	2.	2.	2.	5.	0.	0.	0.	0.
1	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	2	1.	0.	0.	0.	0.	0.	0.	3.	0.	0.	0.	0.	0.	0.	0.	0.
2	3	0.	0.	0.	0.	0.	0.	4.	0.	3.	0.	0.	0.	1.	0.	2.	1.
2	4	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.	1.	1.	0.	2.	0.
2	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.	0.	0.
2	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	2	0.	0.	0.	0.	1.	0.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
3	3	0.	0.	0.	1.	1.	0.	3.	3.	0.	1.	0.	0.	1.	0.	0.	0.
3	4	0.	0.	0.	0.	0.	0.	1.	0.	1.	0.	0.	3.	1.	1.	0.	0.
3	5	0.	0.	0.	0.	0.	0.	0.	0.	2.	2.	1.	3.	0.	2.	0.	0.
3	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
3	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	2	5.	3.	1.	1.	0.	6.	3.	17.	10.	6.	10.	7.	11.	10.	6.	13.
4	3	13.	0.	1.	1.	1.	7.	9.	21.	45.	31.	13.	11.	9.	13.	17.	40.
4	4	4.	0.	1.	0.	0.	0.	3.	8.	18.	30.	11.	9.	6.	9.	8.	7.
4	5	0.	0.	0.	0.	0.	0.	0.	0.	2.	3.	2.	5.	2.	7.	1.	0.
4	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
4	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	1	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
5	2	9.	6.	3.	2.	3.	7.	9.	8.	13.	7.	6.	3.	5.	7.	7.	10.
5	3	13.	8.	2.	2.	5.	6.	16.	21.	22.	15.	15.	8.	18.	28.	13.	17.
5	4	0.	0.	0.	0.	0.	0.	0.	1.	13.	23.	5.	13.	12.	31.	5.	3.
5	5	0.	0.	0.	0.	0.	0.	0.	0.	2.	1.	2.	0.	4.	7.	0.	0.
5	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	1	0.	0.	0.	1.	1.	0.	1.	1.	0.	0.	0.	1.	2.	0.	0.	0.
6	2	12.	6.	1.	4.	1.	6.	2.	10.	17.	8.	11.	6.	6.	9.	19.	13.
6	3	0.	5.	1.	0.	0.	3.	14.	21.	18.	12.	10.	10.	9.	13.	10.	4.
6	4	0.	0.	0.	0.	0.	0.	2.	4.	6.	8.	1.	1.	2.	2.	0.	0.
6	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	1	0.	0.	0.	0.	0.	1.	0.	0.	1.	0.	0.	0.	1.	0.	0.	1.
7	2	25.	38.	7.	1.	2.	3.	14.	10.	9.	4.	8.	5.	3.	7.	12.	27.
7	3	5.	11.	4.	0.	0.	2.	8.	16.	12.	10.	2.	2.	3.	10.	20.	13.
7	4	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
7	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL NUMBER OF HOURS
USED = 1929 MISSING = 0 CALM = 1 VARIABLE = 54

TABLE 5-4 2ND QUARTER 1987

NT FREQUENCY DISTRIBUTION FOR THE 245 FT LE
CALCULATED FROM HOURLY AVERAGES FROM TAP

MAXIMUM WIND SPEEDS FOR EACH CATEGORY IN MPH ARE:

1 - 0.6 2 - 3.0 3 - 7.0 4 - 12.0 5 - 18.0 6 - 24.0

NUMBERS GIVEN ARE HOURS

STAB CLASS	WIND CAT	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
1	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	2	3.	5.	4.	1.	3.	6.	9.	7.	6.	2.	4.	3.	4.	5.	3.	7.
1	3	25.	15.	14.	7.	7.	8.	13.	19.	11.	10.	5.	8.	14.	11.	17.	10.
1	4	2.	0.	1.	4.	1.	0.	7.	4.	21.	11.	5.	9.	10.	2.	0.	0.
1	5	0.	0.	0.	0.	0.	0.	0.	0.	2.	4.	2.	10.	2.	0.	1.	0.
1	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.	0.	1.	0.	0.
1	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	2	1.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	1.	0.
2	3	3.	0.	0.	0.	0.	0.	0.	3.	1.	1.	0.	1.	0.	0.	2.	0.
2	4	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	1.	1.	0.	1.	1.
2	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	2.	1.	0.	0.
2	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	2	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
3	3	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.	2.	0.	0.	0.	1.
3	4	0.	0.	3.	2.	0.	0.	0.	0.	1.	0.	1.	1.	1.	1.	0.	0.
3	5	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	1.	5.	1.	4.	0.	0.
3	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.
3	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
4	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	2	3.	0.	0.	0.	0.	0.	1.	2.	5.	6.	9.	12.	14.	25.	20.	5.
4	3	8.	7.	2.	1.	1.	3.	3.	7.	13.	22.	12.	14.	22.	38.	30.	18.
4	4	2.	1.	1.	3.	2.	3.	2.	6.	7.	20.	11.	19.	21.	12.	10.	7.
4	5	5.	0.	0.	0.	0.	0.	0.	1.	1.	1.	4.	13.	8.	11.	4.	1.
4	6	1.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.	4.	0.	0.
4	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
5	1	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.
5	2	0.	1.	2.	0.	2.	1.	0.	5.	5.	5.	5.	5.	3.	8.	7.	5.
5	3	8.	3.	6.	5.	1.	2.	7.	7.	13.	9.	5.	14.	13.	14.	18.	17.
5	4	8.	2.	6.	4.	1.	1.	5.	4.	7.	2.	12.	18.	17.	22.	20.	21.
5	5	6.	0.	0.	0.	0.	0.	0.	0.	2.	3.	2.	17.	11.	10.	9.	18.
5	6	2.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	3.	0.	1.	1.	2.
5	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	1.	0.
6	2	4.	0.	2.	0.	1.	2.	3.	1.	2.	3.	1.	3.	5.	6.	7.	6.
6	3	10.	5.	5.	2.	1.	3.	9.	8.	7.	9.	10.	7.	12.	17.	15.	20.
6	4	10.	6.	5.	1.	0.	1.	6.	2.	2.	5.	7.	8.	10.	6.	5.	10.
6	5	0.	0.	0.	0.	0.	0.	0.	0.	1.	2.	10.	2.	1.	1.	0.	8.
6	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.	1.	0.
7	2	11.	8.	1.	0.	0.	2.	2.	2.	4.	7.	8.	2.	10.	4.	9.	7.
7	3	21.	12.	7.	2.	3.	5.	5.	7.	12.	7.	5.	12.	12.	9.	6.	16.
7	4	11.	4.	7.	0.	0.	1.	1.	2.	1.	3.	2.	2.	3.	8.	5.	13.
7	5	2.	0.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.	5.
7	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL NUMBER OF HOURS
USED = 1939 MISSING = 0 CALM = 0 VARIABLE = 46

TABLE 5-5 3RD QUARTER 1987 JOINT FREQUENCY DISTRIBUTION FOR THE 33 FT LEVEL
CALCULATED FROM HOURLY AVERAGES FROM TA

MAXIMUM WIND SPEEDS FOR EACH CATEGORY IN MPH ARE:
1 - 0.6 2 - 3.0 3 - 7.0 4 - 12.0 5 - 18.0 6 - 24.0

NUMBERS GIVEN ARE HOURS

STAB CLASS	WIND CAT	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
1	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	2	9.	3.	5.	0.	3.	11.	9.	18.	16.	13.	11.	8.	9.	12.	9.	17.
1	3	34.	14.	5.	0.	13.	11.	24.	59.	51.	24.	19.	15.	14.	13.	22.	37.
1	4	9.	0.	0.	0.	1.	0.	1.	19.	32.	12.	8.	6.	3.	5.	10.	11.
1	5	4.	0.	0.	0.	0.	0.	0.	1.	4.	2.	0.	1.	3.	0.	0.	0.
1	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	2	3.	1.	2.	1.	0.	1.	2.	3.	4.	3.	2.	1.	2.	4.	2.	5.
2	3	1.	0.	0.	0.	2.	1.	1.	1.	3.	2.	3.	1.	0.	1.	2.	2.
2	4	0.	0.	0.	0.	0.	1.	0.	1.	2.	3.	1.	2.	3.	3.	2.	0.
2	5	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	2.	1.	0.
2	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	2	2.	2.	0.	0.	0.	0.	1.	1.	2.	3.	1.	3.	5.	0.	0.	6.
3	3	2.	6.	0.	1.	1.	0.	6.	8.	2.	1.	0.	0.	1.	0.	0.	3.
3	4	0.	0.	0.	0.	0.	0.	0.	1.	2.	0.	1.	1.	1.	3.	2.	0.
3	5	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	0.	0.
3	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
4	2	9.	5.	2.	0.	0.	4.	3.	8.	3.	2.	3.	1.	4.	4.	2.	3.
4	3	10.	7.	6.	4.	1.	5.	11.	14.	6.	4.	8.	1.	5.	3.	10.	9.
4	4	1.	0.	0.	0.	0.	0.	0.	3.	6.	3.	3.	8.	3.	15.	9.	2.
4	5	3.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	4.	12.	2.	0.
4	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
4	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	1	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	2	5.	4.	5.	3.	1.	2.	6.	5.	6.	5.	1.	7.	2.	2.	7.	7.
5	3	2.	0.	4.	2.	0.	1.	9.	22.	15.	5.	8.	13.	15.	27.	16.	6.
5	4	0.	1.	0.	0.	0.	0.	0.	2.	2.	3.	1.	3.	16.	42.	7.	0.
5	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	9.	0.	0.
5	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	1	0.	0.	0.	0.	0.	0.	1.	0.	0.	2.	0.	0.	1.	0.	0.	0.
6	2	11.	14.	4.	0.	1.	3.	2.	11.	10.	9.	6.	8.	4.	10.	12.	14.
6	3	4.	0.	0.	1.	1.	0.	2.	23.	6.	9.	3.	2.	7.	13.	17.	2.
6	4	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.
6	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	1	2.	0.	1.	1.	1.	0.	3.	1.	0.	1.	2.	1.	0.	1.	0.	2.
7	2	36.	36.	16.	9.	4.	6.	7.	10.	17.	14.	11.	4.	9.	9.	11.	25.
7	3	1.	10.	4.	1.	2.	0.	1.	13.	19.	7.	3.	2.	3.	1.	13.	5.
7	4	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
7	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL NUMBER OF HOURS
USED = 1067 MISSING = 1 CALM = 5 VARIABLE = 63

TABLE 5-6 3RD QUARTER 1987 JOINT FREQUENCY DISTRIBUTION FOR THE 245 FT LEVEL

CALCULATED FROM HOURLY AVERAGES FROM TAPE

MAXIMUM WIND SPEEDS FOR EACH CATEGORY IN MPH ARE:

1 - 0.6 2 - 3.0 3 - 7.0 4 - 12.0 5 - 18.0 6 - 24.0

NUMBERS GIVEN ARE HOURS

STAB CLASS	WIND CAT	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
1	1	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
1	2	34.	10.	3.	1.	1.	3.	6.	9.	9.	7.	7.	6.	9.	7.	4.	6.
1	3	57.	41.	9.	1.	9.	15.	20.	44.	40.	23.	18.	10.	9.	3.	10.	18.
1	4	14.	12.	15.	3.	5.	3.	5.	15.	26.	20.	5.	12.	3.	3.	2.	12.
1	5	7.	0.	0.	5.	4.	5.	0.	0.	3.	3.	0.	1.	1.	1.	1.	0.
1	6	0.	0.	0.	0.	0.	2.	0.	0.	0.	1.	0.	0.	1.	0.	0.	0.
1	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
2	2	19.	2.	1.	0.	0.	1.	1.	1.	1.	2.	1.	0.	1.	0.	1.	2.
2	3	5.	3.	3.	1.	0.	0.	1.	2.	0.	2.	1.	0.	0.	1.	2.	0.
2	4	0.	1.	1.	1.	0.	1.	1.	1.	2.	1.	1.	1.	3.	0.	2.	1.
2	5	1.	0.	0.	0.	0.	2.	0.	0.	0.	1.	0.	1.	0.	1.	2.	0.
2	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
3	2	8.	3.	2.	0.	0.	0.	1.	2.	0.	2.	0.	0.	0.	2.	0.	4.
3	3	4.	6.	2.	1.	1.	0.	4.	1.	3.	2.	1.	0.	0.	0.	0.	4.
3	4	0.	2.	1.	0.	0.	0.	1.	0.	1.	2.	1.	0.	1.	0.	0.	0.
3	5	0.	0.	0.	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.	2.	3.	0.
3	6	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.
3	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	2	14.	7.	1.	1.	1.	0.	0.	3.	3.	2.	1.	1.	1.	0.	2.	3.
4	3	30.	10.	5.	1.	1.	3.	8.	7.	7.	6.	4.	4.	2.	2.	3.	4.
4	4	1.	6.	4.	2.	2.	0.	2.	2.	3.	0.	0.	7.	3.	5.	2.	6.
4	5	1.	2.	0.	2.	8.	3.	1.	1.	0.	0.	3.	3.	2.	10.	6.	0.
4	6	0.	0.	0.	0.	0.	1.	3.	0.	0.	0.	1.	1.	0.	7.	0.	0.
4	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
5	1	3.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	2	12.	3.	3.	1.	0.	4.	3.	0.	0.	1.	3.	3.	3.	2.	5.	1.
5	3	8.	15.	5.	3.	1.	0.	4.	7.	5.	6.	3.	2.	6.	6.	6.	3.
5	4	1.	3.	7.	2.	2.	0.	4.	1.	12.	4.	0.	2.	11.	27.	9.	4.
5	5	0.	0.	1.	2.	5.	6.	1.	1.	0.	0.	2.	3.	8.	39.	6.	0.
5	6	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	9.	0.	0.
5	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	1	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	2.	1.	2.	0.	0.
6	2	12.	14.	2.	1.	1.	2.	2.	1.	2.	4.	7.	5.	0.	3.	2.	8.
6	3	9.	16.	6.	2.	0.	1.	5.	5.	11.	4.	3.	3.	4.	12.	6.	5.
6	4	2.	1.	4.	2.	0.	0.	2.	3.	3.	2.	0.	2.	0.	10.	13.	3.
6	5	0.	0.	0.	0.	2.	0.	2.	0.	0.	0.	0.	0.	1.	4.	0.	0.
6	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	1	2.	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.	3.	1.	0.	0.
7	2	46.	18.	9.	4.	6.	3.	5.	8.	9.	4.	5.	4.	7.	3.	2.	2.
7	3	16.	52.	19.	4.	4.	0.	5.	10.	13.	7.	1.	3.	3.	6.	8.	12.
7	4	0.	5.	7.	4.	0.	0.	0.	0.	0.	1.	1.	0.	1.	9.	7.	2.
7	5	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL NUMBER OF HOURS

USED = 1896 MISSING = 1 CALM = 7 VARIABLE = 32

TABLE 5-7 4TH QUARTER 1987 [illegible]NT FREQUENCY DISTRIBUTION FOR THE 33 FT L[illegible]
CALCULATED FROM HOURLY AVERAGES FROM TAPE

MAXIMUM WIND SPEEDS FOR EACH CATEGORY IN MPH ARE:
1 - 0.6 2 - 3.0 3 - 7.0 4 - 12.0 5 - 18.0 6 - 24.0
NUMBERS GIVEN ARE HOURS

STAB CLASS	WIND CAT	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
1	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	2	1.	2.	1.	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
1	3	4.	2.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	2.
1	4	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.
1	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	1	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	2	1.	3.	0.	0.	1.	0.	0.	2.	1.	0.	1.	0.	0.	1.	3.	3.
2	3	7.	3.	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.	1.	0.	0.	1.
2	4	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
2	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
3	2	5.	5.	1.	1.	0.	1.	1.	3.	3.	2.	0.	0.	2.	1.	6.	4.
3	3	5.	0.	0.	0.	0.	0.	0.	1.	2.	2.	1.	1.	0.	1.	0.	1.
3	4	1.	0.	0.	0.	0.	0.	0.	0.	2.	2.	2.	0.	0.	0.	0.	0.
3	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
3	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	1	1.	1.	0.	0.	0.	1.	1.	1.	0.	1.	1.	1.	0.	0.	1.	0.
4	2	33.	13.	11.	2.	0.	6.	5.	10.	16.	8.	9.	7.	6.	14.	40.	33.
4	3	19.	11.	6.	1.	0.	1.	5.	21.	11.	1.	5.	2.	4.	29.	25.	30.
4	4	1.	0.	3.	0.	0.	0.	0.	2.	16.	12.	3.	5.	3.	11.	3.	1.
4	5	0.	0.	0.	0.	0.	0.	0.	2.	9.	7.	6.	2.	0.	1.	1.	0.
4	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	3.	0.
4	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	1	2.	2.	0.	0.	0.	0.	0.	1.	0.	0.	0.	2.	1.	0.	3.	2.
5	2	14.	3.	9.	2.	1.	2.	8.	10.	19.	14.	7.	15.	19.	36.	52.	26.
5	3	10.	7.	9.	1.	0.	1.	12.	29.	27.	7.	19.	4.	10.	47.	40.	20.
5	4	0.	0.	0.	0.	0.	1.	5.	21.	21.	15.	18.	0.	1.	7.	6.	0.
5	5	0.	0.	0.	0.	0.	0.	0.	0.	8.	5.	6.	2.	0.	0.	1.	0.
5	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.
5	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	1	2.	2.	0.	1.	0.	0.	0.	1.	0.	1.	3.	1.	1.	1.	2.	2.
6	2	14.	13.	6.	3.	1.	0.	5.	6.	17.	15.	12.	9.	13.	23.	46.	25.
6	3	2.	2.	2.	1.	0.	1.	4.	15.	16.	17.	5.	3.	7.	15.	35.	13.
6	4	0.	0.	0.	0.	0.	0.	1.	13.	13.	8.	0.	1.	2.	0.	0.	0.
6	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
6	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	7	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
7	1	1.	0.	1.	0.	1.	1.	1.	1.	0.	2.	1.	3.	1.	0.	3.	4.
7	2	29.	28.	15.	11.	6.	4.	3.	25.	21.	16.	13.	17.	9.	26.	38.	37.
7	3	4.	8.	6.	0.	0.	0.	0.	11.	33.	8.	4.	2.	2.	8.	20.	14.
7	4	0.	0.	1.	0.	0.	0.	0.	2.	3.	0.	0.	0.	0.	0.	0.	0.
7	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL NUMBER OF HOURS
USED = 2062 MISSING = 0 CALM = 21 VARIABLE = 89

TABLE 5-8 4TH QUARTER 1987 T FREQUENCY DISTRIBUTION FOR THE 245 FT LE
CALCULATED FROM HOURLY AVERAGES FROM TAPE

MAXIMUM WIND SPEEDS FOR EACH CATEGORY IN MPH ARE:
1 - 0.6 2 - 3.0 3 - 7.0 4 - 12.0 5 - 18.0 6 - 24.0
NUMBERS GIVEN ARE HOURS

STAB CLASS	WIND CAT	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
1	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	2	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.	0.	0.
1	3	0.	1.	0.	0.	0.	0.	1.	0.	0.	1.	0.	0.	0.	0.	0.	1.
1	4	2.	1.	1.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	2.
1	5	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.
1	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	2	4.	1.	0.	1.	0.	0.	0.	0.	1.	1.	1.	0.	0.	2.	0.	0.
2	3	3.	4.	0.	0.	0.	0.	0.	0.	2.	1.	0.	0.	1.	1.	0.	0.
2	4	4.	1.	4.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	5	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
2	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
2	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	2	8.	3.	1.	0.	0.	0.	0.	1.	0.	2.	0.	0.	0.	0.	1.	2.
3	3	5.	9.	2.	0.	0.	0.	0.	1.	2.	1.	1.	1.	0.	0.	1.	4.
3	4	2.	1.	2.	0.	0.	0.	0.	1.	0.	3.	2.	0.	0.	1.	0.	0.
3	5	1.	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.
3	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
4	1	1.	0.	0.	1.	0.	0.	0.	1.	0.	0.	0.	0.	0.	1.	1.	1.
4	2	18.	8.	4.	3.	2.	1.	4.	6.	9.	6.	5.	5.	3.	7.	13.	27.
4	3	32.	29.	9.	2.	0.	1.	2.	15.	15.	3.	3.	4.	5.	15.	24.	42.
4	4	5.	3.	8.	0.	0.	0.	4.	7.	10.	6.	4.	5.	3.	19.	15.	8.
4	5	0.	0.	0.	0.	2.	0.	0.	1.	15.	12.	6.	4.	1.	3.	0.	0.
4	6	0.	0.	0.	0.	0.	0.	0.	0.	3.	1.	4.	0.	0.	2.	0.	0.
4	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	5.	0.	0.
5	1	2.	1.	1.	0.	1.	0.	1.	0.	3.	0.	2.	0.	1.	0.	2.	1.
5	2	24.	20.	9.	2.	2.	3.	4.	3.	3.	7.	6.	8.	12.	8.	17.	30.
5	3	8.	25.	12.	2.	1.	0.	2.	24.	30.	8.	5.	5.	5.	14.	32.	29.
5	4	1.	0.	4.	3.	0.	3.	8.	16.	20.	12.	8.	3.	4.	19.	27.	11.
5	5	0.	0.	0.	0.	0.	3.	1.	2.	21.	11.	16.	5.	3.	9.	0.	4.
5	6	0.	0.	0.	0.	0.	0.	1.	1.	7.	3.	11.	3.	0.	5.	0.	0.
5	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.	1.	0.	0.
6	1	0.	0.	1.	0.	0.	1.	0.	0.	0.	1.	1.	2.	1.	0.	1.	1.
6	2	9.	18.	9.	6.	4.	1.	8.	9.	5.	5.	5.	2.	4.	5.	9.	12.
6	3	13.	11.	13.	6.	2.	1.	3.	12.	12.	7.	4.	3.	6.	9.	19.	25.
6	4	2.	1.	2.	2.	2.	0.	4.	13.	16.	10.	3.	3.	2.	17.	11.	10.
6	5	0.	0.	0.	1.	0.	2.	1.	6.	9.	10.	7.	1.	2.	5.	3.	2.
6	6	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.	1.	1.	0.
6	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	1	1.	1.	0.	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.	2.	0.	0.
7	2	21.	19.	4.	4.	2.	3.	7.	5.	5.	7.	8.	4.	9.	8.	3.	10.
7	3	15.	20.	24.	3.	6.	5.	14.	19.	15.	9.	5.	2.	4.	9.	19.	14.
7	4	1.	4.	8.	7.	6.	0.	3.	10.	16.	11.	4.	6.	1.	4.	23.	12.
7	5	1.	0.	0.	0.	3.	2.	1.	0.	2.	2.	0.	0.	1.	4.	10.	5.
7	6	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	1.
7	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL NUMBER OF HOURS
USED = 2096 MISSING = 0 CALM = 19 VARIABLE = 57

TABLE 5-9 1987 ANNUAL [illegible]NT FREQUENCY DISTRIBUTION FOR THE 33 FT [illegible]
CALCULATED FROM HOURLY AVERAGES FROM TAPE

MAXIMUM WIND SPEEDS FOR EACH CATEGORY IN MPH ARE:
1 - 0.6 2 - 3.0 3 - 7.0 4 - 12.0 5 - 18.0 6 - 24.0

NUMBERS GIVEN ARE HOURS

STAB CLASS	WIND CAT	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
1	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	2	16.	10.	8.	0.	6.	25.	25.	30.	25.	20.	14.	12.	12.	20.	16.	23.
1	3	58.	33.	20.	6.	21.	26.	42.	91.	87.	42.	33.	25.	18.	21.	33.	52.
1	4	11.	2.	1.	0.	1.	1.	6.	34.	67.	27.	13.	16.	3.	12.	10.	14.
1	5	4.	0.	0.	0.	0.	0.	0.	1.	6.	10.	3.	6.	3.	2.	0.	0.
1	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	1	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	2	5.	4.	3.	2.	1.	2.	3.	9.	5.	4.	3.	1.	2.	5.	5.	9.
2	3	8.	3.	0.	2.	2.	1.	8.	2.	6.	4.	4.	1.	2.	2.	10.	4.
2	4	2.	0.	0.	0.	0.	1.	1.	5.	6.	4.	4.	4.	5.	3.	5.	1.
2	5	1.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	3.	0.	2.	1.	0.
2	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
3	2	7.	9.	1.	1.	1.	1.	3.	5.	5.	5.	2.	3.	8.	3.	6.	10.
3	3	7.	6.	0.	2.	2.	0.	10.	13.	7.	4.	2.	1.	2.	2.	3.	6.
3	4	1.	0.	0.	0.	0.	0.	1.	3.	8.	3.	5.	4.	2.	5.	2.	0.
3	5	1.	0.	0.	0.	0.	0.	0.	0.	2.	4.	1.	3.	0.	7.	1.	0.
3	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	1.	0.
3	7	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	1	1.	1.	0.	0.	0.	1.	1.	1.	0.	1.	1.	2.	0.	0.	1.	0.
4	2	50.	22.	14.	5.	6.	17.	12.	41.	33.	20.	23.	19.	25.	36.	53.	54.
4	3	45.	19.	14.	8.	3.	16.	32.	67.	74.	43.	31.	19.	25.	66.	75.	92.
4	4	8.	1.	4.	0.	0.	1.	3.	20.	47.	55.	22.	22.	19.	43.	20.	13.
4	5	3.	0.	0.	0.	0.	0.	0.	3.	15.	11.	14.	8.	6.	20.	7.	1.
4	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	2.	3.	0.
4	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	1	3.	3.	0.	1.	0.	2.	1.	2.	0.	1.	4.	3.	1.	1.	5.	4.
5	2	42.	27.	30.	13.	11.	17.	34.	32.	47.	38.	20.	34.	38.	75.	109.	78.
5	3	45.	34.	35.	8.	9.	14.	60.	101.	80.	45.	59.	34.	59.	158.	132.	65.
5	4	0.	1.	0.	0.	0.	1.	8.	31.	51.	57.	39.	18.	40.	98.	32.	4.
5	5	0.	0.	0.	0.	0.	0.	0.	0.	11.	10.	13.	2.	4.	16.	3.	2.
5	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.
5	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	1	4.	2.	0.	2.	1.	0.	2.	2.	3.	5.	4.	5.	4.	4.	2.	3.
6	2	52.	45.	19.	9.	5.	11.	20.	42.	65.	49.	50.	37.	35.	70.	107.	95.
6	3	12.	12.	5.	5.	2.	9.	41.	103.	71.	51.	30.	24.	27.	64.	85.	40.
6	4	0.	0.	0.	0.	0.	0.	7.	32.	40.	21.	4.	2.	4.	6.	0.	0.
6	5	0.	0.	0.	0.	0.	0.	0.	1.	1.	1.	0.	0.	0.	0.	0.	0.
6	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	7	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
7	1	3.	0.	2.	1.	2.	2.	4.	2.	1.	4.	3.	4.	2.	2.	3.	8.
7	2	99.	108.	38.	23.	13.	16.	27.	66.	58.	39.	43.	35.	25.	59.	75.	100.
7	3	16.	38.	18.	1.	2.	3.	17.	75.	83.	31.	14.	10.	9.	23.	82.	38.
7	4	0.	0.	1.	0.	0.	0.	0.	10.	7.	2.	0.	1.	0.	0.	0.	0.
7	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL NUMBER OF HOURS
USED = 7790 MISSING = 29 CALM = 33 VARIABLE = 237

TABLE 5-10

1987 ANNUAL [illegible]NT FREQUENCY DISTRIBUTION FOR THE 245 FT L[illegible]
CALCULATED FROM HOURLY AVERAGES FROM TAP[illegible]

MAXIMUM WIND SPEEDS FOR EACH CATEGORY IN MPH ARE:
1 - 0.6 2 - 3.0 3 - 7.0 4 - 12.0 5 - 18.0 6 - 24.0

NUMBERS GIVEN ARE HOURS

STAB CLASS	WIND CAT	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
1	1	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
1	2	40.	16.	7.	2.	4.	9.	16.	18.	15.	10.	14.	9.	14.	13.	8.	14.
1	3	85.	58.	25.	10.	16.	24.	35.	64.	54.	36.	25.	20.	24.	16.	31.	31.
1	4	18.	15.	19.	7.	6.	3.	13.	19.	51.	40.	14.	24.	19.	6.	7.	17.
1	5	9.	0.	0.	5.	4.	5.	0.	0.	5.	9.	8.	13.	3.	1.	5.	3.
1	6	0.	0.	0.	0.	0.	2.	0.	0.	0.	2.	4.	1.	1.	1.	0.	0.
1	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
2	2	24.	3.	1.	1.	1.	2.	2.	3.	3.	3.	2.	0.	1.	2.	2.	2.
2	3	11.	7.	3.	2.	1.	1.	1.	8.	5.	4.	2.	1.	1.	2.	7.	4.
2	4	5.	2.	5.	1.	0.	1.	2.	2.	3.	2.	1.	3.	6.	0.	3.	2.
2	5	2.	0.	0.	0.	0.	2.	0.	0.	3.	2.	1.	3.	3.	2.	2.	1.
2	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	1.	0.
2	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
3	2	16.	7.	4.	0.	0.	0.	1.	4.	0.	4.	1.	0.	1.	3.	1.	6.
3	3	9.	15.	5.	1.	3.	0.	4.	2.	6.	4.	2.	3.	0.	0.	3.	13.
3	4	2.	3.	6.	2.	1.	0.	1.	2.	6.	7.	7.	1.	3.	3.	0.	0.
3	5	1.	0.	0.	0.	0.	1.	1.	1.	2.	0.	2.	6.	1.	6.	3.	1.
3	6	1.	0.	0.	0.	0.	0.	0.	0.	0.	1.	2.	0.	0.	3.	1.	0.
3	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.	0.
4	1	1.	0.	0.	1.	0.	0.	0.	1.	0.	0.	0.	0.	0.	1.	1.	1.
4	2	38.	15.	5.	5.	5.	4.	7.	13.	21.	17.	16.	19.	19.	35.	35.	44.
4	3	72.	49.	16.	8.	9.	8.	22.	43.	41.	41.	25.	29.	34.	63.	72.	78.
4	4	9.	12.	15.	5.	6.	3.	8.	16.	26.	38.	19.	35.	30.	46.	39.	23.
4	5	10.	2.	0.	3.	10.	3.	1.	3.	18.	17.	23.	25.	12.	29.	10.	2.
4	6	1.	0.	0.	0.	0.	1.	3.	0.	3.	5.	5.	1.	1.	13.	0.	0.
4	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	6.	0.	0.
5	1	6.	2.	1.	0.	2.	0.	1.	1.	4.	1.	2.	0.	4.	1.	2.	1.
5	2	57.	38.	26.	22.	10.	11.	10.	11.	14.	18.	18.	23.	26.	29.	55.	59.
5	3	61.	65.	53.	22.	17.	3.	22.	50.	60.	31.	25.	31.	34.	46.	77.	92.
5	4	14.	7.	18.	9.	3.	7.	20.	36.	64.	27.	39.	35.	40.	79.	89.	65.
5	5	16.	1.	1.	2.	5.	9.	2.	3.	24.	26.	31.	35.	30.	74.	23.	27.
5	6	2.	0.	0.	0.	0.	1.	1.	1.	8.	4.	11.	7.	2.	15.	1.	2.
5	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.	1.	0.	0.
6	1	1.	0.	1.	0.	0.	1.	0.	0.	0.	3.	2.	6.	2.	5.	2.	2.
6	2	42.	45.	22.	15.	16.	9.	21.	19.	24.	26.	26.	21.	25.	20.	21.	45.
6	3	68.	43.	34.	16.	9.	8.	25.	44.	50.	37.	27.	23.	32.	44.	51.	72.
6	4	18.	8.	11.	7.	3.	2.	16.	24.	39.	30.	24.	21.	18.	40.	42.	38.
6	5	0.	0.	0.	1.	2.	2.	3.	6.	11.	24.	30.	6.	4.	16.	4.	10.
6	6	0.	0.	0.	0.	0.	0.	0.	0.	1.	2.	1.	0.	0.	1.	1.	0.
6	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	1	4.	1.	0.	0.	0.	2.	0.	2.	0.	0.	1.	2.	3.	4.	1.	0.
7	2	79.	49.	17.	10.	12.	13.	17.	18.	27.	32.	35.	18.	32.	19.	16.	26.
7	3	68.	91.	55.	14.	13.	13.	24.	40.	58.	47.	20.	26.	23.	30.	35.	46.
7	4	14.	15.	23.	11.	6.	2.	4.	14.	22.	27.	13.	8.	5.	26.	37.	32.
7	5	3.	0.	2.	0.	4.	2.	1.	0.	2.	6.	6.	0.	1.	6.	10.	12.
7	6	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	1.
7	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL NUMBER OF HOURS
USED = 7840 MISSING = 29 CALM = 70 VARIABLE = 150

TABLE 5-1 . 1ST QUARTER 1987 JOINT FREQUENCY DISTRIBUTION FOR THE 33 FT LEVEL
CALCULATED FROM HOURLY AVERAGES FROM TAPE

MAXIMUM WIND SPEEDS FOR EACH CATEGORY IN MPH ARE:
1 - 0.6 2 - 3.0 3 - 7.0 4 - 12.0 5 - 18.0 6 - 24.0

NUMBERS GIVEN ARE HOURS

STAB CLASS	WIND CAT	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
1	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	2	1.	1.	0.	0.	0.	0.	2.	0.	1.	2.	0.	2.	0.	1.	0.	1.
1	3	2.	1.	4.	0.	0.	3.	2.	3.	6.	2.	3.	2.	1.	5.	4.	3.
1	4	0.	2.	1.	0.	0.	0.	0.	4.	11.	4.	2.	6.	0.	6.	0.	1.
1	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	6.	1.	0.	0.	2.	0.	0.
1	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	2	0.	0.	1.	1.	0.	1.	1.	1.	0.	1.	0.	0.	0.	0.	0.	1.
2	3	0.	0.	0.	2.	0.	0.	3.	1.	0.	1.	0.	0.	0.	1.	6.	0.
2	4	1.	0.	0.	0.	0.	0.	1.	4.	3.	0.	3.	1.	1.	0.	0.	0.
2	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
2	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	2	0.	2.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.	2.	0.	0.
3	3	0.	0.	0.	0.	0.	0.	1.	1.	3.	0.	1.	0.	0.	1.	3.	2.
3	4	0.	0.	0.	0.	0.	0.	0.	2.	3.	1.	2.	0.	0.	1.	0.	0.
3	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.	0.	2.	1.	0.
3	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	7	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	2	3.	1.	0.	2.	6.	1.	1.	6.	4.	4.	1.	4.	4.	8.	5.	5.
4	3	3.	1.	1.	2.	1.	3.	7.	11.	12.	7.	5.	5.	7.	21.	23.	13.
4	4	2.	1.	0.	0.	0.	1.	0.	7.	7.	10.	5.	0.	7.	8.	0.	3.
4	5	0.	0.	0.	0.	0.	0.	0.	1.	4.	1.	5.	0.	0.	0.	3.	1.
4	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	1	1.	0.	0.	0.	0.	2.	1.	1.	0.	1.	3.	1.	0.	1.	2.	2.
5	2	14.	14.	13.	6.	6.	6.	11.	9.	9.	12.	6.	9.	12.	30.	43.	35.
5	3	20.	19.	20.	3.	4.	6.	23.	29.	16.	18.	17.	9.	16.	56.	63.	22.
5	4	0.	0.	0.	0.	0.	0.	3.	7.	15.	16.	15.	2.	11.	18.	14.	1.
5	5	0.	0.	0.	0.	0.	0.	0.	0.	1.	4.	5.	0.	0.	0.	2.	2.
5	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	1	2.	0.	0.	0.	0.	0.	0.	0.	3.	2.	1.	3.	0.	3.	0.	1.
6	2	15.	12.	8.	2.	2.	2.	11.	15.	21.	17.	21.	14.	12.	28.	30.	43.
6	3	6.	5.	2.	3.	1.	5.	21.	44.	31.	13.	11.	9.	4.	23.	23.	21.
6	4	0.	0.	0.	0.	0.	0.	4.	15.	21.	5.	3.	0.	0.	2.	0.	0.
6	5	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.	0.
6	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	1.	0.	1.
7	2	9.	6.	0.	1.	1.	3.	3.	21.	11.	5.	11.	9.	4.	17.	14.	11.
7	3	6.	9.	4.	0.	0.	1.	8.	35.	19.	6.	5.	4.	1.	4.	21.	6.
7	4	0.	0.	0.	0.	0.	0.	0.	7.	4.	2.	0.	0.	0.	0.	0.	0.
7	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL NUMBER OF HOURS
USED = 1930 MISSING = 28 CALM = 6 VARIABLE = 31

TABLE 5-2 1ST QUARTER 1987 JOINT FREQUENCY DISTRIBUTION FOR THE 245 FT LEVEL
CALCULATED FROM HOURLY AVERAGES FROM TAPE

MAXIMUM WIND SPEEDS FOR EACH CATEGORY IN MPH ARE:
1 - 0.6 2 - 3.0 3 - 7.0 4 - 12.0 5 - 18.0 6 - 24.0

NUMBERS GIVEN ARE HOURS

STAB CLASS	WIND CAT	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
1	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	2	1.	1.	0.	0.	0.	0.	1.	2.	0.	1.	2.	0.	1.	0.	1.	1.
1	3	3.	1.	2.	2.	0.	1.	1.	1.	3.	2.	2.	2.	1.	2.	4.	2.
1	4	0.	2.	2.	0.	0.	0.	1.	0.	4.	8.	4.	3.	6.	1.	5.	3.
1	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	6.	2.	0.	0.	3.	1.
1	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	4.	0.	0.	0.	0.	0.
1	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	2	0.	0.	0.	0.	1.	1.	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.
2	3	0.	0.	0.	1.	1.	1.	0.	3.	2.	0.	1.	0.	0.	0.	3.	4.
2	4	1.	0.	0.	0.	0.	0.	0.	1.	1.	1.	0.	1.	2.	0.	0.	0.
2	5	0.	0.	0.	0.	0.	0.	0.	0.	3.	1.	1.	1.	1.	0.	0.	0.
2	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
2	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	2	0.	1.	1.	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.	1.	0.	0.
3	3	0.	0.	1.	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.	2.	4.
3	4	0.	0.	0.	0.	1.	0.	0.	1.	4.	2.	3.	0.	1.	1.	0.	0.
3	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.	1.
3	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.	1.	0.
3	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	2	3.	0.	0.	1.	2.	3.	2.	2.	4.	3.	1.	1.	1.	3.	0.	9.
4	3	2.	3.	0.	4.	7.	1.	9.	14.	6.	10.	6.	7.	5.	8.	15.	14.
4	4	1.	2.	2.	0.	2.	0.	0.	1.	6.	12.	4.	4.	3.	10.	12.	2.
4	5	4.	0.	0.	1.	0.	0.	0.	0.	2.	4.	10.	5.	1.	5.	0.	1.
4	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	0.	0.	0.	0.	0.	0.
4	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	1	0.	1.	0.	0.	1.	0.	0.	1.	1.	1.	0.	0.	2.	0.	0.	0.
5	2	21.	14.	12.	19.	6.	3.	3.	3.	6.	5.	4.	7.	8.	11.	26.	23.
5	3	37.	22.	30.	12.	14.	1.	9.	12.	12.	8.	12.	10.	10.	12.	21.	43.
5	4	4.	2.	1.	0.	0.	3.	3.	15.	25.	9.	19.	12.	8.	11.	33.	29.
5	5	10.	1.	0.	0.	0.	0.	0.	0.	1.	12.	11.	10.	8.	16.	8.	5.
5	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.	2.	0.	0.	0.
5	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.	2.	0.	1.	0.	1.
6	2	17.	13.	9.	8.	10.	4.	8.	8.	15.	14.	13.	11.	16.	6.	3.	19.
6	3	36.	11.	10.	6.	6.	3.	8.	19.	20.	17.	10.	10.	10.	6.	11.	22.
6	4	4.	0.	0.	2.	1.	1.	4.	6.	18.	13.	14.	8.	5.	7.	13.	15.
6	5	0.	0.	0.	0.	0.	0.	0.	0.	1.	12.	13.	3.	0.	6.	1.	0.
6	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.
6	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	1	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.
7	2	1.	4.	3.	2.	4.	5.	3.	3.	9.	14.	14.	8.	6.	4.	2.	7.
7	3	16.	7.	5.	5.	0.	2.	0.	4.	18.	24.	9.	9.	4.	6.	2.	4.
7	4	2.	2.	1.	0.	0.	1.	0.	2.	5.	12.	6.	0.	0.	5.	2.	5.
7	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	4.	6.	0.	0.	0.	0.	2.
7	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL NUMBER OF HOURS
USED = 1908 MISSING = 28 CALM = 44 VARIABLE = 15

TABLE 5-3 2ND QUARTER 1987 JOINT FREQUENCY DISTRIBUTION FOR THE 33 FT LEVEL
CALCULATED FROM HOURLY AVERAGES FROM TAPE

MAXIMUM WIND SPEEDS FOR EACH CATEGORY IN MPH ARE:
1 - 0.6 2 - 3.0 3 - 7.0 4 - 12.0 5 - 18.0 6 - 24.0

NUMBERS GIVEN ARE HOURS

STAB CLASS	WIND CAT	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
1	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	2	5.	4.	2.	0.	3.	13.	14.	11.	8.	5.	3.	2.	3.	7.	7.	5.
1	3	18.	16.	11.	6.	8.	12.	16.	29.	30.	15.	11.	8.	3.	3.	7.	10.
1	4	1.	0.	0.	0.	0.	1.	5.	11.	24.	11.	3.	4.	0.	1.	0.	0.
1	5	0.	0.	0.	0.	0.	0.	0.	0.	2.	2.	2.	5.	0.	0.	0.	0.
1	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	2	1.	0.	0.	0.	0.	0.	0.	3.	0.	0.	0.	0.	0.	0.	0.	0.
2	3	0.	0.	0.	0.	0.	0.	4.	0.	3.	0.	0.	0.	1.	0.	2.	1.
2	4	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.	1.	1.	0.	2.	0.
2	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.	0.	0.
2	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	2	0.	0.	0.	0.	1.	0.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
3	3	0.	0.	0.	1.	1.	0.	3.	3.	0.	1.	0.	0.	1.	0.	0.	0.
3	4	0.	0.	0.	0.	0.	0.	1.	0.	1.	0.	0.	3.	1.	1.	0.	0.
3	5	0.	0.	0.	0.	0.	0.	0.	0.	2.	2.	1.	3.	0.	2.	0.	0.
3	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
3	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	2	5.	3.	1.	1.	0.	6.	3.	17.	10.	6.	10.	7.	11.	10.	6.	13.
4	3	13.	0.	1.	1.	1.	7.	9.	21.	45.	31.	13.	11.	9.	13.	17.	40.
4	4	4.	0.	1.	0.	0.	0.	3.	8.	18.	30.	11.	9.	6.	9.	8.	7.
4	5	0.	0.	0.	0.	0.	0.	0.	0.	2.	3.	2.	5.	2.	7.	1.	0.
4	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
4	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	1	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
5	2	9.	6.	3.	2.	3.	7.	9.	8.	13.	7.	6.	3.	5.	7.	7.	10.
5	3	13.	8.	2.	2.	5.	6.	16.	21.	22.	15.	15.	8.	18.	28.	13.	17.
5	4	0.	0.	0.	0.	0.	0.	0.	1.	13.	23.	5.	13.	12.	31.	5.	3.
5	5	0.	0.	0.	0.	0.	0.	0.	0.	2.	1.	2.	0.	4.	7.	0.	0.
5	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	1	0.	0.	0.	1.	1.	0.	1.	1.	0.	0.	0.	1.	2.	0.	0.	0.
6	2	12.	6.	1.	4.	1.	6.	2.	10.	17.	8.	11.	6.	6.	9.	19.	13.
6	3	0.	5.	1.	0.	0.	3.	14.	21.	18.	12.	10.	10.	9.	13.	10.	4.
6	4	0.	0.	0.	0.	0.	0.	2.	4.	6.	8.	1.	1.	2.	2.	0.	0.
6	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	1	0.	0.	0.	0.	0.	1.	0.	0.	1.	0.	0.	0.	1.	0.	0.	1.
7	2	25.	38.	7.	1.	2.	3.	14.	10.	9.	4.	8.	5.	3.	7.	12.	27.
7	3	5.	11.	4.	0.	0.	2.	8.	16.	12.	10.	2.	2.	3.	10.	20.	13.
7	4	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
7	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL NUMBER OF HOURS
USED = 1929 MISSING = 0 CALM = 1 VARIABLE = 54

TABLE 5-4 2ND QUARTER 1987 JOINT FREQUENCY DISTRIBUTION FOR THE 245 FT LEVEL
CALCULATED FROM HOURLY AVERAGES FROM TAPE

MAXIMUM WIND SPEEDS FOR EACH CATEGORY IN MPH ARE:
1 - 0.6 2 - 3.0 3 - 7.0 4 - 12.0 5 - 18.0 6 - 24.0

NUMBERS GIVEN ARE HOURS

STAB CLASS	WIND CAT	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
1	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	2	3.	5.	4.	1.	3.	6.	9.	7.	6.	2.	4.	3.	4.	5.	3.	7.
1	3	25.	15.	14.	7.	7.	8.	13.	19.	11.	10.	5.	8.	14.	11.	17.	10.
1	4	2.	0.	1.	4.	1.	0.	7.	4.	21.	11.	5.	9.	10.	2.	0.	0.
1	5	0.	0.	0.	0.	0.	0.	0.	0.	2.	4.	2.	10.	2.	0.	1.	0.
1	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.	0.	1.	0.	0.
1	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	2	1.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	1.	0.
2	3	3.	0.	0.	0.	0.	0.	0.	3.	1.	1.	0.	1.	0.	0.	2.	0.
2	4	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	1.	1.	0.	1.	1.
2	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	2.	1.	0.	0.
2	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	2	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
3	3	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.	2.	0.	0.	0.	1.
3	4	0.	0.	3.	2.	0.	0.	0.	0.	1.	0.	1.	1.	1.	1.	0.	0.
3	5	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	1.	5.	1.	4.	0.	0.
3	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.
3	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
4	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	2	3.	0.	0.	0.	0.	0.	1.	2.	5.	6.	9.	12.	14.	25.	20.	5.
4	3	8.	7.	2.	1.	1.	3.	3.	7.	13.	22.	12.	14.	22.	38.	30.	18.
4	4	2.	1.	1.	3.	2.	3.	2.	6.	7.	20.	11.	19.	21.	12.	10.	7.
4	5	5.	0.	0.	0.	0.	0.	0.	1.	1.	1.	4.	13.	8.	11.	4.	1.
4	6	1.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.	4.	0.	0.
4	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
5	1	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.
5	2	0.	1.	2.	0.	2.	1.	0.	5.	5.	5.	5.	5.	3.	8.	7.	5.
5	3	8.	3.	6.	5.	1.	2.	7.	7.	13.	9.	5.	14.	13.	14.	18.	17.
5	4	8.	2.	6.	4.	1.	1.	5.	4.	7.	2.	12.	18.	17.	22.	20.	21.
5	5	6.	0.	0.	0.	0.	0.	0.	0.	2.	3.	2.	17.	11.	10.	9.	18.
5	6	2.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	3.	0.	1.	1.	2.
5	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	1.	0.
6	2	4.	0.	2.	0.	1.	2.	3.	1.	2.	3.	1.	3.	5.	6.	7.	6.
6	3	10.	5.	5.	2.	1.	3.	9.	8.	7.	9.	10.	7.	12.	17.	15.	20.
6	4	10.	6.	5.	1.	0.	1.	6.	2.	2.	5.	7.	8.	10.	6.	5.	10.
6	5	0.	0.	0.	0.	0.	0.	0.	0.	1.	2.	10.	2.	1.	1.	0.	8.
6	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.	1.	0.
7	2	11.	8.	1.	0.	0.	2.	2.	2.	4.	7.	8.	2.	10.	4.	9.	7.
7	3	21.	12.	7.	2.	3.	5.	5.	7.	12.	7.	5.	12.	12.	9.	6.	16.
7	4	11.	4.	7.	0.	0.	1.	1.	2.	1.	3.	2.	2.	3.	8.	5.	13.
7	5	2.	0.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.	5.
7	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL NUMBER OF HOURS
USED = 1970 MISSING = 0 CALM = 0 VARIABLE = 44

TABLE 5-5 3RD QUARTER 1987 JOINT FREQUENCY DISTRIBUTION FOR THE 33 FT LEVEL
CALCULATED FROM HOURLY AVERAGES FROM TAPE

MAXIMUM WIND SPEEDS FOR EACH CATEGORY IN MPH ARE:
1 - 0.6 2 - 3.0 3 - 7.0 4 - 12.0 5 - 18.0 6 - 24.0

NUMBERS GIVEN ARE HOURS

STAB CLASS	WIND CAT	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
1	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	2	9.	3.	5.	0.	3.	11.	9.	18.	16.	13.	11.	8.	9.	12.	9.	17.
1	3	34.	14.	5.	0.	13.	11.	24.	59.	51.	24.	19.	15.	14.	13.	22.	37.
1	4	9.	0.	0.	0.	1.	0.	1.	19.	32.	12.	8.	6.	3.	5.	10.	11.
1	5	4.	0.	0.	0.	0.	0.	0.	1.	4.	2.	0.	1.	3.	0.	0.	0.
1	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	2	3.	1.	2.	1.	0.	1.	2.	3.	4.	3.	2.	1.	2.	4.	2.	5.
2	3	1.	0.	0.	0.	2.	1.	1.	1.	3.	2.	3.	1.	0.	1.	2.	2.
2	4	0.	0.	0.	0.	0.	1.	0.	1.	2.	3.	1.	2.	3.	3.	2.	0.
2	5	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	2.	1.	0.
2	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	2	2.	2.	0.	0.	0.	0.	1.	1.	2.	3.	1.	3.	5.	0.	0.	6.
3	3	2.	6.	0.	1.	1.	0.	6.	8.	2.	1.	0.	0.	1.	0.	0.	3.
3	4	0.	0.	0.	0.	0.	0.	0.	1.	2.	0.	1.	1.	1.	3.	2.	0.
3	5	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	0.	0.
3	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
4	2	9.	5.	2.	0.	0.	4.	3.	8.	3.	2.	3.	1.	4.	4.	2.	3.
4	3	10.	7.	6.	4.	1.	5.	11.	14.	6.	4.	8.	1.	5.	3.	10.	9.
4	4	1.	0.	0.	0.	0.	0.	0.	3.	6.	3.	3.	8.	3.	15.	9.	2.
4	5	3.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	4.	12.	2.	0.
4	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
4	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	1	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	2	5.	4.	5.	3.	1.	2.	6.	5.	6.	5.	1.	7.	2.	2.	7.	7.
5	3	2.	0.	4.	2.	0.	1.	9.	22.	15.	5.	8.	13.	15.	27.	16.	6.
5	4	0.	1.	0.	0.	0.	0.	0.	2.	2.	3.	1.	3.	16.	42.	7.	0.
5	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	9.	0.	0.
5	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	1	0.	0.	0.	0.	0.	0.	1.	0.	0.	2.	0.	0.	1.	0.	0.	0.
6	2	11.	14.	4.	0.	1.	3.	2.	11.	10.	9.	6.	8.	4.	10.	12.	14.
6	3	4.	0.	0.	1.	1.	0.	2.	23.	6.	9.	3.	2.	7.	13.	17.	2.
6	4	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.
6	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	1	2.	0.	1.	1.	1.	0.	3.	1.	0.	1.	2.	1.	0.	1.	0.	2.
7	2	36.	36.	16.	9.	4.	6.	7.	10.	17.	14.	11.	4.	9.	9.	11.	25.
7	3	1.	10.	4.	1.	2.	0.	1.	13.	19.	7.	3.	2.	3.	1.	13.	5.
7	4	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
7	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL NUMBER OF HOURS
USED = 1867 MISSING = 1 CALM = 5 VARIABLE = 63

TABLE 5-6 3RD QUARTER 1987 JOINT FREQUENCY DISTRIBUTION FOR THE 245 FT LEVEL
CALCULATED FROM HOURLY AVERAGES FROM TAPE

MAXIMUM WIND SPEEDS FOR EACH CATEGORY IN MPH ARE:
1 - 0.6 2 - 3.0 3 - 7.0 4 - 12.0 5 - 18.0 6 - 24.0

NUMBERS GIVEN ARE HOURS

STAB CLASS	WIND CAT	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
1	1	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
1	2	34.	10.	3.	1.	1.	3.	6.	9.	9.	7.	7.	6.	9.	7.	4.	6.
1	3	57.	41.	9.	1.	9.	15.	20.	44.	40.	23.	18.	10.	9.	3.	10.	18.
1	4	14.	12.	15.	3.	5.	3.	5.	15.	26.	20.	5.	12.	3.	3.	2.	12.
1	5	7.	0.	0.	5.	4.	5.	0.	0.	3.	3.	0.	1.	1.	1.	1.	0.
1	6	0.	0.	0.	0.	0.	2.	0.	0.	0.	1.	0.	0.	1.	0.	0.	0.
1	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
2	2	19.	2.	1.	0.	0.	1.	1.	1.	1.	2.	1.	0.	1.	0.	1.	2.
2	3	5.	3.	3.	1.	0.	0.	1.	2.	0.	2.	1.	0.	0.	1.	2.	0.
2	4	0.	1.	1.	1.	0.	1.	1.	1.	2.	1.	1.	1.	3.	0.	2.	1.
2	5	1.	0.	0.	0.	0.	2.	0.	0.	0.	1.	0.	1.	0.	1.	2.	0.
2	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
3	2	8.	3.	2.	0.	0.	0.	1.	2.	0.	2.	0.	0.	0.	2.	0.	4.
3	3	4.	6.	2.	1.	1.	0.	4.	1.	3.	2.	1.	0.	0.	0.	0.	4.
3	4	0.	2.	1.	0.	0.	0.	1.	0.	1.	2.	1.	0.	1.	0.	0.	0.
3	5	0.	0.	0.	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.	2.	3.	0.
3	6	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.
3	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	2	14.	7.	1.	1.	1.	0.	0.	3.	3.	2.	1.	1.	1.	0.	2.	3.
4	3	30.	10.	5.	1.	1.	3.	8.	7.	7.	6.	4.	4.	2.	2.	3.	4.
4	4	1.	6.	4.	2.	2.	0.	2.	2.	3.	0.	0.	7.	3.	5.	2.	6.
4	5	1.	2.	0.	2.	8.	3.	1.	1.	0.	0.	3.	3.	2.	10.	6.	0.
4	6	0.	0.	0.	0.	0.	1.	3.	0.	0.	0.	1.	1.	0.	7.	0.	0.
4	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
5	1	3.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	2	12.	3.	3.	1.	0.	4.	3.	0.	0.	1.	3.	3.	3.	2.	5.	1.
5	3	8.	15.	5.	3.	1.	0.	4.	7.	5.	6.	3.	2.	6.	6.	6.	3.
5	4	1.	3.	7.	2.	2.	0.	4.	1.	12.	4.	0.	2.	11.	27.	9.	4.
5	5	0.	0.	1.	2.	5.	6.	1.	1.	0.	0.	2.	3.	8.	39.	6.	0.
5	6	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	9.	0.	0.
5	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	1	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	2.	1.	2.	0.	0.
6	2	12.	14.	2.	1.	1.	2.	2.	1.	2.	4.	7.	5.	0.	3.	2.	8.
6	3	9.	16.	6.	2.	0.	1.	5.	5.	11.	4.	3.	3.	4.	12.	6.	5.
6	4	2.	1.	4.	2.	0.	0.	2.	3.	3.	2.	0.	2.	0.	10.	13.	3.
6	5	0.	0.	0.	0.	2.	0.	2.	0.	0.	0.	0.	0.	1.	4.	0.	0.
6	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	1	2.	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.	3.	1.	0.	0.
7	2	46.	18.	9.	4.	6.	3.	5.	8.	9.	4.	5.	4.	7.	3.	2.	2.
7	3	16.	52.	19.	4.	4.	0.	5.	10.	13.	7.	1.	3.	3.	6.	8.	12.
7	4	0.	5.	7.	4.	0.	0.	0.	0.	0.	1.	1.	0.	1.	9.	7.	2.
7	5	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL NUMBER OF HOURS
USED = 1096 MISSING = 1 CALM = 7 VARIABLE = 32

TABLE 5-7 4TH QUARTER 1987 JOINT FREQUENCY DISTRIBUTION FOR THE 33 FT LEVEL
CALCULATED FROM HOURLY AVERAGES FROM TAPE

MAXIMUM WIND SPEEDS FOR EACH CATEGORY IN MPH ARE:
1 - 0.6 2 - 3.0 3 - 7.0 4 - 12.0 5 - 18.0 6 - 24.0
NUMBERS GIVEN ARE HOURS

STAB CLASS	WIND CAT	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
1	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	2	1.	2.	1.	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
1	3	4.	2.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	2.
1	4	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.
1	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	1	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	2	1.	3.	0.	0.	1.	0.	0.	2.	1.	0.	1.	0.	0.	1.	3.	3.
2	3	7.	3.	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.	1.	0.	0.	1.
2	4	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
2	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
3	2	5.	5.	1.	1.	0.	1.	1.	3.	3.	2.	0.	0.	2.	1.	6.	4.
3	3	5.	0.	0.	0.	0.	0.	0.	1.	2.	2.	1.	1.	0.	1.	0.	1.
3	4	1.	0.	0.	0.	0.	0.	0.	0.	2.	2.	2.	0.	0.	0.	0.	0.
3	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
3	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	1	1.	1.	0.	0.	0.	1.	1.	1.	0.	1.	1.	1.	0.	0.	1.	0.
4	2	33.	13.	11.	2.	0.	6.	5.	10.	16.	8.	9.	7.	6.	14.	40.	33.
4	3	19.	11.	6.	1.	0.	1.	5.	21.	11.	1.	5.	2.	4.	29.	25.	30.
4	4	1.	0.	3.	0.	0.	0.	0.	2.	16.	12.	3.	5.	3.	11.	3.	1.
4	5	0.	0.	0.	0.	0.	0.	0.	2.	9.	7.	6.	2.	0.	1.	1.	0.
4	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	3.	0.
4	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	1	2.	2.	0.	0.	0.	0.	0.	1.	0.	0.	0.	2.	1.	0.	3.	2.
5	2	14.	3.	9.	2.	1.	2.	8.	10.	19.	14.	7.	15.	19.	36.	52.	26.
5	3	10.	7.	9.	1.	0.	1.	12.	29.	27.	7.	19.	4.	10.	47.	40.	20.
5	4	0.	0.	0.	0.	0.	1.	5.	21.	21.	15.	18.	0.	1.	7.	6.	0.
5	5	0.	0.	0.	0.	0.	0.	0.	0.	8.	5.	6.	2.	0.	0.	1.	0.
5	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.
5	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	1	2.	2.	0.	1.	0.	0.	0.	1.	0.	1.	3.	1.	1.	1.	2.	2.
6	2	14.	13.	6.	3.	1.	0.	5.	6.	17.	15.	12.	9.	13.	23.	46.	25.
6	3	2.	2.	2.	1.	0.	1.	4.	15.	16.	17.	5.	3.	7.	15.	35.	13.
6	4	0.	0.	0.	0.	0.	0.	1.	13.	13.	8.	0.	1.	2.	0.	0.	0.
6	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
6	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	7	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
7	1	1.	0.	1.	0.	1.	1.	1.	1.	0.	2.	1.	3.	1.	0.	3.	4.
7	2	29.	28.	15.	11.	6.	4.	3.	25.	21.	16.	13.	17.	9.	26.	38.	37.
7	3	4.	8.	6.	0.	0.	0.	0.	11.	33.	8.	4.	2.	2.	8.	28.	14.
7	4	0.	0.	1.	0.	0.	0.	0.	2.	3.	0.	0.	0.	0.	0.	0.	0.
7	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL NUMBER OF HOURS
USED = 2062 MISSING = 0 CALM = 21 VARIABLE = 89

TABLE 5-8 4TH QUARTER 1987 JOINT FREQUENCY DISTRIBUTION FOR THE 245 FT LEVEL
CALCULATED FROM HOURLY AVERAGES FROM TAPE

MAXIMUM WIND SPEEDS FOR EACH CATEGORY IN MPH ARE:
1 - 0.6 2 - 3.0 3 - 7.0 4 - 12.0 5 - 18.0 6 - 24.0
NUMBERS GIVEN ARE HOURS

STAB CLASS	WIND CAT	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
1	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	2	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.	0.	0.
1	3	0.	1.	0.	0.	0.	0.	1.	0.	0.	1.	0.	0.	0.	0.	0.	1.
1	4	2.	1.	1.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	2.
1	5	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.
1	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	2	4.	1.	0.	1.	0.	0.	0.	0.	1.	1.	1.	0.	0.	2.	0.	0.
2	3	3.	4.	0.	0.	0.	0.	0.	0.	2.	1.	0.	0.	1.	1.	0.	0.
2	4	4.	1.	4.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	5	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
2	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
2	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	2	8.	3.	1.	0.	0.	0.	0.	1.	0.	2.	0.	0.	0.	0.	1.	2.
3	3	5.	9.	2.	0.	0.	0.	0.	1.	2.	1.	1.	1.	0.	0.	1.	4.
3	4	2.	1.	2.	0.	0.	0.	0.	1.	0.	3.	2.	0.	0.	1.	0.	0.
3	5	1.	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.
3	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
4	1	1.	0.	0.	1.	0.	0.	0.	1.	0.	0.	0.	0.	0.	1.	1.	1.
4	2	18.	8.	4.	3.	2.	1.	4.	6.	9.	6.	5.	5.	3.	7.	13.	27.
4	3	32.	29.	9.	2.	0.	1.	2.	15.	15.	3.	3.	4.	5.	15.	24.	42.
4	4	5.	3.	8.	0.	0.	0.	4.	7.	10.	6.	4.	5.	3.	19.	15.	8.
4	5	0.	0.	0.	0.	2.	0.	0.	1.	15.	12.	6.	4.	1.	3.	0.	0.
4	6	0.	0.	0.	0.	0.	0.	0.	0.	3.	1.	4.	0.	0.	2.	0.	0.
4	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	5.	0.	0.
5	1	2.	1.	1.	0.	1.	0.	1.	0.	3.	0.	2.	0.	1.	0.	2.	1.
5	2	24.	20.	9.	2.	2.	3.	4.	3.	3.	7.	6.	8.	12.	8.	17.	30.
5	3	8.	25.	12.	2.	1.	0.	2.	24.	30.	8.	5.	5.	5.	14.	32.	29.
5	4	1.	0.	4.	3.	0.	3.	8.	16.	20.	12.	8.	3.	4.	19.	27.	11.
5	5	0.	0.	0.	0.	0.	3.	1.	2.	21.	11.	16.	5.	3.	9.	0.	4.
5	6	0.	0.	0.	0.	0.	0.	1.	1.	7.	3.	11.	3.	0.	5.	0.	0.
5	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.	1.	0.	0.
6	1	0.	0.	1.	0.	0.	1.	0.	0.	0.	1.	1.	2.	1.	0.	1.	1.
6	2	9.	18.	9.	6.	4.	1.	8.	9.	5.	5.	5.	2.	4.	5.	9.	12.
6	3	13.	11.	13.	6.	2.	1.	3.	12.	12.	7.	4.	3.	6.	9.	19.	25.
6	4	2.	1.	2.	2.	2.	0.	4.	13.	16.	10.	3.	3.	2.	17.	11.	10.
6	5	0.	0.	0.	1.	0.	2.	1.	6.	9.	10.	7.	1.	2.	5.	3.	2.
6	6	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.	1.	1.	0.
6	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	1	1.	1.	0.	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.	2.	0.	0.
7	2	21.	19.	4.	4.	2.	3.	7.	5.	5.	7.	8.	4.	9.	8.	3.	10.
7	3	15.	20.	24.	3.	6.	5.	14.	19.	15.	9.	5.	2.	4.	9.	19.	14.
7	4	1.	4.	8.	7.	6.	0.	3.	10.	16.	11.	4.	6.	1.	4.	23.	12.
7	5	1.	0.	0.	0.	3.	2.	1.	0.	2.	2.	0.	0.	1.	4.	10.	5.
7	6	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	1.
7	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL NUMBER OF HOURS
USED = 2096 MISSING = 0 CALM = 19 VARIABLE = 57

TABLE 5-9

1987 ANNUAL JOINT FREQUENCY DISTRIBUTION FOR THE 33 FT LEVEL
CALCULATED FROM HOURLY AVERAGES FROM TAPE

MAXIMUM WIND SPEEDS FOR EACH CATEGORY IN MPH ARE:
1 - 0.6 2 - 3.0 3 - 7.0 4 - 12.0 5 - 18.0 6 - 24.0

NUMBERS GIVEN ARE HOURS

STAB CLASS	WIND CAT	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
1	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	2	16.	10.	8.	0.	6.	25.	25.	30.	25.	20.	14.	12.	12.	20.	16.	23.
1	3	58.	33.	20.	6.	21.	26.	42.	91.	87.	42.	33.	25.	18.	21.	33.	52.
1	4	11.	2.	1.	0.	1.	1.	6.	34.	67.	27.	13.	16.	3.	12.	10.	14.
1	5	4.	0.	0.	0.	0.	0.	0.	1.	6.	10.	3.	6.	3.	2.	0.	0.
1	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	1	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	2	5.	4.	3.	2.	1.	2.	3.	9.	5.	4.	3.	1.	2.	5.	5.	9.
2	3	8.	3.	0.	2.	2.	1.	8.	2.	6.	4.	4.	1.	2.	2.	10.	4.
2	4	2.	0.	0.	0.	0.	1.	1.	5.	6.	4.	4.	4.	5.	3.	5.	1.
2	5	1.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	3.	0.	2.	1.	0.
2	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
3	2	7.	9.	1.	1.	1.	1.	3.	5.	5.	5.	2.	3.	8.	3.	6.	10.
3	3	7.	6.	0.	2.	2.	0.	10.	13.	7.	4.	2.	1.	2.	2.	3.	6.
3	4	1.	0.	0.	0.	0.	0.	1.	3.	8.	3.	5.	4.	2.	5.	2.	0.
3	5	1.	0.	0.	0.	0.	0.	0.	0.	2.	4.	1.	3.	0.	7.	1.	0.
3	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	1.	0.
3	7	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	1	1.	1.	0.	0.	0.	1.	1.	1.	0.	1.	1.	2.	0.	0.	1.	0.
4	2	50.	22.	14.	5.	6.	17.	12.	41.	33.	20.	23.	19.	25.	36.	53.	54.
4	3	45.	19.	14.	8.	3.	16.	32.	67.	74.	43.	31.	19.	25.	66.	75.	92.
4	4	8.	1.	4.	0.	0.	1.	3.	20.	47.	55.	22.	22.	19.	43.	20.	13.
4	5	3.	0.	0.	0.	0.	0.	0.	3.	15.	11.	14.	8.	6.	20.	7.	1.
4	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	2.	3.	0.
4	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	1	3.	3.	0.	1.	0.	2.	1.	2.	0.	1.	4.	3.	1.	1.	5.	4.
5	2	42.	27.	30.	13.	11.	17.	34.	32.	47.	38.	20.	34.	38.	75.	109.	78.
5	3	45.	34.	35.	8.	9.	14.	60.	101.	80.	45.	59.	34.	59.	158.	132.	65.
5	4	0.	1.	0.	0.	0.	1.	8.	31.	51.	57.	39.	18.	40.	98.	32.	4.
5	5	0.	0.	0.	0.	0.	0.	0.	0.	11.	10.	13.	2.	4.	16.	3.	2.
5	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.
5	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	1	4.	2.	0.	2.	1.	0.	2.	2.	3.	5.	4.	5.	4.	4.	2.	3.
6	2	52.	45.	19.	9.	5.	11.	20.	42.	65.	49.	50.	37.	35.	70.	107.	95.
6	3	12.	12.	5.	5.	2.	9.	41.	103.	71.	51.	30.	24.	27.	64.	85.	40.
6	4	0.	0.	0.	0.	0.	0.	7.	32.	40.	21.	4.	2.	4.	6.	0.	0.
6	5	0.	0.	0.	0.	0.	0.	0.	1.	1.	1.	0.	0.	0.	0.	0.	0.
6	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	7	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
7	1	3.	0.	2.	1.	2.	2.	4.	2.	1.	4.	3.	4.	2.	2.	3.	8.
7	2	99.	108.	38.	23.	13.	16.	27.	66.	58.	39.	43.	35.	25.	59.	75.	100.
7	3	16.	38.	18.	1.	2.	3.	17.	75.	83.	31.	14.	10.	9.	23.	82.	38.
7	4	0.	0.	1.	0.	0.	0.	0.	10.	7.	2.	0.	1.	0.	0.	0.	0.
7	5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL NUMBER OF HOURS
USED = 7790 MISSING = 29 CALM = 33 VARIABLE = 237

TABLE 5-10

1987 ANNUAL JOINT FREQUENCY DISTRIBUTION FOR THE 245 FT LEVEL
CALCULATED FROM HOURLY AVERAGES FROM TAPE

MAXIMUM WIND SPEEDS FOR EACH CATEGORY IN MPH ARE:
1 - 0.6 2 - 3.0 3 - 7.0 4 - 12.0 5 - 18.0 6 - 24.0

NUMBERS GIVEN ARE HOURS

STAB CLASS	WIND CAT	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
1	1	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
1	2	40.	16.	7.	2.	4.	9.	16.	18.	15.	10.	14.	9.	14.	13.	8.	14.
1	3	85.	58.	25.	10.	16.	24.	35.	64.	54.	36.	25.	20.	24.	16.	31.	31.
1	4	18.	15.	19.	7.	6.	3.	13.	19.	51.	40.	14.	24.	19.	6.	7.	17.
1	5	9.	0.	0.	5.	4.	5.	0.	0.	5.	9.	8.	13.	3.	1.	5.	3.
1	6	0.	0.	0.	0.	0.	2.	0.	0.	0.	2.	4.	1.	1.	1.	0.	0.
1	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
2	2	24.	3.	1.	1.	1.	2.	2.	3.	3.	3.	2.	0.	1.	2.	2.	2.
2	3	11.	7.	3.	2.	1.	1.	1.	8.	5.	4.	2.	1.	1.	2.	7.	4.
2	4	5.	2.	5.	1.	0.	1.	2.	2.	3.	2.	1.	3.	6.	0.	3.	2.
2	5	2.	0.	0.	0.	0.	2.	0.	0.	3.	2.	1.	3.	3.	2.	2.	1.
2	6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	1.	0.
2	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
3	2	16.	7.	4.	0.	0.	0.	1.	4.	0.	4.	1.	0.	1.	3.	1.	6.
3	3	9.	15.	5.	1.	3.	0.	4.	2.	6.	4.	2.	3.	0.	0.	3.	13.
3	4	2.	3.	6.	2.	1.	0.	1.	2.	6.	7.	7.	1.	3.	3.	0.	0.
3	5	1.	0.	0.	0.	0.	1.	1.	1.	2.	0.	2.	6.	1.	6.	3.	1.
3	6	1.	0.	0.	0.	0.	0.	0.	0.	0.	1.	2.	0.	0.	3.	1.	0.
3	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.	0.
4	1	1.	0.	0.	1.	0.	0.	0.	1.	0.	0.	0.	0.	0.	1.	1.	1.
4	2	38.	15.	5.	5.	5.	4.	7.	13.	21.	17.	16.	19.	19.	35.	35.	44.
4	3	72.	49.	16.	8.	9.	8.	22.	43.	41.	41.	25.	29.	34.	63.	72.	78.
4	4	9.	12.	15.	5.	6.	3.	8.	16.	26.	38.	19.	35.	30.	46.	39.	23.
4	5	10.	2.	0.	3.	10.	3.	1.	3.	18.	17.	23.	25.	12.	29.	10.	2.
4	6	1.	0.	0.	0.	0.	1.	3.	0.	3.	5.	5.	1.	1.	13.	0.	0.
4	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	6.	0.	0.
5	1	6.	2.	1.	0.	2.	0.	1.	1.	4.	1.	2.	0.	4.	1.	2.	1.
5	2	57.	38.	26.	22.	10.	11.	10.	11.	14.	18.	18.	23.	26.	29.	55.	59.
5	3	61.	65.	53.	22.	17.	3.	22.	50.	60.	31.	25.	31.	34.	46.	77.	92.
5	4	14.	7.	18.	9.	3.	7.	20.	36.	64.	27.	39.	35.	40.	79.	89.	65.
5	5	16.	1.	1.	2.	5.	9.	2.	3.	24.	26.	31.	35.	30.	74.	23.	27.
5	6	2.	0.	0.	0.	0.	1.	1.	1.	8.	4.	11.	7.	2.	15.	1.	2.
5	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.	1.	0.	0.
6	1	1.	0.	1.	0.	0.	1.	0.	0.	0.	3.	2.	6.	2.	5.	2.	2.
6	2	42.	45.	22.	15.	16.	9.	21.	19.	24.	26.	26.	21.	25.	20.	21.	45.
6	3	68.	43.	34.	16.	9.	8.	25.	44.	50.	37.	27.	23.	32.	44.	51.	72.
6	4	18.	8.	11.	7.	3.	2.	16.	24.	39.	30.	24.	21.	18.	40.	42.	38.
6	5	0.	0.	0.	1.	2.	2.	3.	6.	11.	24.	30.	6.	4.	16.	4.	10.
6	6	0.	0.	0.	0.	0.	0.	0.	0.	1.	2.	1.	0.	0.	1.	1.	0.
6	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	1	4.	1.	0.	0.	0.	2.	0.	2.	0.	0.	1.	2.	3.	4.	1.	0.
7	2	79.	49.	17.	10.	12.	13.	17.	18.	27.	32.	35.	18.	32.	19.	16.	26.
7	3	68.	91.	55.	14.	13.	13.	24.	40.	58.	47.	20.	26.	23.	30.	35.	46.
7	4	14.	15.	23.	11.	6.	2.	4.	14.	22.	27.	13.	8.	5.	26.	37.	32.
7	5	3.	0.	2.	0.	4.	2.	1.	0.	2.	6.	6.	0.	1.	6.	10.	12.
7	6	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	1.
7	7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL NUMBER OF HOURS
USED = 7840 MISSING = 29 CALM = 70 VARIABLE = 150

6.0 DOSE ASSESSMENT - IMPACT ON MAN

Liquid Effluents - The doses to the maximum individual from WNP-2 liquid effluents were calculated using the LADTAP II computer code and the site specific input parameters.

Table 6-1 lists the doses to the maximum individual by calendar quarters respectively.

The doses to the average exposed individual are listed in Table 6-2. The 50-mile population doses are listed in Table 6-3. All doses were calculated using the LADTAP II computer code.

Gaseous Effluents - The GASPAR computer code was used to calculate doses at the 1.2 mile site boundary, Taylor Flats which is located 4.2 miles east southeast plus the 50-mile population and individual doses listed in Table 6-4. The quarterly GASPAR runs utilized the quarterly averaged X/Q and D/Q values, and site specific input parameters pertaining to food productions (e.g., goat and cow grazing periods, etc.) The air doses at the site boundary were used to verify compliance with Technical Specification 3.11.2.2. To verify compliance with Technical Specification 3.11.2.3, the maximum organ dose to the maximum exposed individual located at Taylor Flats was evaluated. Table 6-5 lists the doses at these special locations.

6.1 Exposure to "A Member of the Public"

The WNP-2 Visitor Center was evaluated for assessment of radiation doses to "Members of the Public", due to their activities within the site boundary. The ODCM assumes an eight (8) hour per year occupancy by "A Member of the Public" at the Visitor Center. The dose assessment resulted in an annual calculated whole body dose of 6.1E-03 mrem. The annual thyroid dose was 6.5E-03 mrem and the maximum dose to any other organ was 1.1E-02 mrem.

The annual assessment of radiation doses to the likely most exposed "Member of the Public" to show conformance with 40CFR Part 190 is assumed to be located in the Taylor Flats vicinity (4.2 miles ESE). The Gaspar computer code with annual source terms and XOQDOQ meteorological data was used to obtain the dose assessment from gaseous effluents. It is assumed there is no dose contribution from liquid effluents at Taylor Flats. The assessment resulted in annual calculated whole body dose of 3.1E-02 mrem. The annual thyroid dose was 9.5E-02 mrem and the maximum dose to any other organ was 5.0E-02 mrem.

The direct radiation contribution showed no significant amount above normal background for that area which is approximately 90 mrem per year.

Table 6-1

MAXIMUM INDIVIDUAL DOSES FROM WNP-2 LIQUID EFFLUENTS

1ST AND 2ND QUARTERS 1987

First Quarter 1987				
Pathway	Whole Body (mrem/qtr)	1987 Cumulative Whole Body (mrem/yr)	Max. Organ. (mrem/qtr)	1987 Cumulative Max. Organ. (mrem/yr)
Drinking	2.9E-07	2.9E-07	1.8E-07	1.8E-07
Shoreline	4.1E-08	4.1E-08	4.8E-08	4.8E-08
Swimming	1.8E-10	1.8E-10	1.8E-10	1.8E-10
Fishing	3.5E-04	3.5E-04	5.7E-04	5.7E-04
Boating	2.2E-09	2.2E-09	2.2E-09	2.2E-09
Leafy Veg.	1.7E-08	1.7E-08	5.3E-08	5.3E-08
Vegetables	1.2E-07	1.2E-07	2.8E-07	2.8E-07
Milk	6.1E-08	6.1E-08	1.1E-07	1.1E-07
Meat	2.0E-08	2.0E-08	5.0E-08	5.0E-08
Total	3.5E-04	3.5E-04	5.7E-04	5.7E-04

Second Quarter 1987				
Pathway	Whole Body (mrem/qtr)	1987 Cumulative Whole Body (mrem/yr)	Max. Organ. (mrem/qtr)	1987 Cumulative Max. Organ. (mrem/yr)
Drinking	1.3E-06	1.6E-06	2.6E-06	2.8E-06
Shoreline	1.8E-06	1.8E-06	2.0E-06	2.1E-06
Swimming	6.7E-09	6.9E-09	6.7E-09	6.9E-09
Fishing	1.2E-02	1.2E-02	2.2E-02	2.2E-02
Boating	8.0E-08	8.2E-08	8.0E-08	8.2E-08
Leafy Veg.	6.8E-07	7.0E-07	1.5E-06	1.6E-06
Vegetables	3.6E-06	3.7E-06	8.3E-06	8.6E-06
Milk	2.2E-06	2.3E-06	4.5E-06	4.6E-06
Meat	6.3E-07	6.5E-07	1.4E-06	1.4E-06
Total	1.2E-02	1.2E-02	2.2E-02	2.2E-02

Table 6-1

MAXIMUM INDIVIDUAL DOSES FROM WNP-2 LIQUID EFFLUENTS(1)

3RD AND 4TH QUARTERS 1987
(Continued)

Third Quarter 1987				
Pathway	Whole Body (mrem/qtr)	1987 Cumulative Whole Body (mrem/yr)	Max. Organ. (mrem/qtr)	1987 Cumulative Max. Organ. (mrem/yr)
Drinking	5.3E-07	2.1E-06	9.5E-07	3.8E-06
Shoreline	5.9E-07	2.4E-06	6.9E-07	2.8E-06
Swimming	2.5E-09	9.4E-09	2.5E-09	9.4E-09
Fishing	4.0E-03	1.6E-02	7.6E-03	3.0E-02
Boating	2.7E-08	1.1E-07	2.7E-08	1.1E-07
Leafy Veg.	2.3E-07	9.3E-07	4.8E-07	2.1E-06
Vegetables	1.3E-06	5.0E-06	2.4E-06	1.1E-05
Milk	9.0E-07	3.2E-06	1.2E-06	5.8E-06
Meat	2.6E-07	9.1E-07	5.6E-07	2.0E-06
Total	4.0E-03	1.6E-02	7.6E-03	3.0E-02

Fourth Quarter 1987				
Pathway	Whole Body (mrem/qtr)	1987 Cumulative Whole Body (mrem/yr)	Max. Organ. (mrem/qtr)	1987 Cumulative Max. Organ. (mrem/yr)
Drinking	1.4E-07	2.2E-06	1.7E-07	3.9E-06
Shoreline	1.1E-07	2.5E-06	1.3E-07	2.9E-06
Swimming	6.9E-10	1.0E-08	6.9E-10	1.0E-08
Fishing	5.1E-04	1.7E-02	1.1E-03	3.1E-02
Boating	1.0E-08	1.2E-07	1.0E-08	1.2E-07
Leafy Veg.	1.8E-08	9.5E-07	3.2E-08	2.1E-06
Vegetables	2.4E-07	5.2E-06	4.0E-07	1.1E-05
Milk	1.1E-07	3.3E-06	2.3E-07	6.0E-06
Meat	4.1E-08	9.5E-07	7.8E-08	2.1E-06
Total	5.1E-04	1.7E-02	1.1E-03	3.1E-02

(1) Age Group - Adult: Maximum individual resides at Richland and fishes at the WNP-2 slough area.

Table 6-2

AVERAGE INDIVIDUAL DOSES FROM WNP-2 LIQUID EFFLUENTS

1ST AND 2ND QUARTERS 1987

	Total per 1st Quarter		Total per 2nd Quarter	
Pathway	Max. Organ. (mrem)	Whole Body (mrem)	Max. Organ. (mrem)	Whole Body (mrem)
Fish	1.4E-06	8.7E-07	4.1E-05	2.9E-05
Drinking Water	1.0E-07	6.7E-08	1.6E-06	7.9E-07
Shoreline	1.4E-09	1.4E-09	5.9E-08	5.9E-08
Swimming	1.8E-11	1.8E-11	6.8E-10	6.8E-10
Boating	1.1E-11	1.1E-11	4.0E-10	4.0E-10
Vegetables	6.8E-07	3.6E-07	2.3E-05	1.1E-05
Leafy vegetables	5.8E-07	2.2E-07	2.9E-05	9.8E-06
Milk	6.2E-08	3.5E-08	2.6E-06	1.3E-06
Meat	2.5E-08	1.2E-08	7.3E-07	3.6E-07
Total	2.8E-06	1.6E-06	9.8E-05	5.2E-05

3RD AND 4TH QUARTERS 1987

	Total per 3rd Quarter		Total per 4th Quarter	
Pathway	Max. Organ. (mrem)	Whole Body (mrem)	Max. Organ. (mrem)	Whole Body (mrem)
Fish	3.0E-05	1.1E-05	2.8E-06	1.3E-06
Drinking Water	5.7E-07	3.3E-07	1.0E-07	8.5E-08
Shoreline	2.1E-08	2.0E-08	4.3E-09	3.6E-09
Swimming	2.5E-10	2.5E-10	8.1E-11	8.1E-11
Boating	1.5E-10	1.5E-10	4.7E-11	4.7E-11
Vegetables	7.5E-06	4.0E-06	1.2E-06	7.8E-07
Leafy vegetables	7.5E-06	3.3E-06	4.7E-07	2.9E-07
Milk	1.4E-06	6.8E-07	2.1E-07	1.2E-07
Meat	3.0E-07	1.5E-07	4.2E-08	2.4E-08
Total	4.7E-05	1.9E-05	4.8E-06	2.6E-06

Table 6-3

50-MILE POPULATION DOSES FROM WNP-2 LIQUID EFFLUENTS

1ST AND 2ND QUARTERS 1987

	Total per 1st Quarter		Total per 2nd Quarter	
Pathway	Max. Organ. (man-rem)	Whole Body (man-rem)	Max. Organ. (man-rem)	Whole Body (man-rem)
Fish	9.2E-07	5.1E-07	7.4E-05	1.7E-05
Drinking water	6.4E-06	4.0E-06	1.1E-04	4.8E-05
Shoreline	5.3E-07	4.5E-07	2.2E-05	1.9E-05
Swimming	5.9E-09	5.9E-09	2.2E-07	2.2E-07
Boating	1.4E-09	1.5E-09	5.5E-08	5.5E-08
Vegetables	7.4E-06	3.9E-06	2.5E-04	1.2E-04
Leafy vegetables	6.5E-06	2.4E-06	3.1E-04	1.1E-04
Milk	9.0E-07	5.0E-07	3.8E-05	1.9E-05
Meat	2.5E-07	1.2E-07	7.4E-06	3.7E-06
Total	2.3E-05	1.2E-05	8.1E-04	3.4E-04

3RD AND 4TH QUARTERS 1987

	Total per 3rd Quarter		Total per 4th Quarter	
Pathway	Max. Organ. (man-rem)	Whole Body (man-rem)	Max. Organ. (man-rem)	Whole Body (man-rem)
Fish	8.6E-06	6.9E-06	1.8E-06	8.5E-07
Drinking water	3.5E-05	2.0E-05	5.9E-06	5.1E-06
Shoreline	7.6E-06	6.5E-06	1.4E-06	1.2E-06
Swimming	8.2E-08	8.2E-08	2.6E-08	2.6E-08
Boating	2.1E-08	2.1E-08	6.6E-09	6.6E-09
Vegetables	8.2E-05	4.3E-05	1.3E-05	8.5E-06
Leafy vegetables	8.2E-05	3.7E-05	5.1E-06	3.1E-06
Milk	1.6E-05	7.9E-06	2.4E-06	1.3E-06
Meat	3.2E-06	1.5E-06	4.3E-07	2.4E-07
Total	2.3E-04	1.2E-04	3.0E-05	2.0E-05

TABLE 6-4

50-MILE POPULATION DOSES FROM 1987 GASEOUS EFFLUENTS

Exposure Pathway	Whole Body (man-Rem)	Max. Organ (man-Rem)
Plume	9.7 E-02	3.5 E-01
Ground	1.3 E-02	1.5 E-02
Inhalation	4.8 E-02	1.6 E-01
Vegetables	2.2 E-02	4.0 E-02
Milk	6.2 E-03	1.5 E-02
Meat	2.3 E-03	2.4 E-03
Total	1.9 E-01	5.8 E-01

AVERAGE INDIVIDUAL DOSES FROM 1987 GASEOUS EFFLUENTS[a]

Exposure Pathway	Whole Body (mRem)	Max. Organ (mRem)
Plume	3.9 E-04	1.4 E-03
Ground	5.2 E-05	6.0 E-05
Inhalation	1.9 E-04	6.4 E-04
Vegetables	8.7 E-05	1.6 E-04
Milk	2.5 E-05	6.0 E-05
Meat	9.1 E-06	9.5 E-06
Total	7.5 E-04	2.3 E-03

[a]The population doses divided by the population for the 50-mile radius in the year 1980.

Table 6-5

SUMMARY OF DOSES FROM WNP-2 GASEOUS EFFLUENTS

CALENDAR QUARTERS 1987

Location: 1.2 miles site boundary

Reporting Period: Calendar Quarters Plus Annual Cumulative, 1987

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Annual Cumulative
Beta air dose (mrad)*	6.8E-02	3.2E-02	1.2E-03	7.3E-02	1.7E-01
Gamma air dose (mrad)*	1.2E-01	5.8E-02	1.8E-03	1.0E-01	2.8E-01

Location: Taylor Flats, 4.2 miles ESE

Reporting Period: Calendar Quarters Plus Annual Cumulative, 1987

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Annual Cumulative
Maximum organ dose (mrem)**	1.2E-02	7.2E-03	7.7E-03	8.4E-02	1.1E-01

* Technical Specification 3.11.2.2.
** Technical Specification 3.11.2.3.

7.0 REVISIONS TO THE ODCM

During this semi-annual reporting period, no revisions were made to the Offsite Dose Calculation Manual (ODCM).

Washington Public Power Supply System
3000 George Washington Way P.O. Box 968 Richland, Washington 99352-0968 (509)372-5000

February 25, 1988
G02-88-049

Docket No. 50-397

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Gentlemen:

Subject: **NUCLEAR PLANT NO. 2**
SEMI-ANNUAL EFFLUENT REPORT
JULY 1, 1987 TO DECEMBER 31, 1987 (Attached)

In accordance with Title 10 of the Code of Federal Regulations, Part 50.36a (a) (2), the subject report is herewith being submitted.

Should you have any questions, please contact Mr. R. G. Graybeal, Manager, WNP-2 Health Physics Chemistry.

Very truly yours,

J W Baker

J. M. Powers
WNP-2 Plant Manager

lw

Attachment

cc: RB Samworth - NRC
C Eschels - EFSEC
JB Martin - NRC RV (2)
D Sherman - Amer. Nuclear Insurers
TR Strong - DSHS
NRC Site Inspector
DL Williams - BPA

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