



BOSTON EDISON

Pilgrim Nuclear Power Station
Rocky Hill Road
Plymouth, Massachusetts 02360

PNPS TS Section 6.9.C.1.a
Reg. Guide 1.21

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The enclosed "Annual Dose Assessment to the General Public from Radioactive Effluents for 1993", is submitted in accordance with Pilgrim Nuclear Power Station Technical Specification 6.9.C.1.a.

Please do not hesitate to contact me if there are any questions regarding this report.

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PILGRIM NUCLEAR POWER STATION

Annual Dose Assessment
to the
General Public
from
Radioactive Effluents

January 1 through December 31, 1993



BOSTON EDISON COMPANY

PILGRIM NUCLEAR POWER STATION
ANNUAL DOSE ASSESSMENT TO THE GENERAL PUBLIC
FROM RADIOACTIVE EFFLUENTS

January 1 through December 31, 1993

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EXECUTIVE SUMMARY

Pilgrim Nuclear Power Station Annual Dose Assessment To The General Public From Radioactive Effluents January 1 Through December 31, 1993

Introduction

This report quantifies the dose impact to the general public from the operation of Pilgrim Nuclear Power Station (PNPS) during the period of January 1 through December 31, 1993. The information presented in this report is prepared under Technical Specification 6.9.C.1.a as supplemental information to radioactive effluent release data submitted on a semiannual basis in accordance with NRC Regulatory Guide 1.21.

This report contains an assessment of radiological impact on humans resulting from releases of radioactivity in liquid and gaseous effluents and direct radiation exposure. Doses from radioactive effluents to a maximum exposed hypothetical individual were calculated for all major exposure pathways. In addition to maximum individual doses, cumulative population doses and average individual doses were calculated from the effluent release information. Direct radiation exposures as measured with environmental thermoluminescent dosimeters (TLDs) were also assessed.

The maximum individual doses calculated were used to determine the percent of Technical Specifications limit or objective which the doses represented. Liquid Effluent concentrations were also used to determine percent of Technical Specification concentration limits. These percentage values are the final supplemental data necessary to complete the two semiannual Radioactive Effluent and Waste Disposal Reports prepared during the reporting period.

Radiological Impact on Humans

The release of radioactivity in liquid effluents from PNPS during 1993 resulted in a total body dose of about 0.001 mrem to the maximum-exposed hypothetical individual. The maximum hypothetical dose to any organ from liquid effluents was about 0.004 mrem. The total body dose from liquid effluents to the entire population within 50 miles of PNPS was about 0.008 person-rem. The average individual living within 50 miles of PNPS received a total body dose of less than 0.000002 mrem from liquid effluents released during 1993.

The release of radioactivity in gaseous effluents from PNPS during 1993 resulted in a total body dose to the maximum-exposed hypothetical individual of about 0.17 mrem from radioactive particulates, iodines and tritium. The maximum hypothetical dose to any organ from radioactive particulates, iodines and tritium was about 2.5 mrem. Noble gases released in gaseous effluents resulted in a maximum total body dose of 0.3 mrem, with a corresponding skin dose of 2.7 mrem. All of these maximum doses occurred to a hypothetical individual located on property under Boston Edison's (BECO) control. The maximum, hypothetical total body dose from the release of radioactivity in gaseous effluents was 0.5 mrem. The total body dose from gaseous effluents to the entire population within 50 miles of PNPS was about 0.6 person-rem. The average individual living within 50 miles of PNPS received a total body dose of less than 0.0002 mrem from gaseous effluents released during 1993.

Direct radiation exposure was evaluated to complete the assessment of radiological impact on humans. A small number of TLDs on BECo property in close proximity to the station indicated direct radiation exposure. However, the dose to a hypothetical member of the public accessing such areas on BECo property during 1993 was estimated as being about 1.6 mrem. There was no measurable increase during 1993 in direct radiation measurements at the nearest resident to PNPS.

The collective total body dose to a maximum-exposed hypothetical individual from liquids, gases, and direct exposure resulting from PNPS operations during 1993 was calculated as being 2.1 mrem. This amount is about 0.7% of the typical dose of 300 to 400 mrem received each year by an average person from other sources of natural and man-made radiation.

Percent of Technical Specifications

The maximum individual doses from radioactive effluents were compared to the applicable Technical Specifications dose limits and objectives. All doses from liquid effluents were less than 0.2% of their corresponding limit or objective. In addition, all quarterly average concentrations of liquids released to Cape Cod Bay were also less than 0.1% of the corresponding limits. Maximum doses resulting from releases of particulates, iodines and tritium in gaseous effluents were less than 17% of corresponding 10CFR50 objectives. Noble gas doses were less than 18% of the corresponding 10CFR50 dose objectives.

Conclusion

None of the PNPS Technical Specifications limits and objectives associated with liquid and gaseous effluents were exceeded during 1993. Compliance with these limits and objectives ensured that the radiological impact from PNPS operations was kept as low as is reasonably achievable, in accordance with 10CFR50 Appendix I. Furthermore, conformance with PNPS Technical Specifications demonstrated compliance with the Environmental Protection Agency's regulations for environmental radiation under 40CFR190. Based on the dose assessment results for 1993, there was no significant impact on the general public from Pilgrim Station's operation.

1.0 MAXIMUM INDIVIDUAL DOSES

Doses to the maximum exposed individual resulting from radionuclides in effluents released offsite were calculated using methods presented in the PNPS Offsite Dose Calculation Manual (ODCM, Ref. 1), NRC Regulatory Guide 1.109 (Ref. 2), NRC Regulatory Guide 1.111 (Ref. 3) and the Pilgrim Station Unit I Appendix I Evaluation (Ref. 4). Maximum individual doses are calculated separately for: (1) liquid effluents; (2) particulates, iodines and tritium in gaseous effluents; and, (3) noble gases in gaseous effluents. Maximum consumption and use factors for various pathways from Table E-5 of the PNPS ODCM are used for calculating the doses to the maximum-exposed individual.

Information related to liquid and gaseous effluent releases are summarized in two semiannual Radioactive Effluent and Waste Disposal Reports (Ref. 5 and 6). Copies of this information are included in Appendix A of this report. These effluent release data were used as input to computer programs to calculate the resulting doses. The Yankee Atomic Electric Company "YODA"-series of computer programs was used to compile the dose contributions to the various organs in each age class from major exposure pathways (Ref. 7).

1.1 Doses From Liquid Effluent Releases

Liquid effluent release data presented in Tables 2A and 2B from the semiannual effluent release reports were used as input to the Yankee Atomic "YODA" computer programs to calculate radiation doses. The maximum individual doses resulting from radionuclides released in liquid effluents are presented in Tables 1.1-1 through 1.1-5. These tables cover the individual calendar quarters and total calendar year, respectively.

Tables 1.1-1 through 1.1-5 summarize the maximum total body and organ doses for the adult, teen and child age classes resulting from the major liquid exposure pathways. NRC Regulatory Guide 1.109 does not recognize the infant age class as being exposed to the liquid effluent pathways. Therefore, doses for this age class are not included in any of the tables.

Radioactivity released in liquid effluents from PNPS during 1993 resulted in a maximum total body dose (teen age class) of $1.14\text{E}-03$ mrem. The maximum organ dose (adult age class, gastrointestinal tract/lower large intestine) was $3.91\text{E}-03$ mrem.

It should be noted that the doses calculated for the entire year (January-December) are less than the totals of doses for the four individual quarters. Doses from liquid effluents are based on the concentration (activity divided by volume) of radionuclides released in the effluent as prescribed by the NRC in Regulatory Guide 1.109. Due to the refueling outage in the April-May timeframe, doses for the second quarter were elevated relative to the remainder of the year. In the case of the annual dose, the radionuclide activities and effluent volumes from the second quarter were totalled with those of the other three quarters, resulting in a lower concentration of radionuclides for the entire year. This resulted in the calculated dose for the entire year actually being less than that for the second quarter alone.

Table 1.1-1

MAXIMUM INDIVIDUAL ORGAN DOSE BY EXPOSURE PATHWAY -- (mrem)
 from Liquid Release Period: January-March 1993

Pathway	Saltwater Fish	Saltwater Shellfish	Shoreline Deposits	Swimming/ Boating	Total
Age Class: Adult					
Bone	2.39E-05	6.87E-05	2.69E-06	2.10E-08	9.53E-05
Liver	1.49E-05	2.56E-05	2.69E-06	2.10E-08	4.32E-05
Kidney	2.32E-06	6.49E-07	2.69E-06	2.10E-08	5.68E-06
Lung	4.96E-06	1.24E-05	2.69E-06	2.10E-08	2.01E-05
GI-LLI	2.57E-05	7.21E-05	2.69E-06	2.10E-08	1.01E-04
Whole Body	7.56E-06	1.33E-05	2.69E-06	2.10E-08	2.36E-05
Thyroid	7.85E-07	1.67E-06	2.69E-06	2.10E-08	5.16E-06
Age Class: Teen					
Bone	2.49E-05	6.24E-05	1.50E-05	2.10E-08	1.02E-04
Liver	1.57E-05	2.39E-05	1.50E-05	2.10E-08	5.46E-05
Kidney	2.41E-06	5.88E-07	1.50E-05	2.10E-08	1.80E-05
Lung	6.05E-06	1.32E-05	1.50E-05	2.10E-08	3.43E-05
GI-LLI	1.88E-05	4.71E-05	1.50E-05	2.10E-08	8.09E-05
Whole Body	5.90E-06	1.14E-05	1.50E-05	2.10E-08	3.23E-05
Thyroid	7.32E-07	1.36E-06	1.50E-05	2.10E-08	1.71E-05
Age Class: Child					
Bone	3.16E-05	9.11E-05	3.14E-06	1.17E-08	1.26E-04
Liver	1.47E-05	2.67E-05	3.14E-06	1.17E-08	4.45E-05
Kidney	2.06E-06	5.81E-07	3.14E-06	1.17E-08	5.79E-06
Lung	5.24E-06	1.34E-05	3.14E-06	1.17E-08	2.18E-05
GI-LLI	7.00E-06	2.08E-05	3.14E-06	1.17E-08	3.09E-05
Whole Body	5.23E-06	1.50E-05	3.14E-06	1.17E-08	2.34E-05
Thyroid	7.55E-07	1.63E-06	3.14E-06	1.17E-08	5.53E-06

Table 1.1-2

MAXIMUM INDIVIDUAL ORGAN DOSE BY EXPOSURE PATHWAY -- (mrem)
 from Liquid Release Period: April-June 1993

Pathway	Saltwater Fish	Saltwater Shellfish	Shoreline Deposits	Swimming/ Boating	Total
Age Class: Adult					
Bone	1.75E-04	4.63E-04	1.54E-04	4.50E-07	7.92E-04
Liver	3.22E-04	6.12E-04	1.54E-04	4.50E-07	1.09E-03
Kidney	4.55E-05	1.43E-05	1.54E-04	4.50E-07	2.14E-04
Lung	6.83E-05	1.76E-04	1.54E-04	4.50E-07	3.98E-04
GI-LLI	1.30E-03	3.66E-03	1.54E-04	4.50E-07	5.11E-03
Whole Body	1.66E-04	4.65E-04	1.54E-04	4.50E-07	7.85E-04
Thyroid	1.13E-05	1.77E-05	1.54E-04	4.50E-07	1.83E-04
Age Class: Teen					
Bone	1.81E-04	4.15E-04	8.58E-04	4.50E-07	1.45E-03
Liver	3.28E-04	5.52E-04	8.58E-04	4.50E-07	1.74E-03
Kidney	4.47E-05	1.22E-05	8.58E-04	4.50E-07	9.15E-04
Lung	8.01E-05	1.84E-04	8.58E-04	4.50E-07	1.12E-03
GI-LLI	9.05E-04	2.26E-03	8.58E-04	4.50E-07	4.02E-03
Whole Body	1.59E-04	4.14E-04	8.58E-04	4.50E-07	1.43E-03
Thyroid	9.99E-06	1.44E-05	8.58E-04	4.50E-07	8.83E-04
Age Class: Child					
Bone	2.27E-04	6.01E-04	1.79E-04	2.51E-07	1.01E-03
Liver	2.81E-04	5.62E-04	1.79E-04	2.51E-07	1.02E-03
Kidney	3.47E-05	1.10E-05	1.79E-04	2.51E-07	2.25E-04
Lung	6.68E-05	1.78E-04	1.79E-04	2.51E-07	4.24E-04
GI-LLI	3.17E-04	9.27E-04	1.79E-04	2.51E-07	1.42E-03
Whole Body	1.65E-04	5.20E-04	1.79E-04	2.51E-07	8.64E-04
Thyroid	1.00E-05	1.76E-05	1.79E-04	2.51E-07	2.07E-04

Table 1.1-3

MAXIMUM INDIVIDUAL ORGAN DOSE BY EXPOSURE PATHWAY -- (mrem)
 from Liquid Release Period: July-September 1993

Pathway	Saltwater Fish	Saltwater Shellfish	Shoreline Deposits	Swimming/ Boating	Total
Age Class: Adult					
Bone	1.51E-05	3.34E-05	9.49E-06	2.61E-08	5.80E-05
Liver	2.17E-05	2.80E-05	9.49E-06	2.61E-08	5.92E-05
Kidney	4.90E-06	1.49E-06	9.49E-06	2.61E-08	1.59E-05
Lung	4.32E-06	9.14E-06	9.49E-06	2.61E-08	2.30E-05
GI-LLI	6.13E-05	1.70E-04	9.49E-06	2.61E-08	2.41E-04
Whole Body	1.22E-05	2.54E-05	9.49E-06	2.61E-08	4.71E-05
Thyroid	5.40E-07	2.95E-07	9.49E-06	2.61E-08	1.04E-05
Age Class: Teen					
Bone	1.55E-05	2.93E-05	5.30E-05	2.61E-08	9.78E-05
Liver	2.21E-05	2.55E-05	5.30E-05	2.61E-08	1.01E-04
Kidney	4.85E-06	1.28E-06	5.30E-05	2.61E-08	5.92E-05
Lung	5.05E-06	9.69E-06	5.30E-05	2.61E-08	6.78E-05
GI-LLI	4.22E-05	1.04E-04	5.30E-05	2.61E-08	1.99E-04
Whole Body	1.03E-05	2.20E-05	5.30E-05	2.61E-08	8.53E-05
Thyroid	4.21E-07	2.09E-07	5.30E-05	2.61E-08	5.37E-05
Age Class: Child					
Bone	1.95E-05	4.18E-05	1.11E-05	1.46E-08	7.24E-05
Liver	1.94E-05	2.70E-05	1.11E-05	1.46E-08	5.75E-05
Kidney	3.92E-06	1.19E-06	1.11E-05	1.46E-08	1.62E-05
Lung	4.33E-06	9.80E-06	1.11E-05	1.46E-08	2.52E-05
GI-LLI	1.46E-05	4.22E-05	1.11E-05	1.46E-08	6.79E-05
Whole Body	9.40E-06	2.74E-05	1.11E-05	1.46E-08	4.79E-05
Thyroid	3.54E-07	2.13E-07	1.11E-05	1.46E-08	1.17E-05

Table 1.1-4

MAXIMUM INDIVIDUAL ORGAN DOSE BY EXPOSURE PATHWAY -- (mrem)
 from Liquid Release Period: October-December 1993

Pathway	Saltwater Fish	Saltwater Shellfish	Shoreline Deposits	Swimming/ Boating	Total
Age Class: Adult					
Bone	4.39E-06	1.06E-05	2.92E-06	7.74E-09	1.79E-05
Liver	5.57E-06	1.33E-05	2.92E-06	7.74E-09	2.18E-05
Kidney	1.27E-06	3.81E-06	2.92E-06	7.74E-09	8.01E-06
Lung	1.13E-06	2.65E-06	2.92E-06	7.74E-09	6.71E-06
GI-LLI	1.51E-05	5.48E-05	2.92E-06	7.74E-09	7.28E-05
Whole Body	3.47E-06	9.85E-06	2.92E-06	7.74E-09	1.63E-05
Thyroid	2.35E-07	5.03E-07	2.92E-06	7.74E-09	3.67E-06
Age Class: Teen					
Bone	4.54E-06	9.23E-06	1.64E-05	7.74E-09	3.01E-05
Liver	5.75E-06	1.19E-05	1.64E-05	7.74E-09	3.40E-05
Kidney	1.27E-06	3.17E-06	1.64E-05	7.74E-09	2.08E-05
Lung	1.38E-06	2.84E-06	1.64E-05	7.74E-09	2.06E-05
GI-LLI	1.05E-05	3.34E-05	1.64E-05	7.74E-09	6.03E-05
Whole Body	2.94E-06	8.65E-06	1.64E-05	7.74E-09	2.80E-05
Thyroid	2.20E-07	4.11E-07	1.64E-05	7.74E-09	1.70E-05
Age Class: Child					
Bone	5.72E-06	1.30E-05	3.41E-06	4.32E-09	2.21E-05
Liver	5.12E-06	1.20E-05	3.41E-06	4.32E-09	2.05E-05
Kidney	1.04E-06	2.87E-06	3.41E-06	4.32E-09	7.33E-06
Lung	1.19E-06	2.87E-06	3.41E-06	4.32E-09	7.48E-06
GI-LLI	3.62E-06	1.35E-05	3.41E-06	4.32E-09	2.05E-05
Whole Body	2.71E-06	1.07E-05	3.41E-06	4.32E-09	1.68E-05
Thyroid	2.27E-07	4.92E-07	3.41E-06	4.32E-09	4.14E-06

Table 1.1-5

MAXIMUM INDIVIDUAL ORGAN DOSE BY EXPOSURE PATHWAY -- (mrem)
 from Liquid Release Period: January-December 1993

Pathway	Saltwater Fish	Saltwater Shellfish	Shoreline Deposits	Swimming/ Boating	Total
Age Class: Adult					
Bone	1.75E-04	4.62E-04	1.21E-04	3.71E-07	7.59E-04
Liver	2.69E-04	4.92E-04	1.21E-04	3.71E-07	8.83E-04
Kidney	4.17E-05	1.79E-05	1.21E-04	3.71E-07	1.81E-04
Lung	5.92E-05	1.49E-04	1.21E-04	3.71E-07	3.30E-04
GI-LLI	9.89E-04	2.80E-03	1.21E-04	3.71E-07	3.91E-03
Whole Body	1.41E-04	3.71E-04	1.21E-04	3.71E-07	6.34E-04
Thyroid	9.54E-06	1.50E-05	1.21E-04	3.71E-07	1.46E-04
Age Class: Teen					
Bone	1.82E-04	4.14E-04	6.78E-04	3.71E-07	1.27E-03
Liver	2.75E-04	4.46E-04	6.78E-04	3.71E-07	1.40E-03
Kidney	4.12E-05	1.52E-05	6.78E-04	3.71E-07	7.35E-04
Lung	6.98E-05	1.56E-04	6.78E-04	3.71E-07	9.04E-04
GI-LLI	6.89E-04	1.73E-03	6.78E-04	3.71E-07	3.10E-03
Whole Body	1.31E-04	3.29E-04	6.78E-04	3.71E-07	1.14E-03
Thyroid	8.44E-06	1.22E-05	6.78E-04	3.71E-07	6.99E-04
Age Class: Child					
Bone	2.29E-04	6.00E-04	1.41E-04	2.07E-07	9.71E-04
Liver	2.38E-04	4.58E-04	1.41E-04	2.07E-07	8.38E-04
Kidney	3.25E-05	1.38E-05	1.41E-04	2.07E-07	1.88E-04
Lung	5.88E-05	1.53E-04	1.41E-04	2.07E-07	3.53E-04
GI-LLI	2.41E-04	7.11E-04	1.41E-04	2.07E-07	1.09E-03
Whole Body	1.32E-04	4.14E-04	1.41E-04	2.07E-07	6.88E-04
Thyroid	8.41E-06	1.48E-05	1.41E-04	2.07E-07	1.65E-04

1.2 Doses From Gaseous Effluent Releases

Gaseous effluent release data presented in Tables 1A, 1B, and 1C from the semiannual effluent release reports were used as input to the Yankee Atomic "YODA" computer programs to calculate radiation doses. These data include gaseous releases from the PNPS main stack, reactor building vent, turbine building roof exhausters, and tool decontamination facility. Meteorological data obtained from the PNPS 220-foot meteorological tower during 1993 were also used as input to the Yankee Atomic Electric Company's "AEOLUS" computer program (Ref. 8). This computer program calculated the atmospheric dispersion and deposition factors used in the "YODA"-series of computer programs to calculate maximum individual doses. These various dispersion (X/Q) and deposition (D/Q) factors are presented in Appendix B of this report.

The maximum individual doses resulting from radioactive particulates, iodines and tritium released in gaseous effluents are presented in Tables 1.2-1 through 1.2-5. These tables cover the individual calendar quarters and total calendar year, respectively. Doses resulting from releases of noble gases are addressed independently in the PNPS Technical Specifications. Therefore, none of these tables for maximum individual doses include any dose contributions from noble gases. The presentation and analysis of doses resulting from noble gases are addressed in Section 1.3 of this report.

Tables 1.2-1 through 1.2-5 summarize the maximum total body and organ doses for the adult, teen, child and infant age classes resulting from the major gaseous exposure pathways. These tables present the dose data according to specific receptor location and the exposure pathways assumed to occur at that location. For example, the second column of the tables presents the information for the hypothetical maximum-exposed individual at the most restrictive site boundary location, where only inhalation and ground deposition exposure pathways are assumed to occur. Since this is a shoreline location effectively controlled by Boston Edison Company, the other pathways of garden vegetable production, milk production and meat production are assumed not to occur. Doses for other offsite locations not under Boston Edison control, where other exposure pathways can and do occur, are presented in subsequent columns of the tables, and represent the potential maximum doses to individuals at these locations.

Radioactivity released in gaseous effluents from PNPS during 1993 resulted in a maximum total body dose (teen age class) of $1.66E-01$ mrem. The maximum organ dose (child age class, thyroid) was $2.54E+00$ mrem. Both of these doses occurred to hypothetical individuals at the shoreline 80 meters north of the PNPS Reactor Building, an area effectively under Boston Edison Control. For the more "realistic" individuals at offsite locations, the maximum total body dose was $9.78E-03$ mrem (child age class at a location 870 meters [0.5 miles] southeast of the Reactor Building yielding garden vegetables), while the maximum organ dose was $7.53E-01$ mrem (infant thyroid at a location 3970 meters [2.5 miles] west-southwest, yielding vegetables and cow and goat milk).

Table 1.2-1

MAXIMUM INDIVIDUAL ORGAN DOSE AT RECEPTOR LOCATION -- (mrem)
 From Gaseous Release Period: January - March 1993

Receptor:	Bound	Cow Goat	Cow Meat	Garden	Resident	Meat
Direction:	ENE	WSW	W	SE	ESE	S
Distance:	130m	3970m	5770m	870m	800m	3800m
Pathway*:	DI	DIVCG	DIVCM	DIV	DI	DIVM
Age Class: Adult						
Bone	1.94E-02	1.37E-03	3.30E-04	1.20E-02	9.16E-04	9.66E-04
Liver	3.64E-02	4.14E-04	1.02E-04	2.35E-03	1.46E-03	1.59E-04
Kidney	3.76E-02	5.27E-04	1.22E-04	2.43E-03	1.50E-03	1.70E-04
Lung	5.07E-02	2.20E-04	7.40E-05	2.47E-03	1.89E-03	1.51E-04
GI-LLI	3.88E-02	4.38E-04	1.23E-04	3.95E-03	1.53E-03	2.82E-04
Thyroid	3.43E-01	5.77E-02	9.93E-03	4.36E-02	1.08E-02	6.12E-03
W Body	3.56E-02	4.13E-04	1.10E-04	3.24E-03	1.44E-03	2.27E-04
Age Class: Teen						
Bone	2.09E-02	2.15E-03	4.83E-04	1.70E-02	9.61E-04	1.34E-03
Liver	3.72E-02	5.98E-04	1.29E-04	2.56E-03	1.49E-03	1.67E-04
Kidney	3.88E-02	7.93E-04	1.63E-04	2.62E-03	1.54E-03	1.75E-04
Lung	6.13E-02	2.68E-04	8.52E-05	2.85E-03	2.20E-03	1.68E-04
GI-LLI	3.92E-02	5.22E-04	1.36E-04	4.26E-03	1.55E-03	2.93E-04
Thyroid	4.37E-01	8.81E-02	1.44E-02	3.98E-02	1.36E-02	5.27E-03
W Body	3.60E-02	5.40E-04	1.33E-04	3.71E-03	1.45E-03	2.54E-04
Age Class: Child						
Bone	2.22E-02	4.88E-03	1.06E-03	3.67E-02	1.00E-03	2.89E-03
Liver	3.47E-02	9.57E-04	1.95E-04	3.33E-03	1.41E-03	2.15E-04
Kidney	3.61E-02	1.25E-03	2.44E-04	3.36E-03	1.45E-03	2.21E-04
Lung	5.55E-02	3.60E-04	1.09E-04	3.47E-03	2.03E-03	2.02E-04
GI-LLI	3.44E-02	5.51E-04	1.46E-04	4.44E-03	1.40E-03	2.89E-04
Thyroid	5.30E-01	1.73E-01	2.77E-02	5.82E-02	1.64E-02	7.81E-03
W Body	3.37E-02	8.87E-04	2.08E-04	5.55E-03	1.38E-03	3.84E-04
Age Class: Infant						
Bone	1.88E-02	4.54E-03	5.22E-04	6.37E-04	8.99E-04	4.53E-05
Liver	2.65E-02	1.70E-03	2.55E-04	8.04E-04	1.15E-03	5.40E-05
Kidney	2.68E-02	1.81E-03	2.79E-04	8.11E-04	1.16E-03	5.45E-05
Lung	4.55E-02	3.07E-04	5.92E-05	1.18E-03	1.71E-03	7.39E-05
GI-LLI	2.52E-02	3.99E-04	6.52E-05	7.77E-04	1.11E-03	5.15E-05
Thyroid	4.82E-01	4.06E-01	6.16E-02	1.01E-02	1.50E-02	8.33E-04
W Body	2.52E-02	9.56E-04	1.45E-04	7.79E-04	1.11E-03	5.19E-05

* Pathway designations are as follows:

D = Deposition (Ground Plane)	C = Cow Milk
I = Inhalation	G = Goat Milk
V = Vegetable Garden	M = Meat

Table 1.2-2

MAXIMUM INDIVIDUAL ORGAN DOSE AT RECEPTOR LOCATION -- (mrem)
 From Gaseous Release Period: April - June 1993

Receptor:	Bound	Cow Goat	Cow Meat	Garden	Meat	Resident
Direction:	NNE	WSW	W	SE	S	SE
Distance:	100m	3970m	5770m	870m	3800m	790m
Pathway*:	DI	DIVCG	DIVCM	DIV	DIVM	DI

Age Class: Adult

Bone	4.74E-02	3.33E-04	1.95E-04	1.21E-03	5.07E-04	6.81E-04
Liver	5.79E-02	2.19E-04	7.68E-05	1.20E-03	1.73E-04	8.47E-04
Kidney	5.80E-02	2.14E-04	7.91E-05	1.16E-03	1.68E-04	8.50E-04
Lung	6.11E-02	1.47E-04	5.84E-05	1.15E-03	1.60E-04	8.97E-04
GI-LLI	5.80E-02	1.93E-04	8.84E-05	1.28E-03	2.35E-04	8.50E-04
Thyroid	1.40E-01	1.18E-02	4.12E-03	9.44E-03	2.66E-03	2.10E-03
W Body	5.77E-02	2.05E-04	7.74E-05	1.20E-03	1.89E-04	8.44E-04

Age Class: Teen

Bone	4.75E-02	5.16E-04	2.85E-04	1.52E-03	6.95E-04	6.84E-04
Liver	5.81E-02	2.95E-04	9.40E-05	1.29E-03	1.83E-04	8.50E-04
Kidney	5.83E-02	2.87E-04	9.81E-05	1.23E-03	1.73E-04	8.55E-04
Lung	6.31E-02	1.73E-04	6.49E-05	1.24E-03	1.72E-04	9.29E-04
GI-LLI	5.81E-02	2.22E-04	9.51E-05	1.35E-03	2.40E-04	8.51E-04
Thyroid	1.61E-01	1.80E-02	5.95E-03	8.55E-03	2.29E-03	2.44E-03
W Body	5.78E-02	2.39E-04	8.70E-05	1.26E-03	1.98E-04	8.46E-04

Age Class: Child

Bone	4.78E-02	1.16E-03	6.30E-04	2.78E-03	1.47E-03	6.87E-04
Liver	5.68E-02	4.41E-04	1.33E-04	1.58E-03	2.23E-04	8.31E-04
Kidney	5.71E-02	4.23E-04	1.37E-04	1.48E-03	2.04E-04	8.34E-04
Lung	6.10E-02	2.28E-04	7.93E-05	1.45E-03	1.95E-04	8.96E-04
GI-LLI	5.65E-02	2.58E-04	9.98E-05	1.51E-03	2.40E-04	8.26E-04
Thyroid	1.78E-01	3.52E-02	1.14E-02	1.21E-02	3.34E-03	2.69E-03
W Body	5.65E-02	3.30E-04	1.21E-04	1.52E-03	2.54E-04	8.26E-04

Age Class: Infant

Bone	4.75E-02	1.15E-03	3.18E-04	5.84E-04	8.89E-05	6.83E-04
Liver	5.28E-02	6.38E-04	1.53E-04	6.55E-04	9.54E-05	7.66E-04
Kidney	5.28E-02	5.27E-04	1.44E-04	6.56E-04	9.56E-05	7.67E-04
Lung	5.60E-02	2.03E-04	5.11E-05	6.99E-04	1.07E-04	8.17E-04
GI-LLI	5.24E-02	2.02E-04	5.19E-05	6.50E-04	9.45E-05	7.60E-04
Thyroid	1.64E-01	8.23E-02	2.55E-02	2.13E-03	3.90E-04	2.47E-03
W Body	5.25E-02	3.29E-04	8.74E-05	6.51E-04	9.46E-05	7.61E-04

* Pathway designations are as follows:

D = Deposition (Ground Plane)	C = Cow Milk
I = Inhalation	G = Goat Milk
V = Vegetable Garden	M = Meat

Table 1.2-3

MAXIMUM INDIVIDUAL ORGAN DOSE AT RECEPTOR LOCATION -- (mrem)
From Gaseous Release Period: July - September 1993

Receptor:	Bound	Cow Goat	Cow Meat	Garden	Meat	Resident
Direction:	NE	WSW	W	SE	S	SE
Distance:	110m	3970m	5770m	870m	3800m	790m
Pathway*:	DI	DIVCG	DIVCM	DIV	DIVM	DI
Age Class: Adult						
Bone	3.22E-03	4.10E-04	2.05E-04	8.16E-04	3.67E-04	3.00E-05
Liver	4.79E-02	3.17E-04	1.30E-04	1.14E-03	1.51E-04	3.82E-04
Kidney	4.95E-02	3.83E-04	1.56E-04	1.17E-03	1.60E-04	3.94E-04
Lung	5.53E-02	1.95E-04	8.41E-05	1.17E-03	1.34E-04	4.38E-04
GI-LLI	4.88E-02	2.75E-04	1.23E-04	1.28E-03	1.89E-04	3.89E-04
Thyroid	4.46E-01	3.53E-02	1.40E-02	1.06E-02	6.55E-03	3.37E-03
W Body	4.65E-02	2.76E-04	1.18E-04	1.15E-03	1.63E-04	3.72E-04
Age Class: Teen						
Bone	4.24E-03	6.66E-04	3.08E-04	1.21E-03	5.08E-04	3.77E-05
Liver	4.90E-02	4.44E-04	1.69E-04	1.26E-03	1.60E-04	3.90E-04
Kidney	5.12E-02	5.59E-04	2.13E-04	1.29E-03	1.66E-04	4.07E-04
Lung	6.19E-02	2.36E-04	9.55E-05	1.32E-03	1.48E-04	4.87E-04
GI-LLI	4.94E-02	3.29E-04	1.36E-04	1.41E-03	1.94E-04	3.93E-04
Thyroid	5.69E-01	5.38E-02	2.02E-02	1.03E-02	5.61E-03	4.29E-03
W Body	4.71E-02	3.53E-04	1.42E-04	1.27E-03	1.74E-04	3.76E-04
Age Class: Child						
Bone	5.53E-03	1.56E-03	6.94E-04	2.83E-03	1.10E-03	4.73E-05
Liver	4.37E-02	7.06E-04	2.59E-04	1.73E-03	2.14E-04	3.49E-04
Kidney	4.56E-02	8.77E-04	3.23E-04	1.76E-03	2.17E-04	3.63E-04
Lung	5.47E-02	3.36E-04	1.28E-04	1.77E-03	1.86E-04	4.31E-04
GI-LLI	4.24E-02	4.04E-04	1.56E-04	1.81E-03	2.15E-04	3.39E-04
Thyroid	6.91E-01	1.06E-01	3.89E-02	1.47E-02	8.28E-03	5.20E-03
W Body	4.21E-02	5.58E-04	2.17E-04	1.79E-03	2.46E-04	3.36E-04
Age Class: Infant						
Bone	4.28E-03	1.71E-03	4.58E-04	3.28E-03	2.32E-05	3.79E-05
Liver	2.65E-02	1.14E-03	3.50E-04	1.84E-04	3.52E-05	2.13E-04
Kidney	2.70E-02	1.19E-03	3.78E-04	1.87E-04	3.57E-05	2.17E-04
Lung	3.67E-02	2.78E-04	6.42E-05	2.50E-04	4.76E-05	2.90E-04
GI-LLI	2.44E-02	3.14E-04	7.22E-05	1.71E-04	3.26E-05	1.97E-04
Thyroid	6.22E-01	2.47E-01	8.68E-02	4.02E-03	8.19E-04	4.68E-03
W Body	2.47E-02	6.30E-04	1.81E-04	1.73E-04	3.31E-05	2.00E-04

* Pathway designations are as follows:

D = Deposition (Ground Plane)	C = Cow Milk
I = Inhalation	G = Goat Milk
V = Vegetable Garden	M = Meat

Table 1.2-4

MAXIMUM INDIVIDUAL ORGAN DOSE AT RECEPTOR LOCATION -- (mrem)
 From Gaseous Release Period: October - December 1993

Receptor:	Bound	Cow Goat	Garden	Cow Meat	Resident	Meat
Direction:	N	WSW	SE	W	SE	S
Distance:	80m	3970m	870m	5770m	790m	3800m
Pathway*:	DI	DIVCG	DIV	DIVCM	DI	DIVM
Age Class: Adult						
Bone	4.99E-03	1.00E-04	1.79E-03	5.11E-05	6.59E-05	1.52E-04
Liver	4.58E-02	8.68E-05	1.32E-03	4.50E-05	4.58E-04	7.67E-05
Kidney	4.89E-02	1.10E-04	1.39E-03	5.37E-05	4.85E-04	8.42E-05
Lung	5.35E-02	5.77E-05	1.31E-03	3.49E-05	5.26E-04	7.17E-05
GI-LLI	4.64E-02	8.23E-05	1.63E-03	4.68E-05	4.62E-04	1.01E-04
Thyroid	7.26E-01	9.36E-03	2.36E-02	3.55E-03	6.57E-03	2.85E-03
W Body	4.32E-02	7.54E-05	1.32E-03	4.14E-05	4.34E-04	7.94E-05
Age Class: Teen						
Bone	6.50E-03	1.64E-04	2.66E-03	7.78E-05	7.94E-05	2.15E-04
Liver	4.77E-02	1.19E-04	1.45E-03	5.57E-05	4.74E-04	8.04E-05
Kidney	5.19E-02	1.58E-04	1.53E-03	6.98E-05	5.12E-04	8.80E-05
Lung	6.13E-02	6.96E-05	1.50E-03	3.94E-05	5.96E-04	7.89E-05
GI-LLI	4.71E-02	9.89E-05	1.78E-03	5.18E-05	4.69E-04	1.04E-04
Thyroid	9.50E-01	1.43E-02	2.26E-02	5.14E-03	8.58E-03	2.52E-03
W Body	4.39E-02	9.76E-05	1.47E-03	4.89E-05	4.41E-04	8.54E-05
Age Class: Child						
Bone	8.38E-03	3.87E-04	6.20E-03	1.79E-04	9.63E-05	4.82E-04
Liver	4.29E-02	1.88E-04	1.98E-03	8.35E-05	4.28E-04	1.08E-04
Kidney	4.66E-02	2.47E-04	2.06E-03	1.04E-04	4.62E-04	1.16E-04
Lung	5.41E-02	9.97E-05	1.98E-03	5.38E-05	5.29E-04	1.03E-04
GI-LLI	3.98E-02	1.23E-04	2.16E-03	6.30E-05	4.01E-04	1.19E-04
Thyroid	1.19E+00	2.82E-02	3.31E-02	9.93E-03	1.08E-02	3.74E-03
W Body	3.96E-02	1.57E-04	2.09E-03	7.47E-05	3.99E-04	1.23E-04
Age Class: Infant						
Bone	6.68E-03	4.27E-04	6.94E-05	1.17E-04	8.10E-05	5.12E-06
Liver	2.73E-02	2.94E-04	2.40E-04	9.42E-05	2.79E-04	1.33E-05
Kidney	2.82E-02	3.30E-04	2.47E-04	1.06E-04	2.87E-04	1.37E-05
Lung	3.76E-02	8.08E-05	3.19E-04	2.48E-05	3.71E-04	1.79E-05
GI-LLI	2.30E-02	9.59E-05	2.07E-04	2.82E-05	2.40E-04	1.13E-05
Thyroid	1.09E+00	6.59E-02	8.39E-03	2.19E-02	9.80E-03	5.31E-04
W Body	2.37E-02	1.75E-04	2.12E-04	5.41E-05	2.47E-04	1.17E-05

* Pathway designations are as follows:

D = Deposition (Ground Plane)	C = Cow Milk
I = Inhalation	G = Goat Milk
V = Vegetable Garden	M = Meat

Table 1.2-5

MAXIMUM INDIVIDUAL ORGAN DOSE AT RECEPTOR LOCATION -- (mrem)
 From Gaseous Release Period: January - December 1993

Receptor:	Bound	Cow Goat	Cow Meat	Garden	Resident	Meat
Direction:	N	WSW	W	SE	ESE	S
Distance:	80m	3970m	5770m	870m	800m	3800m
Pathway*:	DI	DIVCG	DIVCM	DIV	DI	DIVM

Age Class: Adult

Bone	6.53E-02	2.00E-03	7.94E-04	1.26E-02	1.38E-03	1.94E-03
Liver	1.69E-01	1.04E-03	3.67E-04	5.61E-03	2.68E-03	5.59E-04
Kidney	1.75E-01	1.23E-03	4.31E-04	5.74E-03	2.75E-03	5.88E-04
Lung	2.10E-01	6.59E-04	2.64E-04	5.71E-03	3.16E-03	5.20E-04
GI-LLI	1.75E-01	9.98E-04	3.96E-04	7.33E-03	2.75E-03	8.01E-04
Thyroid	1.62E+00	1.07E-01	3.31E-02	7.81E-02	1.97E-02	1.93E-02
W Body	1.64E-01	9.71E-04	3.62E-04	6.25E-03	2.63E-03	6.55E-04

Age Class: Teen

Bone	7.01E-02	3.16E-03	1.17E-03	1.79E-02	1.44E-03	2.70E-03
Liver	1.73E-01	1.45E-03	4.65E-04	6.14E-03	2.73E-03	5.89E-04
Kidney	1.81E-01	1.78E-03	5.70E-04	6.23E-03	2.82E-03	6.10E-04
Lung	2.42E-01	7.95E-04	3.00E-04	6.48E-03	3.54E-03	5.75E-04
GI-LLI	1.77E-01	1.18E-03	4.36E-04	7.92E-03	2.77E-03	8.27E-04
Thyroid	2.08E+00	1.64E-01	4.79E-02	7.33E-02	2.51E-02	1.67E-02
W Body	1.66E-01	1.23E-03	4.29E-04	6.95E-03	2.65E-03	7.10E-04

Age Class: Child

Bone	7.51E-02	7.23E-03	2.61E-03	3.89E-02	1.50E-03	5.83E-03
Liver	1.60E-01	2.27E-03	6.96E-04	8.08E-03	2.57E-03	7.67E-04
Kidney	1.67E-01	2.76E-03	8.49E-04	8.11E-03	2.65E-03	7.78E-04
Lung	2.19E-01	1.10E-03	3.92E-04	8.15E-03	3.26E-03	7.05E-04
GI-LLI	1.56E-01	1.38E-03	4.88E-04	9.08E-03	2.52E-03	8.74E-04
Thyroid	2.54E+00	3.22E-01	9.23E-02	1.06E-01	3.04E-02	2.46E-02
W Body	1.54E-01	1.92E-03	6.53E-04	9.78E-03	2.50E-03	1.02E-03

Age Class: Infant

Bone	6.64E-02	7.15E-03	1.44E-03	1.17E-03	1.40E-03	1.34E-04
Liver	1.17E-01	3.63E-03	8.82E-04	1.71E-03	2.03E-03	1.73E-04
Kidney	1.18E-01	3.73E-03	9.48E-04	1.73E-03	2.05E-03	1.74E-04
Lung	1.70E-01	9.25E-04	2.07E-04	2.23E-03	2.65E-03	2.25E-04
GI-LLI	1.09E-01	1.05E-03	2.27E-04	1.63E-03	1.94E-03	1.63E-04
Thyroid	2.31E+00	7.53E-01	2.05E-01	2.34E-02	2.77E-02	2.91E-03
W Body	1.10E-01	2.06E-03	4.87E-04	1.64E-03	1.95E-03	1.65E-04

* Pathway designations are as follows:

D = Deposition (Ground Plane)	C = Cow Milk
I = Inhalation	G = Goat Milk
V = Vegetable Garden	M = Meat

1.3 Doses From Noble Gas Releases

Noble gas release data presented in Tables 1A, 1B, and 1C from the semiannual effluent release reports were used as input to the Yankee Atomic "YODA" computer programs to calculate radiation doses. Doses resulting from noble gas releases were calculated using 1993 meteorological data, as described in Section 1.2 of this report. The various dispersion (X/Q) factors calculated with the "AEOLUS" computer program and used to estimate doses from noble gases are presented in Appendix B of this report.

The maximum individual doses resulting from radioactive noble gases released in gaseous effluents are presented in Table 1.3-1 according to specific receptor location. This table includes all noble gas doses for the individual calendar quarters and total calendar year.

Noble gases released in gaseous effluents from PNPS during 1993 resulted in a maximum total body dose of $3.00E-01$ mrem. The maximum skin dose was $2.67E+00$ mrem. Both of these doses occurred to a hypothetical individual. The maximum total body dose occurred at the shoreline 100 meters (0.1 miles) north-northeast of the PNPS Reactor Building. The maximum skin dose occurred at the shoreline 80 meters (0.05 miles) north of the PNPS Reactor Building. Both of these areas are effectively under Boston Edison control. Doses to more "realistic" individuals at offsite locations would be lower than the doses for these hypothetical site boundary individuals.

Table 1.3-1

Maximum Doses From Noble Gas Releases During 1993

Release Period	Gamma Air Dose (Location)	Beta Air Dose (Location)	Whole Body Dose (Location)	Skin Dose (Location)
January through March	1.11E-01 mrad (0.1 mi. E)	4.83E-01 mrad (0.1 mi. ENE)	7.36E-02 mrem (0.1 mi. E)	4.37E-01 mrem (0.1 mi. ENE)
April through June	4.46E-02 mrad (0.1 mi. NNE)	1.41E-01 mrad (0.1 mi. NNE)	2.98E-02 mrem (0.1 mi. NNE)	1.44E-01 mrem (0.1 mi. NNE)
July through September	1.61E-01 mrad (0.1 mi. NNE)	1.09E+00 mrad (0.1 mi. NE)	1.07E-01 mrem (0.3 mi. NNE)	9.25E-01 mrem (0.1 mi. NE)
October through December	1.95E-01 mrad (0.1 mi. N)	1.79E+00 mrad (0.1 mi. N)	1.28E-01 mrem (0.1 mi. N)	1.47E+00 mrem (0.1 mi. N)
January through December	4.53E-01 mrad (0.1 mi. NNE)	3.15E+00 mrad (0.1 mi. N)	3.00E-01 mrem (0.1 mi. NNE)	2.67E+00 mrem (0.1 mi. N)

2.0 POPULATION AND AVERAGE INDIVIDUAL DOSES

PNPS Technical Specifications do not contain any limits or operational objectives related to population doses. However, NRC Regulatory Guide 1.21 (Ref. 9) recommends calculation of population and average individual doses to the total body as part of the overall assessment of radiological impact on man.

Total body doses to the entire population within 50 miles of Pilgrim Station resulting from radionuclides in effluents released offsite were calculated using the population distribution listed in Table 2.0-1. The values presented in this table are based on 1980 census data.

These cumulative population doses were also calculated using methods presented in the PNPS ODCM, NRC Regulatory Guide 1.109, NRC Regulatory Guide 1.111 and the Pilgrim Station Unit 1 Appendix I Evaluation. Population doses were calculated separately for: (1) liquid effluents; and, (2) gaseous effluents. Unlike the Technical Specification addressing doses to maximum exposed individuals resulting from the three types of releases addressed in Section 1 of this report, population doses for gaseous effluents combine the dose contributions from noble gases along with those from radioactive particulates, iodines and tritium. Also, in the case of population doses, average consumption and use factors for various pathways from Table E-4 of the PNPS ODCM are assumed, rather than the maximum use factors assumed for the maximum exposed individual.

Information related to liquid and gaseous effluent releases were obtained from the two semiannual Radioactive Effluent and Waste Disposal Reports (Ref. 5 and 6). These effluent release data were used as input to computer programs to calculate the resulting total body doses. The Yankee Atomic Electric Company "YODA"-series of computer programs was used to compile the dose contributions to the total body in each age class from major exposure pathways (Ref. 7).

In addition to population total body doses, doses to an average individual in the population were calculated. These average total body doses were estimated by dividing the total population dose (person-rem) by the total population of 4.18 million people within 50 miles of PNPS.

TABLE 2.0-1

POPULATION DISTRIBUTION BY DISTANCE AND DIRECTION

SECTOR	Distance Interval from Pilgrim Station - miles										0-50	
	0-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50		
N	0	0	0	0	0	0	0	0	0	0	3.09E4	3.09E4
NNE	0	0	0	0	0	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	5.30E2	3.48E3	0	0	0	4.01E3
E	0	0	0	0	0	0	0	3.29E3	3.41E2	0	0	3.63E3
ESE	0	0	1.50E1	0	0	0	0	5.88E3	1.31E4	0	0	1.90E4
SE	5.70E2	1.76E2	4.76E2	0	0	0	1.24E3	4.02E4	5.91E3	0	0	4.86E4
SSE	1.90E1	2.10E2	5.30E2	2.03E3	8.19E2	1.39E3	1.32E4	1.95E4	0	7.12E2	0	3.84E4
S	0	3.90E1	2.08E2	5.30E1	2.20E1	2.39E3	1.66E4	2.52E4	7.80E3	7.12E2	0	5.30E4
SSW	1.90E1	0	2.30E1	0	0	9.98E2	1.58E4	7.80E3	3.16E2	3.59E2	0	2.53E4
SW	0	3.90E1	1.23E2	6.50E1	3.49E2	4.97E2	1.28E4	1.42E5	4.64E4	4.65E4	0	2.49E5
WSW	0	7.70E1	2.36E2	3.00E0	2.17E2	2.52E3	1.18E4	5.04E4	1.37E5	1.85E5	0	3.87E5
W	5.80E1	9.50E1	4.75E2	1.25E3	4.52E3	9.56E3	1.76E4	6.05E4	1.42E5	3.78E5	0	6.14E5
WNW	1.17E2	0	0	0	7.11E2	1.03E4	2.83E4	1.65E5	1.13E5	1.08E5	0	4.25E5
NW	1.90E1	0	0	0	8.00E0	5.65E3	3.96E4	2.07E5	8.21E5	6.36E5	0	1.71E6
NNW	0	0	0	0	1.30E1	1.55E3	2.66E4	2.83E4	1.04E5	4.14E5	0	5.74E5
TOTAL	8.02E2	6.36E2	2.09E3	3.40E3	6.66E3	3.49E4	1.84E5	7.59E5	1.39E6	1.80E6	0	4.18E6

* Population distribution data based on 1980 Census Data

2.1 Doses From Liquid Effluent Releases

Population total body doses (person-rem) resulting from releases of radionuclides in liquid effluents are presented in Table 2.1-1. This table includes the doses for the four calendar quarters and entire year resulting from the various liquid exposure pathways. The corresponding average individual total body doses (mrem) are presented in Table 2.1-2.

Radioactivity released in liquid effluents from PNPS during 1993 resulted in a population total body dose of $7.95E-03$ person-rem. The corresponding average individual total body dose was $1.9\mu E-06$ mrem.

Again, it should be noted that the calculated dose for the entire year is less than the sum of the individual four quarters. This difference is due to the calculational methods and equations used to calculate dose from liquid effluents, as recommended by the NRC in Regulatory Guide 1.109 (Reference 2). A more detailed description of the difference can be found on Page 6, in the discussion of maximum individual doses from liquid effluent releases.

Table 2.1-1

Population Doses From Liquid Effluent Releases During 1993

Exposure Pathway	Population Total Body Dose (person-rem)				
	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Annual
Fish	1.24E-04	2.98E-03	2.06E-04	5.88E-05	2.49E-03
Shellfish	1.45E-04	5.06E-03	2.73E-04	1.06E-04	4.03E-03
Swimming	2.10E-07	4.51E-06	2.62E-07	7.76E-08	4.88E-10
Shoreline	2.87E-05	1.82E-03	1.11E-04	3.30E-05	1.43E-03
Total	2.98E-04	9.86E-03	5.90E-04	1.98E-04	7.95E-03

Table 2.1-2

Average Individual Doses From Liquid Effluent Releases During 1993

Exposure Pathway	Average Individual Total Body Dose (mrem)				
	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Annual
Fish	2.97E-08	7.13E-07	4.93E-08	1.41E-08	5.95E-07
Shellfish	3.47E-08	1.21E-06	6.53E-08	2.53E-08	9.64E-07
Swimming	5.02E-11	1.08E-09	6.26E-11	1.86E-11	1.17E-13
Shoreline	6.86E-09	4.35E-07	2.65E-08	7.89E-09	3.42E-07
Total	7.12E-08	2.36E-06	1.41E-07	4.73E-08	1.90E-06

2.2 Doses From Gaseous Effluent Releases

Population total body doses (person-rem) resulting from releases of radionuclides in gaseous effluents are presented in Table 2.2-1. This table includes the doses for the four calendar quarters and entire year resulting from the various gaseous exposure pathways. The corresponding average individual total body doses (mrem) are presented in Table 2.2-2.

Radioactivity released in gaseous effluents from PNPS during 1993 resulted in a population total body dose of $5.71\text{E-}01$ person-rem. The corresponding average individual total body dose was $1.36\text{E-}04$ mrem.

Table 2.2-1

Population Doses From Gaseous Effluent Releases During 1993

Exposure Pathway	Population Total Body Dose (person-rem)				
	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Annual
Noble Gas	1.16E-01	1.24E-01	2.03E-01	1.08E-01	5.49E-01
Ground Deposition	1.95E-03	3.10E-03	1.19E-03	1.64E-04	5.99E-03
Inhalation	4.41E-03	1.57E-03	3.67E-03	3.17E-03	1.29E-02
Vegetables	4.55E-04	2.26E-04	4.41E-04	2.00E-04	1.39E-03
Milk	4.17E-04	2.34E-04	5.94E-04	1.80E-04	1.48E-03
Meat	1.30E-05	8.16E-06	1.66E-05	7.23E-06	4.80E-05
Total	1.23E-01	1.29E-01	2.09E-01	1.12E-01	5.71E-01

Table 2.2-2

Average Individual Doses From Gaseous Effluent Releases During 1993

Exposure Pathway	Average Individual Total Body Dose (mrem)				
	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Annual
Noble Gas	2.77E-05	2.97E-05	4.84E-05	2.58E-05	1.31E-04
Ground Deposition	4.66E-07	7.41E-07	2.85E-07	3.92E-08	1.43E-06
Inhalation	1.05E-06	3.75E-07	8.78E-07	7.58E-07	3.08E-06
Vegetables	1.09E-07	5.40E-08	1.05E-07	4.78E-08	3.32E-07
Milk	9.97E-08	5.60E-08	1.42E-07	4.30E-08	3.54E-07
Meat	3.11E-09	1.95E-09	3.97E-09	1.73E-09	1.15E-08
Total	2.94E-05	3.09E-05	4.99E-05	2.67E-05	1.36E-04

3.0 OFFSITE DIRECT RADIATION MEASUREMENTS

PNPS Technical Specifications do not contain any limits or operational objectives related specifically to offsite radiation exposure. However, NRC Regulatory Guide 1.21 (Ref. 9) recommends calculation of direct radiation exposure as part of the overall assessment of radiological impact on man.

Thermoluminescent dosimeters (TLDs) are located at 79 sites beyond the boundary of the PNPS restricted/protected area. A number of these TLDs are actually located on Boston Edison property in close proximity to the station proper. The TLDs are collected on a quarterly basis and used to calculate the direct radiation exposure in milliRoentgen (mR) over the exposure period. These TLDs are grouped into four zones of increasing distances from the station. Average exposure values for each of these zones were calculated for each calendar quarter and the total year. The average exposure values (mR) for the four zones are presented in Table 3.0-1.

In addition to responding to direct radiation exposure, TLDs will also record radiation resulting from noble gases (plume and immersion exposure), particulate materials deposited on the ground, cosmic rays from outer space, and from naturally-occurring radioactivity in the soil and air. Typically, the exposure from cosmic rays and other natural radioactivity components is about 40 - 70 mrem/yr. As calculated in Sections 1.2 and 1.3 of this report, the direct radiation component of doses from PNPS effluent emissions are below 1 mrem/yr and would not be discernible above the natural radiation exposure levels.

The major source of direct radiation exposure from PNPS results from high energy nitrogen-16 gamma rays emitted from the turbine building. Although this material is enclosed in the process lines and not released into the environment, the direct radiation exposure and sky shine from this contained source accounts for the majority of the direct radiation dose, especially in close proximity to the station. Other sources of direct radiation exposure include radiation emitted from contained radioactive sources or radwaste at the facility. Despite these sources of direct radiation exposure at PNPS, increases in exposure from direct radiation are typically not observable above background radiation levels at locations beyond Boston Edison controlled property.

The average exposure values presented in Table 3.0-1 appear to indicate an elevation in direct radiation exposure in TLD Zone 1, those TLDs within 2 miles of PNPS. Most of this apparent elevation is due to increases in exposure levels measured at the TLD locations on Boston Edison property in close proximity to the station proper. For example, the annual exposure at TLD location OA, located at the Overlook Area near the PNPS I&S Building, was 402 mR for the entire year. This location is immediately adjacent to the station proper and overlooks the turbine building, therefore receiving the highest direct radiation and sky shine exposure.

Although the annual exposure at TLD location OA was 341 mR/yr over the average Zone 4 exposure rate, this area is not continuously occupied by members of the general public. When adjusted for such occupancy, a hypothetical member of the public who was at this location for 40 hours per year would only receive an incremental dose of 1.6 mrem over natural background radiation levels. At the nearest residence 800 meters (0.5 miles) southeast of the PNPS Reactor Building, the annual exposure was 65.7 ± 4.1 mR, which compares quite well to the Zone 4 annual average of 61.0 ± 7.0 mR.

3.0 OFFSITE DIRECT RADIATION MEASUREMENTS (continued)

Although some of the TLDs in close proximity to PNPS indicate increases in exposure levels from direct radiation, such increases are localized to areas under Boston Edison control. For members of the general public accessing Boston Edison controlled areas (e.g., Shorefront Recreation Area, I&S Building, Parking Lots, etc.), such increases in dose from direct radiation exposure are estimated as being less than 2 mrem/yr.

Table 3.0-1

AVERAGE TLD EXPOSURES BY DISTANCE ZONE DURING 1993

Period	Average Exposure \pm Standard Deviation (mR/period)							
	Zone 1*		Zone 2		Zone 3		Zone 4	
	0 km - 3 km		3 km - 8 km		8 km - 15 km		> 15 km	
	Avg	StD	Avg	StD	Avg	StD	Avg	StD
Qtr-1	21.9	\pm 18.1	14.9	\pm 2.9	14.3	\pm 1.8	14.5	\pm 1.6
Qtr-2	19.2	\pm 7.0	15.2	\pm 2.9	14.7	\pm 1.9	15.2	\pm 1.8
Qtr-3	21.9	\pm 15.8	15.5	\pm 2.8	15.1	\pm 1.9	15.6	\pm 1.9
Qtr-4	24.1	\pm 19.8	15.7	\pm 2.5	14.5	\pm 1.6	15.6	\pm 1.9
Year	87.4	\pm 64.0	61.4	\pm 10.9	58.7	\pm 7.0	61.0	\pm 7.0

* Zone 1 extends from the restricted/protected area boundary outward to 3 kilometers (2 miles).

4.0 PERCENT OF TECHNICAL SPECIFICATIONS LIMITS/OBJECTIVES

The PNPS Technical Specifications contain dose and concentration limits for radioactive effluents. In addition, operational objectives are also specified which, if met, ensure that radioactive releases are maintained as low as is reasonably achievable. The percentages of the PNPS Technical Specifications were determined from the doses calculated in Section 1, the liquid concentrations listed in the 1993 semiannual Effluent Release and Waste Disposal Reports, and the Technical Specifications limits/objectives listed in Tables 4.1-1 and 4.2-1.

The percent of applicable limits are provided as a supplement to the information provided in the two semiannual Radioactive Effluent and Waste Disposal Reports. The format for the percent applicable limits is modified from that prescribed in Regulatory Guide 1.21 (Ref. 9) to accommodate the Radioactive Effluents Technical Specifications (RETS) which became effective March 1, 1986. The percentages have been grouped according to whether the releases were via liquid or gaseous effluent pathways.

4.1 Liquid Effluent Releases

Liquid effluents concentration limits and dose objectives from PNPS Technical Specifications are shown in Table 4.1-1. The quarterly average concentrations from the 1993 semiannual Radioactive Effluent and Waste Disposal reports were used to calculate the percent concentration limits. The maximum quarterly and annual whole body and organ doses from Tables 1.1-1 through 1.1-5 were used to calculate the corresponding percentages shown in Table 4.1-1. The resulting concentrations and doses from Pilgrim Station's liquid releases during 1993 were a very small percentage of the corresponding limits and objectives.

Table 4.1-1

Percent of Technical Specifications Limits/Objectives
for Liquid Effluent Releases During 1993

- A. Fission and Activation Product Concentration Limit (MPCw)
PNPS Technical Specification 3.8.A.1
Limit: 10CFR20 Appendix B, Table II, Column 2 Value

Period	Value ($\mu\text{Ci/ml}$)	Fraction of Limit
1st Quarter	5.85E-09	9.10E-02%
2nd Quarter	1.00E-08	5.41E-02%
3rd Quarter	1.20E-09	7.91E-03%
4th Quarter	1.51E-09	9.87E-03%

- B. Tritium Average Concentration Limit
PNPS Technical Specification 3.8.A.1
Limit: 3.0E-03 $\mu\text{Ci/ml}$

Period	Value ($\mu\text{Ci/ml}$)	Fraction of Limit
1st Quarter	1.99E-08	6.64E-04%
2nd Quarter	1.60E-06	5.33E-02%
3rd Quarter	4.05E-07	1.35E-02%
4th Quarter	2.46E-09	8.19E-05%

- C. Dissolved and Entrained Gases Average Concentration Limit
PNPS Technical Specification 3.8.A.1
Limit: 2.0E-04 $\mu\text{Ci/ml}$

Period	Value ($\mu\text{Ci/ml}$)	Fraction of Limit
1st Quarter	NDA	--
2nd Quarter	1.25E-10	6.27E-05%
3rd Quarter	NDA	--
4th Quarter	NDA	--

- D. Quarterly Total Body Dose Objective
PNPS Technical Specification 7.2.A.1
Objective: 1.5 mrem Total Body Dose

Period	Value (mrem)	Fraction of Limit
1st Quarter	3.23E-05	2.15E-03%
2nd Quarter	1.43E-03	9.54E-02%
3rd Quarter	8.53E-05	5.69E-03%
4th Quarter	2.80E-05	1.86E-03%

Table 4.1-1 (continued)

Percent of Technical Specifications Limits/Objectives
for Liquid Effluent Releases During 1993

E. Annual Total Body Dose Objective
PNPS Technical Specification 7.2.A.2
Objective: 3 mrem Total Body Dose

Period	Value (mrem)	Fraction of Limit
Annual	1.14E-03	3.79E-03%

F. Quarterly Organ Dose Objective
PNPS Technical Specification 7.2.A.1
Objective: 5 mrem Organ Dose

Period	Value (mrem)	Fraction of Limit
1st Quarter	1.26E-04	2.52E-03%
2nd Quarter	5.11E-03	1.02E-01%
3rd Quarter	2.41E-04	4.82E-03%
4th Quarter	7.28E-05	1.46E-03%

G. Annual Organ Dose Objective
PNPS Technical Specification 7.2.A.2
Objective: 10 mrem Organ Dose

Period	Value (mrem)	Fraction of Limit
Annual	3.91E-03	3.91E-02%

4.2 Gaseous Effluent Releases

Organ dose limits and objectives for the maximum individual from radioactive iodines, particulates, and tritium from PNPS Technical Specifications are shown in Table 4.2-1. The maximum quarterly and annual organ doses from Tables 1.2-1 through 1.2-5 were used to calculate the percentages shown in Table 4.2-1. The resulting organ doses from Pilgrim Station's gaseous releases during 1993 were a small percentage of the corresponding limits and objectives.

Dose limits and objectives for exposures arising from noble gases are also presented in Table 4.2-1. The maximum quarterly air doses and annual whole body and skin doses listed in Table 1.3-1 were used to calculate the percentage values shown in Table 4.2-1. All doses resulting from noble gas exposure were a small percentage of the applicable limits and objectives.

Table 4.2-1

Percent of Technical Specifications Limits/Objectives
for Gaseous Effluent Releases During 1993

- A. Annual Dose Rate Limit - Noble Gases
PNPS Technical Specification 3.8.D.1.a
Limit: 500 mrem/yr Total Body Dose

Period	Value (mrem/yr)	Fraction of Limit
Annual	3.00E-01	6.00E-02%

- B. Annual Dose Rate Limit - Noble Gases
PNPS Technical Specification 3.8.D.1.a
Limit: 3000 mrem/yr Skin Dose

Period	Value (mrem/yr)	Fraction of Limit
Annual	2.67E+00	8.90E-02%

- C. Annual Dose Rate Limit - Particulates, Iodines, & Tritium
PNPS Technical Specification 3.8.D.1.b
Limit: 1500 mrem/yr Organ Dose

Period	Value (mrem/yr)	Fraction of Limit
Annual	2.54E+00	1.69E-01%

- D. Quarterly Dose Objective - Noble Gas Gamma Air Dose
PNPS Technical Specification 7.3.A.1
Objective: 5 mrad Gamma Air Dose

Period	Value (mrad)	Fraction of Limit
1st Quarter	1.11E-01	2.22E+00%
2nd Quarter	4.46E-02	8.92E-01%
3rd Quarter	1.61E-01	3.22E+00%
4th Quarter	1.95E-01	3.90E+00%

- E. Annual Dose Objective - Noble Gas Gamma Air Dose
PNPS Technical Specification 7.3.A.2
Objective: 10 mrad Gamma Air Dose

Period	Value (mrad)	Fraction of Limit
Annual	4.53E-01	4.53E+00%

Table 4.2-1 (continued)

Percent of Technical Specifications Limits/Objectives
for Gaseous Effluent Releases During 1993

- F. Quarterly Dose Objective - Noble Gas Beta Air Dose
PNPS Technical Specification 7.3.A.1
Objective: 10 mrad Beta Air Dose

Period	Value (mrad)	Fraction of Limit
1st Quarter	4.83E-01	4.83E+00%
2nd Quarter	1.41E-01	1.41E+00%
3rd Quarter	1.09E+00	1.09E+01%
4th Quarter	1.79E+00	1.79E+01%

- G. Annual Dose Objective - Noble Gas Beta Air Dose
PNPS Technical Specification 7.3.A.2
Objective: 20 mrad Beta Air Dose

Period	Value (mrad)	Fraction of Limit
Annual	3.15E+00	1.58E+01%

- H. Quarterly Dose Objective - Particulates, Iodines, & Tritium
PNPS Technical Specification 7.4.A.1
Objective: 7.5 mrem Organ Dose

Period	Value (mrem)	Fraction of Limit
1st Quarter	5.30E-01	7.07E+00%
2nd Quarter	1.78E-01	2.37E+00%
3rd Quarter	6.91E-01	9.21E+00%
4th Quarter	1.19E+00	1.59E+01%

- I. Annual Dose Objective - Particulates, Iodines, & Tritium
PNPS Technical Specification 7.4.A.2
Objective: 15 mrem Organ Dose

Period	Value (mrem)	Fraction of Limit
Annual	2.54E+00	1.69E+01%

5.0 REFERENCES

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2. U.S. Nuclear Regulatory Commission, Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10CFR50, Appendix I," Revision 1, October 1977.
3. U.S. Nuclear Regulatory Commission, Regulatory Guide 1.111, "Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors," July 1977.
4. Boston Edison Company, "Pilgrim Station Unit 1 Appendix I Evaluation," April 1977.
5. Boston Edison Company, Pilgrim Nuclear Power Station, "Radioactive Effluent and Waste Disposal Report including Meteorological Data for January 1 through June 30, 1993," August 1993.
6. Boston Edison Company, Pilgrim Nuclear Power Station, "Radioactive Effluent and Waste Disposal Report including Meteorological Data for July 1 through December 31, 1993," February 1994.
7. YAEC Calculation No. BEC-072, entitled "Dose Assessment for January-December 1993 Effluent Report," March 21, 1994.
8. J.N. Hamawi, "AEOLUS," Yankee Atomic Electric Company, YAEC - 1120, January 1977.
9. U.S. Nuclear Regulatory Commission, Regulatory Guide 1.21, "Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants," June 1974.

APPENDIX A

Effluent Release Information

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PILGRIM NUCLEAR POWER STATION
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

SUPPLEMENTAL INFORMATION 1993
January - June 1993

Facility Pilgrim Nuclear Power Station Licensee DPR-35

1. Regulatory Limits

- a. Fission and activation gases: 500 mrem/yr total body and 3000 mrem/yr for skin at site boundary.
- b,c. Iodines, particulates with half-lives > 8 days, tritium: 1500 mrem/yr to any organ at site boundary.
- d. Liquid effluents: 0.06 mrem/month for total body and 0.20 mrem/month for any organ (without radwaste treatment).

2. Maximum Permissible Concentration

- a. Fission and activation gases: 10 CFR 20 Appendix B Table II
- b. Iodines: 10 CFR 20 Appendix B Table II
- c. Particulates, half-lives > 8 days: 10 CFR 20 Appendix B Table II
- d. Liquid effluents: 2E-4 μ Ci/ml for entrained noble gases; 10CFR20 Appendix B Table II values for all other radionuclides.

3. Average Energy: Not applicable

4. Measurements and Approximations of Total Radioactivity

- a. Fission and activation gases: High-purity Ge gamma spectroscopy for
- b. Iodines: all gamma emitters; radiochemistry
- c. Particulates: analysis for H-3, Fe-55 (liquids only),
- d. Liquid effluents: Sr-89, and Sr-90.

5. Batch Releases

a. Liquid:

- 1. Number of batch releases:
- 2. Total time period for batch releases (minutes):
- 3. Maximum time period for a batch release (minutes):
- 4. Average time period for batch releases (minutes):
- 5. Minimum time period for a batch release (minutes):
- 6. Average stream flow during periods of release of effluents into a flowing stream (liters/min):

	Quarter	
	1st	2nd
	19	66
	5.05E+2	3.13E+3
	4.00E+1	1.15E+2
	2.66E+1	4.74E+1
	2.00E+1	2.00E+1
	1.17E+6	5.21E+5

b. Gaseous: Not applicable

6. Abnormal Releases

- a. Liquid: None
- b. Gaseous: None

TABLE 1A
 PILGRIM NUCLEAR POWER STATION
 EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1993
 GASEOUS EFFLUENTS-SUMMATION OF ALL RELEASES
 January - June 1993

Unit	Quarter 1st	Quarter 2nd	Est.Total Error, %
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A. Fission and Activation Gases

1. Total release	Ci	2.65E+2	1.60E+2	22%
2. Average release rate for period	uCi/sec	3.36E+1	2.03E+1	
3. Percent of Technical Specification limit	%	*	*	

B. Iodines

1. Total iodine-131 release	Ci	1.23E-2	2.94E-3	20%
2. Average release rate for period	uCi/sec	1.56E-3	3.73E-4	
3. Percent of Technical Specification limit	%	*	*	

C. Particulates

1. Particulates with half-lives > 8 days	Ci	5.57E-3	1.90E-3	21%
2. Average release rate for period	uCi/sec	7.06E-4	2.41E-4	
3. Percent of Technical Specification limit	%	*	*	
4. Gross alpha radioactivity	Ci	3.10E-7	NDA	

D. Tritium

1. Total release rate for period	Ci	6.19E+0	2.14E+0	20%
2. Average release rate for period	uCi/sec	7.85E-1	2.72E-1	
3. Percent of Technical Specification limit	%	*	*	

Notes for Table 1A:

* Percent of Technical Specification Limit Values in Sections A.3, B.3, C.3, and D.3 are based on dose assessments not performed as part of this report. These will be provided in the annual supplemental dose assessment report to be issued prior to April 1, 1994.

1. NDA is no detectable activity.
2. LLD for gross alpha listed as NDA is 1E-11 μ Ci/ml.

TABLE 1B
 PILGRIM NUCLEAR POWER STATION
 EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT 1993
 GASEOUS EFFLUENTS-ELEVATED RELEASE
 January - June 1993

Nuclides Released	Unit	CONTINUOUS MODE		BATCH MODE	
		Quarter 1st	Quarter 2nd	Quarter N/A	Quarter N/A

1. Fission and Activation Gases

Kr-85m	Ci	8.80E+0	7.01E+0		
Kr-87	Ci	4.03E+0	1.90E+1		
Kr-88	Ci	5.48E+0	1.80E+1		
Xe-133	Ci	1.95E+1	2.41E+0		
Xe-135	Ci	6.76E+0	3.95E+1		
Xe-135m	Ci	2.95E+1	1.45E+1		
Xe-138	Ci	9.88E+1	4.69E+1		
Total for period	Ci	1.73E+2	1.47E+2		

2. Iodines

I-131	Ci	8.25E-3	1.67E-3		
I-133	Ci	3.30E-2	8.48E-3		
Total for period	Ci	4.13E-2	1.02E-2		

3. Particulates

Mn-54	Ci	3.40E-6	1.21E-6		
Co-60	Ci	3.85E-6	7.57E-6		
Sr-89	Ci	8.25E-4	9.87E-4		
Sr-90	Ci	5.37E-6	2.45E-6		
Cs-134	Ci	NDA	NDA		
Cs-137	Ci	1.46E-5	1.39E-5		
Ba/La-140	Ci	4.97E-4	4.87E-4		
Total for period	Ci	1.35E-3	1.50E-3		

4. Tritium

H-3	Ci	8.82E-2	8.41E-2		
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Notes for Table 1B:

1. NDA is no detectable activity.
2. LLDs for nuclides listed as NDA are as follows:

Fission gases: 1E-4 μ Ci/ml
 Iodines: 1E-12 μ Ci/ml
 Particulates: 1E-11 μ Ci/ml

TABLE 1C
 PILGRIM NUCLEAR POWER STATION
 EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1993
 GASEOUS EFFLUENTS-GROUND LEVEL RELEASE
 January - June 1993

Nuclides Released	CONTINUOUS MODE		BATCH MODE		
	Unit	Quarter	Quarter	Quarter	Quarter
		1st	2nd	N/A	N/A

1. Fission and Activation Gases

Kr-85m	Ci	NDA	NDA		
Kr-87	Ci	NDA	NDA		
Kr-88	Ci	NDA	NDA		
Xe-133	Ci	NDA	NDA		
Xe-135	Ci	7.07E+1	1.20E+1		
Xe-135m	Ci	NDA	NDA		
Xe-138	Ci	2.15E-1	1.10E+0		
Total for period	Ci	9.22E+1	1.31E+1		

2. Iodines

I-131	Ci	4.03E-3	1.27E-3		
I-133	Ci	3.11E-2	2.59E-3		
Total for period	Ci	3.51E-2	3.86E-3		

3. Particulates

Co-60	Ci	4.98E-5	8.61E-5		
Sr-89	Ci	2.10E-3	1.68E-4		
Sr-90	Ci	1.11E-5	NDA		
Cs-134	Ci	NDA	2.38E-5		
Cs-137	Ci	1.30E-5	NDA		
Ba/La-140	Ci	2.02E-3	1.24E-4		
Ce-141	Ci	2.52E-5	NDA		
Total for period	Ci	4.22E-3	4.02E-4		

4. Tritium

H-3	Ci	6.10E+0	2.06E+0		
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Notes for Table 1C:

1. NDA is no detectable activity.
2. LLDs for nuclides listed as NDA are as follows:

Fission gases: 1E-4 μ Ci/ml
 Iodines: 1E-12 μ Ci/ml
 Particulates: 1E-11 μ Ci/ml

TABLE 2A
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1993
LIQUID EFFLUENTS-SUMMATION OF ALL RELEASES
January - June 1993

Unit	Quarter 1st	Quarter 2nd	Est.Total Error,%
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A. Fission and Activation Products

1. Total release (not including tritium, noble gases, or alpha)	Ci	3.46E-3	1.64E-2	12%
2. Average diluted concentration during period	uCi/ml	5.85E-9	1.00E-8	
3. Percent of applicable MPC limit*	%	9.10E-2	5.41E-2	

B. Tritium

1. Total release	Ci	1.18E-2	2.61E+0	9.4%
2. Average diluted concentration during period	uCi/ml	1.99E-8	1.60E-6	
3. Percent of applicable MPC limit*	%	6.64E-4	5.33E-2	

C. Dissolved and Entrained Gases

1. Total release	Ci	NDA	2.04E-4	16%
2. Average release rate for period during period	uCi/ml	NDA	1.25E-10	
3. Percent of applicable MPC limit*	%	--	6.27E-5	

D. Gross Alpha Radioactivity

1. Total release	Ci	NDA	NDA	34%
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E. Volume of Waste Released (prior to dilution)

liters	3.25E+4	1.23E+6	5.7%
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F. Volume of Dilution Water Used During Period

liters	5.92E+8	1.63E+9	10%
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Notes for Table 2A:

* Additional percent of Technical Specification Limit Values based on resulting dose will be provided in the annual supplemental dose assessment report to be issued prior to April 1, 1994.

1. NDA is no detectable activity.
2. LLD for gross alpha listed as NDA is $1E-7 \mu\text{Ci/ml}$.
3. LLD for dissolved and entrained gases listed as NDA is $1E-5 \mu\text{Ci/ml}$.

TABLE 2B
 PILGRIM NUCLEAR POWER STATION
 EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT 1993
 LIQUID EFFLUENTS
 January - June 1993

Nuclides Released	Unit	CONTINUOUS MODE		BATCH MODE	
		Quarter	Quarter	Quarter	Quarter
		Not Applicable		1st	2nd

1. Fission and activation products

Na-24	Ci	N/A	N/A	NDA	5.72E-5
Cr-51	Ci	N/A	N/A	NDA	1.70E-4
Mn-54	Ci	N/A	N/A	4.63E-5	2.66E-3
Fe-55	Ci	N/A	N/A	1.97E-4	7.62E-4
Fe-59	Ci	N/A	N/A	NDA	1.84E-4
Co-58	Ci	N/A	N/A	7.62E-6	4.84E-4
Co-60	Ci	N/A	N/A	2.90E-4	9.56E-3
Zn-65	Ci	N/A	N/A	NDA	NDA
As-76	Ci	N/A	N/A	NDA	1.64E-4
Sr-89	Ci	N/A	N/A	1.07E-3	4.30E-4
Sr-90	Ci	N/A	N/A	1.77E-5	4.85E-5
Y-91m	Ci	N/A	N/A	6.32E-7	NDA
Zr/Nb-95	Ci	N/A	N/A	NDA	NDA
Mo-99/Tc-99m	Ci	N/A	N/A	NDA	2.48E-5
Ag-110m	Ci	N/A	N/A	4.16E-6	1.76E-5
Sb-122	Ci	N/A	N/A	NDA	NDA
I-131	Ci	N/A	N/A	6.38E-6	2.18E-5
I-133	Ci	N/A	N/A	NDA	6.01E-5
Cs-137	Ci	N/A	N/A	2.03E-4	4.85E-4
Ba/La-140	Ci	N/A	N/A	1.62E-3	1.03E-3
Ce-141	Ci	N/A	N/A	NDA	2.16E-4
Total for period	Ci	N/A	N/A	3.46E-3	1.64E-2

2. Dissolved and entrained gases

Xe-133	Ci	N/A	N/A	NDA	6.94E-5
Xe-135	Ci	N/A	N/A	NDA	1.35E-4
Total for period	Ci	N/A	N/A	NDA	2.04E-4

Notes for Table 2B:

- 1) NDA is no detectable activity.
- 2) LLDs for nuclides listed as NDA are as follows:

Sr-89	5E-8 $\mu\text{Ci/ml}$
I-131	1E-6 $\mu\text{Ci/ml}$
Xe-133, Xe-135	1E-5 $\mu\text{Ci/ml}$
All others	5E-7 $\mu\text{Ci/ml}$

PILGRIM NUCLEAR POWER STATION
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

SUPPLEMENTAL INFORMATION 1993
July - December 1993

Facility Pilgrim Nuclear Power Station Licensee DPR-35

1. Regulatory Limits

- a. Fission and activation gases: 500 mrem/yr total body and 3000 mrem/yr for skin at site boundary.
- b,c. Iodines, particulates with half-lives > 8 days, tritium: 1500 mrem/yr to any organ at site boundary.
- d. Liquid effluents: 0.06 mrem/month for total body and 0.20 mrem/month for any organ (without radwaste treatment).

2. Maximum Permissible Concentration

- a. Fission and activation gases: 10 CFR 20 Appendix B Table II
- b. Iodines: 10 CFR 20 Appendix B Table II
- c. Particulates, half-lives > 8 days: 10 CFR 20 Appendix B Table II
- d. Liquid effluents: 2E-4 µCi/ml for entrained noble gases; 10CFR20 Appendix B Table II values for all other radionuclides.

3. Average Energy: Not applicable

4. Measurements and Approximations of Total Radioactivity

- a. Fission and activation gases: High-purity Ge gamma spectroscopy for
- b. Iodines: all gamma emitters; radiochemistry
- c. Particulates: analysis for H-3, Fe-55 (liquids only),
- d. Liquid effluents: Sr-89, and Sr-90.

5. Batch Releases

- a. Liquid:
 - 1. Number of batch releases:
 - 2. Total time period for batch releases (minutes):
 - 3. Maximum time period for a batch release (minutes):
 - 4. Average time period for batch releases (minutes):
 - 5. Minimum time period for a batch release (minutes):
 - 6. Average stream flow during periods of release of effluents into a flowing stream (liters/min):

Quarter	
3rd	4th
49	11
1.66E+3	3.53E+2
90	60
33.9	32.1
20	20
1.16E+6	1.18E+6

- b. Gaseous: Not applicable

6. Abnormal Releases

- a. Liquid: None
- b. Gaseous: None

TABLE 1A
 PILGRIM NUCLEAR POWER STATION
 EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT 1993
 GASEOUS EFFLUENTS-SUMMATION OF ALL RELEASES
 July - December 1993

Unit	Quarter 3rd	Quarter 4th	Est.Total Error,%
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A. Fission and Activation Gases

1. Total release	Ci	2.64E+2	2.53E+2	22%
2. Average release rate for period	uCi/sec	3.35E+1	3.21E+1	
3. Percent of Technical Specification limit	%	*	*	

B. Iodines

1. Total iodine-131 release	Ci	1.01E-2	5.42E-3	20%
2. Average release rate for period	uCi/sec	1.28E-3	6.87E-4	
3. Percent of Technical Specification limit	%	*	*	

C. Particulates

1. Particulates with half-lives > 8 days	Ci	3.02E-3	2.13E-3	21%
2. Average release rate for period	uCi/sec	3.83E-4	2.70E-4	
3. Percent of Technical Specification limit	%	*	*	
4. Gross alpha radioactivity	Ci	NDA	NDA	

D. Tritium

1. Total release rate for period	Ci	4.59E+0	5.20E+0	20%
2. Average release rate for period	uCi/sec	5.82E-1	6.59E-1	
3. Percent of Technical Specification limit	%	*	*	

Notes for Table 1A:

* Percent of Technical Specification Limit Values in Sections A.3, B.3, C.3, and D.3 are based on dose assessments not performed as part of this report. These will be provided in the annual supplemental dose assessment report to be issued prior to April 1, 1994.

1. NDA is no detectable activity.
2. LLD for gross alpha listed as NDA is $1E-11 \mu\text{Ci/ml}$.

TABLE 1B
 PILGRIM NUCLEAR POWER STATION
 EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1993
 GASEOUS EFFLUENTS-ELEVATED RELEASE
 July - December 1993

Nuclides Released	Unit	CONTINUOUS MODE		BATCH MODE	
		Quarter 3rd	Quarter 4th	Quarter N/A	Quarter N/A

1. Fission and Activation Gases

Kr-85m	Ci	1.17E+1	1.13E+1		
Kr-87	Ci	5.06E+0	NDA		
Kr-88	Ci	7.14E+0	4.44E+0		
Xe-133	Ci	2.69E+1	2.19E+1		
Xe-135	Ci	9.11E+0	3.88E+0		
Xe-135m	Ci	3.40E+1	2.24E+1		
Xe-138	Ci	1.15E+2	6.60E+1		
Total for period	Ci	2.09E+2	1.30E+2		

2. Iodines

I-131	Ci	8.47E-3	3.28E-3		
I-133	Ci	1.90E-2	1.56E-2		
Total for period	Ci	2.75E-2	1.89E-2		

3. Particulates

Mn-54	Ci	3.79E-6	NDA		
Co-60	Ci	1.06E-5	NDA		
Sr-89	Ci	6.96E-4	1.32E-4		
Sr-90	Ci	3.87E-6	1.49E-6		
Cs-134	Ci	NDA	NDA		
Cs-137	Ci	3.18E-5	NDA		
Ba/La-140	Ci	1.36E-3	5.68E-4		
Total for period	Ci	2.11E-3	7.01E-4		

4. Tritium

H-3	Ci	2.19E-1	1.36E-1		
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Notes for Table 1B:

1. NDA is no detectable activity.
2. LLDs for nuclides listed as NDA are as follows:

Fission gases: 1E-4 μ Ci/ml
 Iodines: 1E-12 μ Ci/ml
 Particulates: 1E-11 μ Ci/ml

TABLE 1C
 PILGRIM NUCLEAR POWER STATION
 EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1993
 GASEOUS EFFLUENTS-GROUND LEVEL RELEASE
 July - December 1993

Nuclides Released	CONTINUOUS MODE		BATCH MODE	
	Unit	Quarter 3rd	Quarter 4th	Quarter N/A

1. Fission and Activation Gases

Kr-85m	Ci	NDA	NDA		
Kr-87	Ci	NDA	NDA		
Kr-88	Ci	NDA	NDA		
Xe-133	Ci	NDA	1.28E+1		
Xe-135	Ci	5.45E+1	1.10E+2		
Xe-135m	Ci	NDA	NDA		
Xe-138	Ci	NDA	NDA		
Total for period	Ci	5.45E+1	1.23E+2		

2. Iodines

I-131	Ci	1.62E-3	2.14E-3		
I-133	Ci	1.44E-2	3.92E-2		
Total for period	Ci	1.61E-2	4.13E-2		

3. Particulates

Sr-89	Ci	4.11E-4	5.18E-4		
Sr-90	Ci	NDA	NDA		
Cs-134	Ci	NDA	NDA		
Cs-137	Ci	NDA	NDA		
Ba/La-140	Ci	4.97E-4	9.07E-4		
Total for period	Ci	9.08E-4	1.43E-3		

4. Tritium

H-3	Ci	4.37E+0	5.06E+0		
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Notes for Table 1C:

1. NDA is no detectable activity.
2. LLDs for nuclides listed as NDA are as follows:

Fission gases: 1E-4 μ Ci/ml
 Iodines: 1E-12 μ Ci/ml
 Particulates: 1E-11 μ Ci/ml

TABLE 2A
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1993
LIQUID EFFLUENTS-SUMMATION OF ALL RELEASES
July - December 1993

Unit	Quarter 3rd	Quarter 4th	Est. Total Error, %
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A. Fission and Activation Products

1. Total release (not including tritium, noble gases, or alpha)	Ci	2.30E-3	6.28E-4	12%
2. Average diluted concentration during period	uCi/ml	1.20E-9	1.51E-9	
3. Percent of applicable MPC limit*	%	7.91E-3	9.87E-3	

B. Tritium

1. Total release	Ci	7.78E-1	1.02E-3	9.4%
2. Average diluted concentration during period	uCi/ml	4.05E-7	2.46E-9	
3. Percent of applicable MPC limit*	%	1.35E-2	8.19E-5	

C. Dissolved and Entrained Gases

1. Total release	Ci	NDA	NDA	16%
2. Average release rate for period during period	uCi/ml	NDA	NDA	
3. Percent of applicable MPC limit*	%	0.00E+0	0.00E+0	

D. Gross Alpha Radioactivity

1. Total release	Ci	NDA	NDA	34%
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E. Volume of Waste Released (prior to dilution)

liters	3.51E+5	1.86E+4	5.7%
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F. Volume of Dilution Water Used During Period

liters	1.92E+9	4.15E+8	10%
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Notes for Table 2A:

* Additional percent of Technical Specification Limit Values based on resulting dose will be provided in the annual supplemental dose assessment report to be issued prior to April 1, 1994.

1. NDA is no detectable activity.
2. LLD for gross alpha listed as NDA is $1E-7 \mu\text{Ci/ml}$.
3. LLD for dissolved and entrained gases listed as NDA is $1E-5 \mu\text{Ci/ml}$.

TABLE 2B
 PILGRIM NUCLEAR POWER STATION
 EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1993
 LIQUID EFFLUENTS
 July - December 1993

Nuclides Released	Unit	CONTINUOUS MODE		BATCH MODE	
		Quarter	Quarter	Quarter	Quarter
		Not Applicable		3rd	4th

1. Fission and activation products

Cr-51	Ci	N/A	N/A	NDA	NDA
Mn-54	Ci	N/A	N/A	4.06E-4	4.96E-5
Fe-55	Ci	N/A	N/A	1.39E-4	4.20E-5
Fe-59	Ci	N/A	N/A	NDA	NDA
Co-58	Ci	N/A	N/A	1.70E-4	4.51E-5
Co-60	Ci	N/A	N/A	1.23E-3	3.92E-4
Zn-65	Ci	N/A	N/A	NDA	2.37E-6
Sr-89	Ci	N/A	N/A	1.13E-4	1.77E-5
Sr-90	Ci	N/A	N/A	1.65E-5	3.24E-6
Zr/Nb-95	Ci	N/A	N/A	NDA	NDA
Mo-99/Tc-99m	Ci	N/A	N/A	NDA	NDA
Ru-103	Ci	N/A	N/A	NDA	NDA
Ag-110m	Ci	N/A	N/A	NDA	NDA
I-131	Ci	N/A	N/A	2.65E-7	1.93E-6
Cs-134	Ci	N/A	N/A	NDA	NDA
Cs-137	Ci	N/A	N/A	2.25E-4	6.77E-5
Ba/La-140	Ci	N/A	N/A	NDA	6.09E-6
Ce-141	Ci	N/A	N/A	NDA	5.19E-7
Ce/Pr-144	Ci	N/A	N/A	NDA	NDA
Total for period	Ci	N/A	N/A	2.30E-3	6.28E-4

2. Dissolved and entrained gases

Xe-133	Ci	N/A	N/A	NDA	NDA
Xe-135	Ci	N/A	N/A	NDA	NDA
Total for period	Ci	N/A	N/A	NDA	NDA

Notes for Table 2B:

- 1) NDA is no detectable activity.
- 2) LLDs for nuclides listed as NDA are as follows:

Sr-89	5E-8 μ Ci/ml
I-131	1E-6 μ Ci/ml
Xe-133, Xe-135	1E-5 μ Ci/ml
All others	5E-7 μ Ci/ml

APPENDIX B

Atmospheric Dispersion and Deposition Factors

<u>Table</u>		<u>Page</u>
B-1	Undepleted X/Q Factors for Reactor Building Vent	50
B-2	Depleted X/Q Factors for Reactor Building Vent	55
B-3	Gamma X/Q Factors for Reactor Building Vent	60
B-4	Deposition D/Q Factors for Reactor Building Vent	65
B-5	Undepleted X/Q Factors for Main Stack	70
B-6	Depleted X/Q Factors for Main Stack	75
B-7	Gamma X/Q Factors for Main Stack	80
B-8	Deposition D/Q Factors for Main Stack	85

Table B-1

Undepleted X/Q Factors for Reactor Building Vent

BE 1st quarter 1993 general x/q's - ground level

SECTOR AVERAGE MODE

GROUND RELEASE: GROUND-LEVEL AVERAGE CHI/Q BEFORE DEPLETION (SEC/M3)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	110	1.559E-05	4.772E-06	1.733E-06	9.494E-07	6.134E-07	3.257E-07	2.086E-07	1.483E-07
NNE	119	2.108E-05	6.270E-06	2.250E-06	1.247E-06	8.130E-07	4.378E-07	2.825E-07	2.022E-07
NE	125	2.592E-05	7.680E-06	2.557E-06	1.410E-06	9.233E-07	5.090E-07	3.336E-07	2.414E-07
ENE	201	3.923E-05	1.163E-05	4.131E-06	2.288E-06	1.493E-06	8.060E-07	5.211E-07	3.735E-07
E	284	3.832E-05	1.170E-05	4.171E-06	2.272E-06	1.466E-06	7.786E-07	4.997E-07	3.559E-07
ESE	174	2.571E-05	7.895E-06	2.726E-06	1.463E-06	9.390E-07	5.013E-07	3.236E-07	2.314E-07
SE	143	1.836E-05	5.808E-06	2.085E-06	1.122E-06	7.181E-07	3.769E-07	2.403E-07	1.699E-07
SSE	104	1.452E-05	4.456E-06	1.598E-06	8.665E-07	5.576E-07	2.950E-07	1.890E-07	1.344E-07
S	109	1.117E-05	3.526E-06	1.112E-06	5.872E-07	3.726E-07	1.954E-07	1.250E-07	8.863E-08
SSW	159	1.293E-05	4.093E-06	1.233E-06	6.494E-07	4.138E-07	2.175E-07	1.392E-07	9.888E-08
SW	64	6.909E-06	2.203E-06	7.125E-07	3.802E-07	2.418E-07	1.261E-07	7.997E-08	5.636E-08
WSW	101	1.279E-05	4.030E-06	1.280E-06	6.887E-07	4.413E-07	2.325E-07	1.486E-07	1.054E-07
W	58	9.782E-06	3.083E-06	9.805E-07	5.808E-07	3.720E-07	1.964E-07	1.141E-07	8.091E-08
WNW	42	6.965E-06	2.224E-06	7.945E-07	4.303E-07	2.760E-07	1.453E-07	1.019E-07	7.202E-08
NW	60	1.830E-05	5.336E-06	1.926E-06	1.059E-06	6.871E-07	3.715E-07	2.411E-07	1.734E-07
NNW	70	1.689E-05	4.973E-06	1.819E-06	1.001E-06	6.490E-07	3.477E-07	2.240E-07	1.602E-07
AVERAGE	1923	1.841E-05	5.605E-06	1.944E-06	1.062E-06	6.861E-07	3.664E-07	2.358E-07	1.683E-07

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	110	1.128E-07	8.954E-08	7.340E-08	6.148E-08	5.256E-08	2.944E-08	1.960E-08	1.104E-08
NNE	119	1.549E-07	1.237E-07	1.019E-07	8.567E-08	7.347E-08	4.158E-08	2.796E-08	1.602E-08
NE	125	1.863E-07	1.498E-07	1.241E-07	1.051E-07	9.075E-08	5.245E-08	3.580E-08	2.097E-08
ENE	201	2.866E-07	2.292E-07	1.890E-07	1.591E-07	1.366E-07	7.757E-08	5.231E-08	3.013E-08
E	284	2.712E-07	2.158E-07	1.772E-07	1.487E-07	1.273E-07	7.168E-08	4.795E-08	2.724E-08
ESE	174	1.765E-07	1.406E-07	1.157E-07	9.733E-08	8.351E-08	4.737E-08	3.184E-08	1.822E-08
SE	143	1.283E-07	1.014E-07	9.108E-08	7.615E-08	6.498E-08	3.291E-08	2.174E-08	1.205E-08
SSE	104	1.022E-07	8.122E-08	6.662E-08	5.585E-08	4.777E-08	2.681E-08	1.787E-08	1.009E-08
S	109	6.704E-08	5.307E-08	4.344E-08	3.641E-08	3.113E-08	1.747E-08	1.164E-08	6.577E-09
SSW	159	7.499E-08	5.954E-08	4.888E-08	4.112E-08	3.526E-08	2.004E-08	1.349E-08	7.720E-09
SW	64	4.241E-08	3.342E-08	2.725E-08	2.255E-08	1.938E-08	1.076E-08	7.102E-09	3.947E-09
WSW	101	7.979E-08	6.321E-08	5.693E-08	4.771E-08	4.081E-08	2.085E-08	1.389E-08	7.822E-09
W	58	6.124E-08	4.848E-08	3.968E-08	3.324E-08	2.842E-08	1.595E-08	1.063E-08	5.990E-09
WNW	42	5.430E-08	4.286E-08	3.181E-08	2.659E-08	2.270E-08	1.266E-08	8.354E-09	4.613E-09
NW	60	1.334E-07	1.069E-07	8.820E-08	7.425E-08	6.375E-08	3.615E-08	2.441E-08	1.414E-08
NNW	70	1.228E-07	9.806E-08	8.070E-08	6.775E-08	5.803E-08	3.267E-08	2.195E-08	1.262E-08
AVERAGE	1923	1.284E-07	1.023E-07	8.474E-08	7.120E-08	6.103E-08	3.415E-08	2.291E-08	1.307E-08

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)						
		20.00	25.00	30.00	34.95	40.00	45.00	50.00
N	110	7.427E-09	5.496E-09	4.329E-09	3.544E-09	2.969E-09	2.552E-09	2.226E-09
NNE	119	1.087E-08	8.098E-09	6.411E-09	5.269E-09	4.427E-09	3.814E-09	3.332E-09
NE	125	1.441E-08	1.083E-08	8.646E-09	7.150E-09	6.038E-09	5.214E-09	4.567E-09
ENE	201	2.050E-08	1.530E-08	1.213E-08	9.985E-09	8.399E-09	7.241E-09	6.330E-09
E	284	1.844E-08	1.370E-08	1.083E-08	8.895E-09	7.470E-09	6.435E-09	5.623E-09
ESE	174	1.241E-08	9.267E-09	7.355E-09	6.062E-09	5.108E-09	4.411E-09	3.865E-09
SE	143	8.055E-09	5.936E-09	4.659E-09	3.805E-09	3.182E-09	2.732E-09	2.382E-09
SSE	104	6.813E-09	5.055E-09	3.990E-09	3.273E-09	2.748E-09	2.367E-09	2.068E-09
S	109	4.457E-09	3.319E-09	2.628E-09	2.162E-09	1.820E-09	1.572E-09	1.377E-09
SSW	159	5.280E-09	3.959E-09	3.150E-09	2.602E-09	2.197E-09	1.899E-09	1.667E-09
SW	64	2.647E-09	1.956E-09	1.538E-09	1.259E-09	1.055E-09	9.070E-10	7.921E-10
WSW	101	5.278E-09	3.915E-09	3.089E-09	2.533E-09	2.125E-09	1.828E-09	1.596E-09
W	58	4.041E-09	2.998E-09	2.366E-09	1.941E-09	1.628E-09	1.400E-09	1.223E-09
WNW	42	3.074E-09	2.258E-09	1.769E-09	1.441E-09	1.202E-09	1.029E-09	8.946E-10
NW	60	9.650E-09	7.219E-09	5.736E-09	4.731E-09	3.988E-09	3.447E-09	3.021E-09
NNW	70	8.577E-09	6.397E-09	5.070E-09	4.173E-09	3.512E-09	3.032E-09	2.654E-09
AVERAGE	1923	8.871E-09	6.607E-09	5.231E-09	4.302E-09	3.617E-09	3.117E-09	2.726E-09

Table B-1

Undepleted X/Q Factors for Reactor Building Vent

BE 2nd quarter 1993 general X/q's - ground level
 GROUND RELEASE: GROUND-LEVEL AVERAGE CH1/Q BEFORE DEPLETION (SEC/M3) SECTOR AVERAGE MODEL

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	122	1.845E-05	5.573E-06	1.963E-06	1.080E-06	7.030E-07	3.774E-07	2.432E-07	1.738E-07
NNE	307	3.652E-05	1.088E-05	3.671E-06	1.988E-06	1.287E-06	7.008E-07	4.575E-07	3.302E-07
NE	183	4.232E-05	1.242E-05	3.937E-06	2.130E-06	1.386E-06	7.790E-07	5.188E-07	3.796E-07
ENE	151	6.693E-05	1.081E-05	3.682E-06	2.043E-06	1.340E-06	7.353E-07	4.801E-07	3.468E-07
E	120	1.49E-05	8.067E-06	2.725E-06	1.498E-06	9.790E-07	5.364E-07	3.506E-07	2.534E-07
ESE	84	1.40E-05	5.419E-06	1.847E-06	1.022E-06	6.703E-07	3.643E-07	2.362E-07	1.699E-07
SE	87	1.56E-05	4.984E-06	1.975E-06	1.075E-06	6.928E-07	3.678E-07	2.148E-07	1.533E-07
SSE	98	1.983E-05	6.139E-06	2.111E-06	1.031E-06	6.624E-07	3.542E-07	2.287E-07	1.634E-07
S	155	2.298E-05	7.199E-06	2.087E-06	1.118E-06	7.169E-07	3.780E-07	2.415E-07	1.713E-07
SSW	76	1.174E-05	3.701E-06	1.212E-06	6.513E-07	4.160E-07	2.178E-07	1.387E-07	9.803E-08
SW	69	1.249E-05	3.846E-06	1.234E-06	6.680E-07	4.302E-07	2.280E-07	1.460E-07	1.038E-07
WSW	86	2.101E-05	6.487E-06	2.055E-06	1.118E-06	7.224E-07	3.845E-07	2.465E-07	1.753E-07
W	79	1.567E-05	4.802E-06	1.552E-06	9.294E-07	6.000E-07	3.188E-07	1.859E-07	1.323E-07
WNW	78	1.665E-05	4.912E-06	1.763E-06	9.748E-07	6.356E-07	3.419E-07	2.425E-07	1.736E-07
NW	65	1.292E-05	3.945E-06	1.423E-06	7.792E-07	5.039E-07	2.680E-07	1.719E-07	1.233E-07
NNW	67	1.417E-05	4.311E-06	1.578E-06	8.676E-07	5.617E-07	2.989E-07	1.916E-07	1.363E-07
AVERAGE	1827	2.151E-05	6.468E-06	2.176E-06	1.186E-06	7.692E-07	4.157E-07	2.684E-07	1.927E-07

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	122	1.328E-07	1.060E-07	8.721E-08	7.335E-08	6.291E-08	3.565E-08	2.395E-08	1.367E-08
NNE	307	2.541E-07	2.039E-07	1.687E-07	1.427E-07	1.229E-07	7.063E-08	4.804E-08	2.806E-08
NE	183	2.949E-07	2.384E-07	1.986E-07	1.692E-07	1.467E-07	8.597E-08	5.500E-08	3.537E-08
ENE	151	2.678E-07	2.153E-07	1.784E-07	1.509E-07	1.301E-07	7.487E-08	5.103E-08	2.987E-08
E	120	1.957E-07	1.574E-07	1.305E-07	1.104E-07	9.520E-08	5.486E-08	3.743E-08	2.196E-08
ESE	84	1.309E-07	1.050E-07	8.689E-08	7.338E-08	6.317E-08	3.624E-08	2.466E-08	1.440E-08
SE	87	1.171E-07	9.335E-08	8.442E-08	7.086E-08	6.067E-08	3.416E-08	2.289E-08	1.306E-08
SSE	98	1.244E-07	9.905E-08	8.143E-08	6.851E-08	5.879E-08	3.335E-08	2.238E-08	1.276E-08
S	155	1.297E-07	1.028E-07	8.420E-08	7.061E-08	6.038E-08	3.394E-08	2.262E-08	1.274E-08
SSW	76	7.400E-08	5.845E-08	4.773E-08	3.989E-08	3.402E-08	1.892E-08	1.250E-08	6.940E-09
SW	69	7.893E-08	6.270E-08	5.144E-08	4.315E-08	3.693E-08	2.078E-08	1.388E-08	7.871E-09
WSW	86	1.334E-07	1.060E-07	9.571E-08	8.035E-08	6.882E-08	3.532E-08	2.368E-08	1.348E-08
W	79	1.007E-07	8.004E-08	6.569E-08	5.512E-08	4.718E-08	2.655E-08	1.774E-08	1.006E-08
WNW	78	1.332E-07	1.065E-07	7.976E-08	6.707E-08	5.752E-08	3.256E-08	2.193E-08	1.262E-08
NW	65	9.310E-08	7.400E-08	6.071E-08	5.090E-08	4.355E-08	2.445E-08	1.631E-08	9.223E-09
NNW	67	1.037E-07	8.242E-08	6.759E-08	5.662E-08	4.841E-08	2.711E-08	1.804E-08	1.016E-08
AVERAGE	1827	1.478E-07	1.182E-07	9.806E-08	8.268E-08	7.108E-08	4.033E-08	2.727E-08	1.577E-08

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)						
		20.00	25.00	30.00	34.95	40.00	45.00	50.00
N	122	9.275E-09	6.906E-09	5.466E-09	4.492E-09	3.774E-09	3.250E-09	2.840E-09
NNE	307	1.929E-08	1.451E-08	1.158E-08	9.590E-09	8.109E-09	7.018E-09	6.160E-09
NE	183	2.456E-08	1.861E-08	1.495E-08	1.244E-08	1.055E-08	9.148E-09	8.043E-09
ENE	151	2.051E-08	1.541E-08	1.228E-08	1.015E-08	8.570E-09	7.402E-09	6.484E-09
E	120	1.511E-08	1.137E-08	9.078E-09	7.513E-09	6.350E-09	5.492E-09	4.816E-09
ESE	84	9.888E-09	7.428E-09	5.921E-09	4.893E-09	4.130E-09	3.569E-09	3.127E-09
SE	87	8.865E-09	6.603E-09	5.227E-09	4.298E-09	3.615E-09	3.120E-09	2.731E-09
SSE	98	8.670E-09	6.465E-09	5.126E-09	4.220E-09	3.552E-09	3.063E-09	2.681E-09
S	155	8.617E-09	6.405E-09	5.062E-09	4.158E-09	3.495E-09	3.012E-09	2.635E-09
SSW	76	4.646E-09	3.427E-09	2.692E-09	2.201E-09	1.842E-09	1.583E-09	1.381E-09
SW	69	5.329E-09	3.963E-09	3.133E-09	2.574E-09	2.163E-09	1.864E-09	1.630E-09
WSW	86	9.141E-09	6.805E-09	5.386E-09	4.426E-09	3.719E-09	3.203E-09	2.799E-09
W	79	6.801E-09	5.053E-09	3.992E-09	3.277E-09	2.751E-09	2.370E-09	2.070E-09
WNW	78	8.593E-09	6.413E-09	5.086E-09	4.187E-09	3.523E-09	3.040E-09	2.659E-09
NW	65	6.220E-09	4.611E-09	3.637E-09	2.981E-09	2.499E-09	2.150E-09	1.876E-09
NNW	67	6.830E-09	5.051E-09	3.977E-09	3.255E-09	2.725E-09	2.342E-09	2.042E-09
AVERAGE	1827	1.077E-08	8.064E-09	6.413E-09	5.291E-09	4.461E-09	3.852E-09	3.374E-09

Table B-1

Undepleted X/Q Factors for Reactor Building Vent

BE 3rd quarter 1993 ground level genral x/q's

SECTOR AVERAGE MOD

GROUND RELEASE: GROUND-LEVEL AVERAGE CH1/q BEFORE DEPLETION (SEC/M3)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	202	4.401E-05	1.309E-05	4.488E-06	2.490E-06	1.633E-06	8.888E-07	5.772E-07	4.150E-07
NNE	428	6.330E-05	1.900E-05	6.542E-06	3.609E-06	2.357E-06	1.277E-06	8.272E-07	5.936E-07
NE	315	8.622E-05	2.532E-05	7.921E-06	4.321E-06	2.829E-06	1.598E-06	1.065E-06	7.800E-07
ENE	175	5.204E-05	1.531E-05	4.884E-06	2.680E-06	1.758E-06	9.839E-07	6.516E-07	4.751E-07
E	100	2.357E-05	8.442E-06	2.782E-06	1.539E-06	1.011E-06	5.560E-07	3.636E-07	2.629E-07
ESE	65	1.441E-05	4.308E-06	1.541E-06	8.418E-07	5.450E-07	2.909E-07	1.874E-07	1.340E-07
SE	66	1.691E-05	5.034E-06	1.965E-06	1.081E-06	7.035E-07	3.777E-07	2.713E-07	1.583E-07
SSE	69	1.479E-05	4.514E-06	1.592E-06	7.809E-07	5.019E-07	2.659E-07	1.709E-07	1.220E-07
S	74	1.741E-05	5.106E-06	1.521E-06	8.257E-07	5.338E-07	2.847E-07	1.836E-07	1.316E-07
SSW	108	1.934E-05	5.793E-06	1.821E-06	9.861E-07	6.387E-07	3.417E-07	2.204E-07	1.578E-07
SW	103	1.619E-05	5.026E-06	1.631E-06	8.767E-07	5.618E-07	2.957E-07	1.888E-07	1.383E-07
WSW	124	1.957E-05	5.891E-06	1.819E-06	9.794E-07	6.333E-07	3.388E-07	2.191E-07	1.571E-07
W	95	1.704E-05	5.200E-06	1.696E-06	1.004E-06	6.425E-07	3.396E-07	1.982E-07	1.412E-07
WNW	69	1.344E-05	4.195E-06	1.474E-06	8.034E-07	5.193E-07	2.762E-07	1.948E-07	1.385E-07
NW	70	1.596E-05	4.868E-06	1.736E-06	9.483E-07	6.129E-07	3.261E-07	2.092E-07	1.490E-07
NNW	56	1.815E-05	5.467E-06	1.914E-06	1.063E-06	6.954E-07	3.757E-07	2.426E-07	1.736E-07
AVERAGE	2119	2.858E-05	8.535E-06	2.833E-06	1.552E-06	1.011E-06	5.510E-07	3.576E-07	2.577E-07

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	202	3.191E-07	2.558E-07	2.114E-07	1.785E-07	1.536E-07	8.802E-08	5.970E-08	3.461E-08
NNE	428	4.553E-07	3.643E-07	3.006E-07	2.535E-07	2.179E-07	1.245E-07	8.421E-08	4.860E-08
NE	315	6.064E-07	4.907E-07	4.091E-07	3.488E-07	3.027E-07	1.779E-07	1.229E-07	7.337E-08
ENE	175	3.685E-07	2.977E-07	2.477E-07	2.108E-07	1.826E-07	1.068E-07	7.353E-08	4.364E-08
E	100	2.032E-07	1.635E-07	1.357E-07	1.150E-07	9.929E-08	5.754E-08	3.938E-08	2.314E-08
ESE	65	1.026E-07	8.192E-08	6.746E-08	5.671E-08	4.861E-08	2.748E-08	1.846E-08	1.057E-08
SE	66	1.213E-07	9.686E-08	8.777E-08	7.382E-08	6.331E-08	3.586E-08	2.416E-08	1.390E-08
SSE	69	9.305E-08	7.413E-08	6.095E-08	5.122E-08	4.388E-08	2.479E-08	1.662E-08	9.467E-09
S	74	1.011E-07	8.090E-08	6.673E-08	5.616E-08	4.816E-08	2.726E-08	1.839E-08	1.064E-08
SSW	108	1.209E-07	9.661E-08	7.967E-08	6.713E-08	5.763E-08	3.278E-08	2.213E-08	1.277E-08
SW	103	1.015E-07	8.039E-08	6.581E-08	5.511E-08	4.708E-08	2.632E-08	1.749E-08	9.824E-09
WSW	124	1.205E-07	9.649E-08	8.766E-08	7.398E-08	6.361E-08	3.307E-08	2.239E-08	1.296E-08
W	95	1.076E-07	8.558E-08	7.025E-08	5.892E-08	5.041E-08	2.831E-08	1.892E-08	1.075E-08
WNW	69	1.051E-07	8.336E-08	6.213E-08	5.213E-08	4.463E-08	2.514E-08	1.675E-08	9.409E-09
NW	70	1.135E-07	9.027E-08	7.411E-08	6.218E-08	5.323E-08	2.996E-08	2.004E-08	1.139E-08
NNW	56	1.329E-07	1.061E-07	8.744E-08	7.361E-08	6.320E-08	3.594E-08	2.420E-08	1.386E-08
AVERAGE	2119	1.983E-07	1.590E-07	1.322E-07	1.117E-07	9.624E-08	5.511E-08	3.746E-08	2.181E-08

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)						
		20.00	25.00	30.00	34.95	40.00	45.00	50.00
N	202	2.365E-08	1.770E-08	1.407E-08	1.160E-08	9.772E-09	8.425E-09	7.368E-09
NNE	428	3.315E-08	2.478E-08	1.968E-08	1.621E-08	1.365E-08	1.176E-08	1.028E-08
NE	315	3.095E-08	3.866E-08	3.101E-08	2.578E-08	2.187E-08	1.894E-08	1.663E-08
ENE	175	3.021E-08	2.283E-08	1.831E-08	1.519E-08	1.287E-08	1.113E-08	9.771E-09
E	100	1.594E-08	1.200E-08	9.584E-09	7.932E-09	6.701E-09	5.789E-09	5.072E-09
ESE	65	7.182E-09	5.355E-09	4.243E-09	3.491E-09	2.938E-09	2.535E-09	2.219E-09
SE	66	9.465E-09	7.068E-09	5.607E-09	4.617E-09	3.886E-09	3.353E-09	2.934E-09
SSE	69	6.427E-09	4.790E-09	3.793E-09	3.120E-09	2.626E-09	2.266E-09	1.984E-09
S	74	7.283E-09	5.461E-09	4.344E-09	3.588E-09	3.050E-09	2.625E-09	2.306E-09
SSW	108	8.740E-09	6.552E-09	5.212E-09	4.304E-09	3.634E-09	3.144E-09	2.759E-09
SW	103	6.623E-09	4.912E-09	3.875E-09	3.178E-09	2.668E-09	2.299E-09	2.011E-09
WSW	124	8.884E-09	6.671E-09	5.314E-09	4.393E-09	3.712E-09	3.212E-09	2.820E-09
W	95	7.287E-09	5.424E-09	4.292E-09	3.529E-09	2.969E-09	2.563E-09	2.244E-09
WNW	69	6.331E-09	4.685E-09	3.691E-09	3.022E-09	2.531E-09	2.173E-09	1.894E-09
NW	70	7.705E-09	5.726E-09	4.526E-09	3.716E-09	3.120E-09	2.686E-09	2.347E-09
NNW	56	9.406E-09	7.003E-09	5.545E-09	4.556E-09	3.826E-09	3.291E-09	2.872E-09
AVERAGE	2119	1.495E-08	1.122E-08	8.943E-09	7.389E-09	6.237E-09	5.387E-09	4.720E-09

Table B-1

Undepleted X/Q Factors for Reactor Building Vent

BE 4th quarter 1993 general x/q's - ground level

SECTOR AVERAGE MOD

GROUND RELEASE: GROUND-LEVEL AVERAGE CH1/Q BEFORE DEPLETION (SEC/M3)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	180	3.664E-05	1.076E-05	3.884E-06	2.161E-06	1.412E-06	7.614E-07	4.916E-07	3.522E-07
NNE	260	4.178E-05	1.242E-05	4.318E-06	2.389E-06	1.560E-06	8.460E-07	5.484E-07	3.938E-07
NE	252	5.319E-05	1.573E-05	5.084E-06	2.784E-06	1.820E-06	1.013E-06	6.684E-07	4.859E-07
ENE	245	4.993E-05	1.477E-05	5.024E-06	2.776E-06	1.817E-06	9.947E-07	6.491E-07	4.684E-07
E	211	3.611E-05	1.077E-05	3.875E-06	2.124E-06	1.375E-06	7.361E-07	4.744E-07	3.392E-07
ESE	119	1.599E-05	4.933E-06	1.746E-06	9.471E-07	6.104E-07	3.237E-07	2.075E-07	1.476E-07
SE	128	1.680E-05	5.184E-06	1.857E-06	9.983E-07	6.385E-07	3.380E-07	2.170E-07	1.545E-07
SSE	80	9.856E-06	3.046E-06	1.112E-06	6.025E-07	3.866E-07	2.035E-07	1.301E-07	9.233E-08
S	89	8.838E-06	2.697E-06	8.634E-07	4.632E-07	2.974E-07	1.572E-07	1.008E-07	7.174E-08
SSW	148	1.132E-05	3.584E-06	1.155E-06	6.141E-07	3.901E-07	2.032E-07	1.291E-07	9.116E-08
SW	44	5.188E-06	1.633E-06	5.249E-07	2.792E-07	1.775E-07	9.264E-08	5.904E-08	4.181E-08
WSW	37	5.359E-06	1.667E-06	5.178E-07	2.711E-07	1.709E-07	9.038E-08	5.840E-08	4.178E-08
W	47	6.717E-06	2.067E-06	6.850E-07	4.070E-07	2.603E-07	1.367E-07	7.944E-08	5.639E-08
WNW	59	6.824E-06	2.174E-06	7.930E-07	4.270E-07	2.723E-07	1.422E-07	9.930E-08	7.000E-08
NW	73	1.308E-05	3.975E-06	1.413E-06	7.748E-07	5.021E-07	2.680E-07	1.721E-07	1.226E-07
NNW	117	3.073E-05	8.974E-06	3.185E-06	1.779E-06	1.168E-06	6.337E-07	4.104E-07	2.948E-07
AVERAGE	2089	2.177E-05	6.524E-06	2.252E-06	1.237E-06	8.037E-07	4.338E-07	2.809E-07	2.015E-07

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	180	2.704E-07	2.163E-07	1.783E-07	1.499E-07	1.286E-07	7.284E-08	4.908E-08	2.826E-08
NNE	260	3.025E-07	2.422E-07	2.000E-07	1.686E-07	1.449E-07	8.273E-08	5.600E-08	3.241E-08
NE	252	3.760E-07	3.030E-07	2.518E-07	2.138E-07	1.850E-07	1.077E-07	7.394E-08	4.373E-08
ENE	245	3.609E-07	2.898E-07	2.398E-07	2.027E-07	1.747E-07	1.005E-07	6.834E-08	3.984E-08
E	211	2.597E-07	2.072E-07	1.705E-07	1.433E-07	1.228E-07	6.931E-08	4.656E-08	2.670E-08
ESE	119	1.122E-07	8.908E-08	7.308E-08	6.130E-08	5.246E-08	2.951E-08	1.970E-08	1.113E-08
SE	128	1.174E-07	9.321E-08	8.407E-08	7.048E-08	6.029E-08	3.073E-08	2.047E-08	1.155E-08
SSE	80	7.003E-08	5.550E-08	4.543E-08	3.801E-08	3.246E-08	1.810E-08	1.199E-08	6.700E-09
S	89	5.777E-08	4.346E-08	3.570E-08	2.997E-08	2.565E-08	1.445E-08	9.670E-09	5.508E-09
SSW	148	6.878E-08	5.431E-08	4.434E-08	3.705E-08	3.160E-08	1.759E-08	1.167E-08	6.537E-09
SW	44	3.167E-08	2.502E-08	2.047E-08	1.713E-08	1.463E-08	8.174E-09	5.431E-09	3.051E-09
WSW	37	3.183E-08	2.533E-08	2.290E-08	1.927E-08	1.653E-08	8.515E-09	5.734E-09	3.305E-09
W	47	4.283E-08	3.397E-08	2.782E-08	2.328E-08	1.988E-08	1.109E-08	7.373E-09	4.151E-09
WNW	59	5.267E-08	4.150E-08	3.073E-08	2.562E-08	2.182E-08	1.206E-08	7.925E-09	4.358E-09
NW	73	9.348E-08	7.441E-08	6.112E-08	5.131E-08	4.394E-08	2.477E-08	1.660E-08	9.462E-09
NNW	117	2.270E-07	1.819E-07	1.503E-07	1.266E-07	1.088E-07	6.200E-08	4.195E-08	2.430E-08
AVERAGE	2089	1.545E-07	1.235E-07	1.023E-07	8.615E-08	7.401E-08	4.188E-08	2.828E-08	1.631E-08

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	180	1.922E-08	1.434E-08	1.136E-08	9.348E-09	7.860E-09	6.777E-09	5.924E-09	
NNE	260	2.213E-08	1.655E-08	1.315E-08	1.084E-08	9.127E-09	7.872E-09	6.885E-09	
NE	252	3.022E-08	2.282E-08	1.827E-08	1.516E-08	1.283E-08	1.110E-08	9.737E-09	
ENE	245	2.731E-08	2.049E-08	1.632E-08	1.348E-08	1.137E-08	9.813E-09	8.592E-09	
E	211	1.814E-08	1.353E-08	1.072E-08	8.820E-09	7.420E-09	6.403E-09	5.602E-09	
ESE	119	7.519E-09	5.582E-09	4.408E-09	3.617E-09	3.036E-09	2.614E-09	2.284E-09	
SE	128	7.795E-09	5.786E-09	4.568E-09	3.750E-09	3.150E-09	2.715E-09	2.374E-09	
SSE	80	4.494E-09	3.319E-09	2.609E-09	2.134E-09	1.787E-09	1.537E-09	1.341E-09	
S	89	3.745E-09	2.795E-09	2.216E-09	1.825E-09	1.538E-09	1.330E-09	1.156E-09	
SSW	148	4.405E-09	3.266E-09	2.576E-09	2.113E-09	1.774E-09	1.529E-09	1.337E-09	
SW	44	2.059E-09	1.528E-09	1.206E-09	9.900E-10	8.316E-10	7.169E-10	6.273E-10	
WSW	37	2.262E-09	1.697E-09	1.352E-09	1.118E-09	9.453E-10	8.188E-10	7.196E-10	
W	47	2.796E-09	2.071E-09	1.633E-09	1.338E-09	1.122E-09	9.667E-10	8.447E-10	
WNW	59	2.898E-09	2.127E-09	1.664E-09	1.355E-09	1.130E-09	9.688E-10	8.431E-10	
NW	73	6.411E-09	4.769E-09	3.773E-09	3.099E-09	2.603E-09	2.242E-09	1.959E-09	
NNW	117	1.658E-08	1.239E-08	9.839E-09	8.105E-09	6.822E-09	5.884E-09	5.146E-09	
AVERAGE	2089	1.112E-08	8.315E-09	6.604E-09	5.443E-09	4.584E-09	3.955E-09	3.461E-09	

Table B-1

Undepleted X/Q Factors for Reactor Building Vent

BE 1995 ENTIRE YEAR general ground level X/Qs beco
GROUND RELEASE: GROUND-LEVEL AVERAGE CH1/Q BEFORE DEPLETION (SEC/M3) SECTOR AVERAGE MODEL

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	614	2.934E-05	8.743E-06	3.084E-06	1.708E-06	1.115E-06	6.019E-07	3.890E-07	2.787E-07
NNE	1114	4.130E-05	1.233E-05	4.262E-06	2.346E-06	1.529E-06	8.288E-07	5.375E-07	3.861E-07
NE	875	5.290E-05	1.558E-05	4.966E-06	2.711E-06	1.772E-06	9.933E-07	6.588E-07	4.807E-07
ENE	772	4.492E-05	1.325E-05	4.463E-06	2.464E-06	1.613E-06	8.867E-07	5.800E-07	4.193E-07
E	715	3.266E-05	9.756E-06	3.392E-06	1.860E-06	1.209E-06	6.526E-07	4.226E-07	3.033E-07
ESE	442	1.847E-05	5.594E-06	1.951E-06	1.061E-06	6.862E-07	3.672E-07	2.368E-07	1.693E-07
SE	424	1.716E-05	5.249E-06	1.879E-06	1.019E-06	6.560E-07	3.480E-07	2.233E-07	1.590E-07
SSE	351	1.382E-05	4.250E-06	1.504E-06	8.123E-07	5.219E-07	2.768E-07	1.778E-07	1.267E-07
S	427	1.411E-05	4.321E-06	1.380E-06	7.400E-07	4.748E-07	2.511E-07	1.610E-07	1.146E-07
SSW	491	1.394E-05	4.327E-06	1.364E-06	7.302E-07	4.680E-07	2.469E-07	1.580E-07	1.123E-07
SW	280	1.021E-05	3.182E-06	1.028E-06	5.519E-07	3.534E-07	1.859E-07	1.186E-07	8.408E-08
WSW	348	1.453E-05	4.469E-06	1.401E-06	7.551E-07	4.860E-07	2.584E-07	1.661E-07	1.185E-07
W	279	1.226E-05	3.775E-06	1.225E-06	7.279E-07	4.671E-07	2.470E-07	1.439E-07	1.023E-07
WNW	248	1.088E-05	3.353E-06	1.197E-06	6.537E-07	4.224E-07	2.244E-07	1.382E-07	1.125E-07
NW	268	1.507E-05	4.535E-06	1.625E-06	8.907E-07	5.767E-07	3.085E-07	1.986E-07	1.418E-07
NNW	310	2.023E-05	6.003E-06	2.147E-06	1.191E-06	7.775E-07	4.190E-07	2.705E-07	1.936E-07
AVERAGE	7958	2.261E-05	6.794E-06	2.304E-06	1.254E-06	8.206E-07	4.435E-07	2.875E-07	2.064E-07

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	614	2.137E-07	1.709E-07	1.409E-07	1.186E-07	1.018E-07	5.786E-08	3.901E-08	2.244E-08
NNE	1114	2.964E-07	2.373E-07	1.959E-07	1.652E-07	1.421E-07	8.113E-08	5.491E-08	3.176E-08
NE	875	3.729E-07	3.012E-07	2.506E-07	2.132E-07	1.848E-07	1.081E-07	7.441E-08	4.420E-08
ENE	772	3.236E-07	2.602E-07	2.156E-07	1.824E-07	1.574E-07	9.074E-08	6.188E-08	3.622E-08
E	715	2.327E-07	1.862E-07	1.537E-07	1.295E-07	1.113E-07	6.343E-08	4.289E-08	2.479E-08
ESE	442	1.295E-07	1.033E-07	8.504E-08	7.156E-08	6.140E-08	3.483E-08	2.344E-08	1.344E-08
SE	424	1.210E-07	9.618E-08	8.683E-08	7.283E-08	6.232E-08	3.183E-08	2.125E-08	1.203E-08
SSE	351	9.644E-08	7.667E-08	6.295E-08	5.284E-08	4.524E-08	2.549E-08	1.703E-08	9.649E-09
S	427	8.723E-08	6.937E-08	5.697E-08	4.783E-08	4.094E-08	2.306E-08	1.544E-08	8.794E-09
SSW	491	8.535E-08	6.779E-08	5.562E-08	4.669E-08	3.997E-08	2.253E-08	1.508E-08	8.576E-09
SW	280	6.368E-08	5.045E-08	4.129E-08	3.457E-08	2.954E-08	1.652E-08	1.099E-08	6.177E-09
WSW	348	9.035E-08	7.195E-08	6.508E-08	5.473E-08	4.694E-08	2.419E-08	1.626E-08	9.302E-09
W	279	7.781E-08	6.180E-08	5.068E-08	4.249E-08	3.634E-08	2.040E-08	1.361E-08	7.709E-09
WNW	248	6.550E-08	6.789E-08	5.061E-08	4.243E-08	3.630E-08	2.040E-08	1.359E-08	7.662E-09
NW	268	1.084E-07	8.638E-08	7.103E-08	5.965E-08	5.111E-08	2.883E-08	1.934E-08	1.105E-08
NNW	310	1.485E-07	1.186E-07	9.775E-08	8.221E-08	7.053E-08	3.996E-08	2.690E-08	1.545E-08
AVERAGE	7958	1.583E-07	1.266E-07	1.050E-07	8.855E-08	7.612E-08	4.308E-08	2.913E-08	1.683E-08

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	614	1.527E-08	1.139E-08	9.031E-09	7.431E-09	6.249E-09	5.385E-09	4.707E-09	
NNE	1114	2.169E-08	1.623E-08	1.290E-08	1.064E-08	8.961E-09	7.731E-09	6.765E-09	
NE	875	3.062E-08	2.316E-08	1.858E-08	1.543E-08	1.307E-08	1.132E-08	9.936E-09	
ENE	772	2.488E-08	1.869E-08	1.491E-08	1.233E-08	1.041E-08	8.990E-09	7.875E-09	
E	715	1.693E-08	1.267E-08	1.007E-08	8.302E-09	6.995E-09	6.038E-09	5.286E-09	
ESE	442	9.154E-09	6.836E-09	5.424E-09	4.467E-09	3.762E-09	3.247E-09	2.842E-09	
SE	424	8.134E-09	6.042E-09	4.773E-09	3.919E-09	3.291E-09	2.836E-09	2.479E-09	
SSE	351	6.528E-09	4.852E-09	3.836E-09	3.151E-09	2.648E-09	2.282E-09	1.996E-09	
S	427	5.978E-09	4.460E-09	3.535E-09	2.912E-09	2.453E-09	2.119E-09	1.858E-09	
SSW	491	5.826E-09	4.345E-09	3.443E-09	2.835E-09	2.387E-09	2.061E-09	1.805E-09	
SW	280	4.167E-09	3.091E-09	2.439E-09	2.001E-09	1.680E-09	1.448E-09	1.266E-09	
WSW	348	6.333E-09	4.730E-09	3.753E-09	3.092E-09	2.604E-09	2.247E-09	1.968E-09	
W	279	5.212E-09	3.872E-09	3.060E-09	2.512E-09	2.110E-09	1.819E-09	1.590E-09	
WNW	248	5.162E-09	3.824E-09	3.015E-09	2.470E-09	2.070E-09	1.779E-09	1.552E-09	
NW	268	7.494E-09	5.580E-09	4.416E-09	3.630E-09	3.052E-09	2.630E-09	2.300E-09	
NNW	310	1.050E-08	7.823E-09	6.197E-09	5.096E-09	4.284E-09	3.691E-09	3.226E-09	
AVERAGE	7958	1.149E-08	8.600E-09	6.836E-09	5.638E-09	4.752E-09	4.101E-09	3.591E-09	

Table B-2

Depleted X/Q Factors for Reactor Building Vent

RE 1st quarter 1993 general x/q's - ground level

SECTOR AVERAGE MODE

GROUND RELEASE: GROUND-LEVEL AVERAGE CH1/Q AFTER DEPLETION (REGULATORY GUIDE 1.111 DEPLETION MODEL) (SEC/M3)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	110	1.503E-05	4.533E-06	1.584E-06	8.461E-07	5.377E-07	2.776E-07	1.728E-07	1.201E-07
NNE	119	2.033E-05	5.955E-06	2.056E-06	1.111E-06	7.128E-07	3.732E-07	2.340E-07	1.637E-07
NE	125	2.499E-05	7.295E-06	2.337E-06	1.254E-06	8.094E-07	4.340E-07	2.763E-07	1.954E-07
ENE	201	3.784E-05	1.105E-05	3.776E-06	2.032E-06	1.309E-06	6.871E-07	4.316E-07	3.024E-07
E	284	3.696E-05	1.112E-05	3.813E-06	2.025E-06	1.285E-06	6.638E-07	4.139E-07	2.882E-07
ESE	174	7.479E-05	7.499E-06	2.492E-06	1.304E-06	8.232E-07	4.274E-07	2.680E-07	1.873E-07
SE	143	1.773E-05	5.517E-06	1.905E-06	9.999E-07	6.296E-07	3.213E-07	1.990E-07	1.376E-07
SSE	104	1.401E-05	4.233E-06	1.461E-06	7.722E-07	4.883E-07	2.515E-07	1.566E-07	1.088E-07
S	109	1.077E-05	3.349E-06	1.016E-06	5.233E-07	3.266E-07	1.666E-07	1.035E-07	7.175E-08
SSW	159	1.247E-05	3.888E-06	1.127E-06	5.787E-07	3.628E-07	1.854E-07	1.153E-07	8.005E-08
SW	64	6.663E-06	2.092E-06	6.512E-07	3.386E-07	2.120E-07	1.075E-07	6.624E-08	4.563E-08
WSW	101	1.234E-05	3.828E-06	1.170E-06	6.138E-07	3.869E-07	1.982E-07	1.231E-07	8.529E-08
W	58	9.434E-06	2.928E-06	8.962E-07	5.176E-07	3.262E-07	1.674E-07	9.453E-08	6.550E-08
WNW	42	6.717E-06	2.112E-06	7.261E-07	3.834E-07	2.420E-07	1.238E-07	8.439E-08	5.830E-08
NW	60	1.765E-05	5.069E-06	1.760E-06	9.438E-07	6.024E-07	3.167E-07	1.997E-07	1.404E-07
NNW	70	1.629E-05	4.723E-06	1.663E-06	8.922E-07	5.690E-07	2.964E-07	1.856E-07	1.297E-07
AVERAGE	1923	1.775E-05	5.324E-06	1.777E-06	9.465E-07	6.015E-07	3.124E-07	1.953E-07	1.363E-07

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	110	8.966E-08	7.005E-08	5.658E-08	4.680E-08	3.952E-08	2.080E-08	1.318E-08	6.895E-09
NNE	119	1.232E-07	9.679E-08	7.854E-08	6.521E-08	5.524E-08	2.938E-08	1.881E-08	1.001E-08
NE	125	1.481E-07	1.172E-07	9.569E-08	8.003E-08	6.823E-08	3.706E-08	2.409E-08	1.310E-08
ENE	201	2.279E-07	1.794E-07	1.457E-07	1.211E-07	1.027E-07	5.480E-08	3.519E-08	1.882E-08
E	284	2.157E-07	1.688E-07	1.366E-07	1.132E-07	9.571E-08	5.064E-08	3.226E-08	1.702E-08
ESE	174	1.403E-07	1.100E-07	8.916E-08	7.409E-08	6.279E-08	3.347E-08	2.142E-08	1.138E-08
SE	143	1.020E-07	7.930E-08	7.021E-08	5.797E-08	4.886E-08	2.325E-08	1.462E-08	7.524E-09
SSE	104	8.130E-08	6.354E-08	5.135E-08	4.252E-08	3.592E-08	1.894E-08	1.202E-08	6.304E-09
S	109	5.331E-08	4.152E-08	3.349E-08	2.772E-08	2.341E-08	1.234E-08	7.833E-09	4.108E-09
SSW	159	5.962E-08	4.658E-08	3.768E-08	3.130E-08	2.651E-08	1.416E-08	9.072E-09	4.823E-09
SW	64	3.372E-08	2.615E-08	2.100E-08	1.731E-08	1.457E-08	7.599E-09	4.778E-09	2.465E-09
WSW	101	6.344E-08	4.945E-08	4.389E-08	3.632E-08	3.068E-08	1.473E-08	9.346E-09	4.886E-09
W	58	4.869E-08	3.793E-08	3.059E-08	2.530E-08	2.137E-08	1.127E-08	7.151E-09	3.741E-09
WNW	42	4.317E-08	3.353E-08	2.452E-08	2.024E-08	1.707E-08	8.944E-09	5.620E-09	2.881E-09
NW	60	1.061E-07	8.361E-08	6.799E-08	5.652E-08	4.793E-08	2.554E-08	1.642E-08	8.832E-09
NNW	70	9.766E-08	7.672E-08	6.221E-08	5.158E-08	4.363E-08	2.308E-08	1.476E-08	7.880E-09
AVERAGE	1923	1.021E-07	8.003E-08	6.532E-08	5.420E-08	4.588E-08	2.413E-08	1.541E-08	8.167E-09

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	110	4.323E-09	3.018E-09	2.262E-09	1.774E-09	1.429E-09	1.187E-09	1.003E-09	
NNE	119	6.330E-09	4.447E-09	3.350E-09	2.638E-09	2.131E-09	1.775E-09	1.502E-09	
NE	125	8.389E-09	5.949E-09	4.518E-09	3.580E-09	2.906E-09	2.426E-09	2.059E-09	
ENE	201	1.193E-08	8.402E-09	6.340E-09	4.999E-09	4.043E-09	3.369E-09	2.853E-09	
E	284	1.073E-08	7.525E-09	5.661E-09	4.453E-09	3.596E-09	2.994E-09	2.535E-09	
ESE	174	7.221E-09	5.089E-09	3.844E-09	3.035E-09	2.459E-09	2.052E-09	1.742E-09	
SE	143	4.689E-09	3.260E-09	2.435E-09	1.905E-09	1.532E-09	1.271E-09	1.074E-09	
SSE	104	3.966E-09	2.776E-09	2.085E-09	1.639E-09	1.323E-09	1.101E-09	9.324E-10	
S	109	2.594E-09	1.823E-09	1.373E-09	1.082E-09	8.762E-10	7.313E-10	6.209E-10	
SSW	159	3.074E-09	2.174E-09	1.646E-09	1.302E-09	1.057E-09	8.837E-10	7.513E-10	
SW	64	1.541E-09	1.074E-09	8.039E-10	6.301E-10	5.076E-10	4.220E-10	3.571E-10	
WSW	101	3.072E-09	2.150E-09	1.614E-09	1.268E-09	1.023E-09	8.505E-10	7.194E-10	
W	58	2.352E-09	1.646E-09	1.237E-09	9.716E-10	7.838E-10	6.516E-10	5.511E-10	
WNW	42	1.789E-09	1.240E-09	9.244E-10	7.215E-10	5.787E-10	4.788E-10	4.033E-10	
NW	60	5.617E-09	3.964E-09	2.998E-09	2.368E-09	1.920E-09	1.604E-09	1.362E-09	
NNW	70	4.992E-09	3.513E-09	2.649E-09	2.089E-09	1.690E-09	1.411E-09	1.196E-09	
AVERAGE	1923	5.163E-09	3.628E-09	2.734E-09	2.153E-09	1.741E-09	1.451E-09	1.229E-09	

Table B-2

Depleted X/Q Factors for Reactor Building Vent

BE 2nd quarter 1993 general x/q's - ground level
 GROUND RELEASE: GROUND-LEVEL AVERAGE CHI/Q AFTER DEPLETION (REGULATORY GUIDE 1.111 DEPLETION MODEL) - (SEC/M3)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	122	1.779E-05	5.294E-06	1.794E-06	9.624E-07	6.164E-07	3.218E-07	2.015E-07	1.407E-07
NNE	307	3.522E-05	1.033E-05	3.355E-06	1.771E-06	1.128E-06	5.974E-07	3.789E-07	2.673E-07
NE	183	4.081E-05	1.180E-05	3.598E-06	1.898E-06	1.215E-06	6.641E-07	4.297E-07	3.073E-07
ENE	151	3.562E-05	1.027E-05	3.366E-06	1.820E-06	1.175E-06	6.268E-07	3.977E-07	2.808E-07
E	120	2.651E-05	7.662E-06	2.491E-06	1.335E-06	8.583E-07	4.573E-07	2.904E-07	2.052E-07
ESE	84	1.775E-05	5.147E-06	1.688E-06	9.104E-07	5.876E-07	3.106E-07	1.957E-07	1.375E-07
SE	87	1.597E-05	4.734E-06	1.805E-06	9.577E-07	6.074E-07	3.135E-07	1.779E-07	1.241E-07
SSE	98	1.912E-05	5.831E-06	1.930E-06	9.192E-07	5.807E-07	3.020E-07	1.894E-07	1.323E-07
S	155	2.217E-05	6.838E-06	1.908E-06	9.962E-07	6.285E-07	3.223E-07	2.001E-07	1.387E-07
SSW	76	1.132E-05	3.516E-06	1.108E-06	5.804E-07	3.647E-07	1.857E-07	1.149E-07	7.936E-08
SW	69	1.204E-05	3.653E-06	1.128E-06	5.952E-07	3.772E-07	1.944E-07	1.210E-07	8.406E-08
WSW	86	2.027E-05	6.162E-06	1.878E-06	9.965E-07	6.334E-07	3.278E-07	2.042E-07	1.419E-07
W	79	1.511E-05	4.561E-06	1.418E-06	8.282E-07	5.261E-07	2.718E-07	1.540E-07	1.071E-07
WNW	78	1.606E-05	4.666E-06	1.611E-06	8.686E-07	5.573E-07	2.915E-07	2.009E-07	1.406E-07
NW	65	1.246E-05	3.747E-06	1.300E-06	6.944E-07	4.417E-07	2.285E-07	1.424E-07	9.901E-08
NNW	67	1.367E-05	4.095E-06	1.442E-06	7.732E-07	4.924E-07	2.548E-07	1.587E-07	1.103E-07
AVERAGE	1827	2.074E-05	6.144E-06	1.989E-06	1.057E-06	6.744E-07	3.544E-07	2.223E-07	1.560E-07

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	122	1.056E	8.289E-08	6.722E-08	5.583E-08	4.730E-08	2.519E-08	1.611E-08	8.541E-09
NNE	307	2.021E	1.595E-07	1.301E-07	1.086E-07	9.242E-08	4.990E-08	3.232E-08	1.753E-08
NE	183	2.345E-07	1.865E-07	1.531E-07	1.288E-07	1.103E-07	6.074E-08	3.989E-08	2.209E-08
ENE	151	2.129E-07	1.685E-07	1.375E-07	1.148E-07	9.779E-08	5.290E-08	3.433E-08	1.866E-08
E	120	1.556E-07	1.231E-07	1.006E-07	8.403E-08	7.158E-08	3.876E-08	2.518E-08	1.372E-08
ESE	84	1.041E-07	8.217E-08	6.698E-08	5.586E-08	4.749E-08	2.561E-08	1.659E-08	8.994E-09
SE	87	9.313E-08	7.303E-08	6.507E-08	5.394E-08	4.562E-08	2.413E-08	1.540E-08	8.161E-09
SSE	98	9.895E-08	7.749E-08	6.277E-08	5.216E-08	4.420E-08	2.356E-08	1.506E-08	7.972E-09
S	155	1.031E-07	8.041E-08	6.490E-08	5.375E-08	4.540E-08	2.398E-08	1.521E-08	7.960E-09
SSW	76	5.884E-08	4.573E-08	3.679E-08	3.036E-08	2.558E-08	1.337E-08	8.406E-09	4.335E-09
SW	69	6.276E-08	4.906E-08	3.965E-08	3.285E-08	2.777E-08	1.468E-08	9.340E-09	4.917E-09
WSW	86	1.060E-07	8.293E-08	7.378E-08	6.117E-08	5.175E-08	2.496E-08	1.593E-08	8.421E-09
W	79	8.006E-08	6.262E-08	5.064E-08	4.196E-08	3.547E-08	1.876E-08	1.194E-08	6.282E-09
WNW	78	1.059E-07	8.329E-08	6.148E-08	5.106E-08	4.325E-08	2.300E-08	1.475E-08	7.885E-09
NW	65	7.403E-08	5.789E-08	4.680E-08	3.875E-08	3.274E-08	1.728E-08	1.097E-08	5.761E-09
NNW	67	8.249E-08	6.448E-08	5.210E-08	4.310E-08	3.640E-08	1.915E-08	1.214E-08	6.345E-09
AVERAGE	1827	1.175E-07	9.248E-08	7.559E-08	6.294E-08	5.344E-08	2.850E-08	1.835E-08	9.848E-09

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	122	5.399E-09	3.792E-09	2.856E-09	2.249E-09	1.817E-09	1.512E-09	1.280E-09	
NNE	307	1.123E-08	7.969E-09	6.054E-09	4.801E-09	3.903E-09	3.265E-09	2.777E-09	
NE	183	1.430E-08	1.022E-08	7.813E-09	6.225E-09	5.088E-09	4.257E-09	3.626E-09	
ENE	151	1.194E-08	8.460E-09	6.420E-09	5.083E-09	4.125E-09	3.444E-09	2.923E-09	
E	120	8.795E-09	6.244E-09	4.744E-09	3.761E-09	3.057E-09	2.555E-09	2.171E-09	
ESE	84	5.756E-09	4.079E-09	3.094E-09	2.449E-09	1.988E-09	1.661E-09	1.410E-09	
SE	87	5.160E-09	3.626E-09	2.731E-09	2.152E-09	1.740E-09	1.452E-09	1.231E-09	
SSE	98	5.047E-09	3.550E-09	2.679E-09	2.113E-09	1.710E-09	1.425E-09	1.209E-09	
S	155	5.016E-09	3.517E-09	2.645E-09	2.082E-09	1.682E-09	1.402E-09	1.188E-09	
SSW	76	2.705E-09	1.882E-09	1.407E-09	1.102E-09	8.864E-10	7.364E-10	6.224E-10	
SW	69	3.102E-09	2.176E-09	1.637E-09	1.289E-09	1.041E-09	8.673E-10	7.347E-10	
WSW	86	5.321E-09	3.737E-09	2.815E-09	2.216E-09	1.790E-09	1.490E-09	1.262E-09	
W	79	3.959E-09	2.775E-09	2.086E-09	1.641E-09	1.324E-09	1.103E-09	9.333E-10	
WNW	78	5.002E-09	3.522E-09	2.658E-09	2.096E-09	1.696E-09	1.414E-09	1.199E-09	
NW	65	3.621E-09	2.532E-09	1.901E-09	1.492E-09	1.203E-09	1.000E-09	8.457E-10	
NNW	67	3.976E-09	2.774E-09	2.078E-09	1.629E-09	1.312E-09	1.090E-09	9.206E-10	
AVERAGE	1827	6.270E-09	4.428E-09	3.351E-09	2.649E-09	2.147E-09	1.792E-09	1.521E-09	

Table B-2

Depleted X/Q Factors for Reactor Building Vent

BE 3rd quarter 1993 ground level general x/q's

SECTOR AVERAGE MOD

GROUND RELEASE: GROUND-LEVEL AVERAGE CH1/Q AFTER DEPLETION (REGULATORY GUIDE 1.111 DEPLETION MODEL)

(SEC/M3)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	202	4.244E-05	1.243E-05	4.102E-06	2.219E-06	1.431E-06	7.577E-07	4.781E-07	3.360E-07
NNE	428	6.105E-05	1.805E-05	5.979E-06	3.216E-06	2.067E-06	1.089E-06	6.852E-07	4.805E-07
NE	315	8.315E-05	2.405E-05	7.240E-06	3.850E-06	2.480E-06	1.362E-06	8.824E-07	6.314E-07
ENE	175	5.019E-05	1.454E-05	4.464E-06	2.388E-06	1.541E-06	8.388E-07	5.398E-07	3.846E-07
E	100	2.755E-05	8.019E-06	2.543E-06	1.371E-06	8.868E-07	4.740E-07	3.012E-07	2.129E-07
ESE	65	1.389E-05	4.092E-06	1.408E-06	7.501E-07	4.778E-07	2.480E-07	1.513E-07	1.085E-07
SE	66	1.630E-05	4.781E-06	1.796E-06	9.635E-07	6.168E-07	3.220E-07	1.633E-07	1.281E-07
SSE	69	1.426E-05	4.288E-06	1.455E-06	6.958E-07	4.400E-07	2.267E-07	1.416E-07	9.873E-08
S	74	1.679E-05	4.850E-06	1.391E-06	7.358E-07	4.680E-07	2.427E-07	1.521E-07	1.065E-07
SSW	108	1.865E-05	5.502E-06	1.665E-06	8.788E-07	5.600E-07	2.913E-07	1.826E-07	1.277E-07
SW	103	1.561E-05	4.774E-06	1.491E-06	7.813E-07	4.926E-07	2.521E-07	1.564E-07	1.084E-07
WSW	124	1.887E-05	5.596E-06	1.663E-06	8.728E-07	5.552E-07	2.888E-07	1.814E-07	1.272E-07
W	95	1.643E-05	4.939E-06	1.551E-06	8.949E-07	5.633E-07	2.895E-07	1.642E-07	1.143E-07
WNW	69	1.296E-05	3.985E-06	1.347E-06	7.159E-07	4.553E-07	2.354E-07	1.614E-07	1.121E-07
NW	70	1.539E-05	4.624E-06	1.587E-06	8.450E-07	5.374E-07	2.780E-07	1.733E-07	1.206E-07
NNW	56	1.751E-05	5.193E-06	1.749E-06	9.470E-07	6.096E-07	3.202E-07	2.009E-07	1.405E-07
AVERAGE	2119	2.757E-05	8.107E-06	2.589E-06	1.383E-06	8.863E-07	4.698E-07	2.962E-07	2.086E-07

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	202	2.538E-07	2.001E-07	1.630E-07	1.358E-07	1.155E-07	6.219E-08	4.016E-08	2.162E-08
NNE	428	3.620E-07	2.850E-07	2.317E-07	1.929E-07	1.639E-07	8.797E-08	5.665E-08	3.036E-08
NE	315	4.822E-07	3.839E-07	3.154E-07	2.655E-07	2.276E-07	1.257E-07	8.271E-08	4.583E-08
ENE	175	2.930E-07	2.329E-07	1.910E-07	1.604E-07	1.373E-07	7.546E-08	4.947E-08	2.726E-08
E	100	1.616E-07	1.280E-07	1.046E-07	8.753E-08	7.465E-08	4.066E-08	2.649E-08	1.445E-08
ESE	65	8.159E-08	6.409E-08	5.200E-08	4.317E-08	3.655E-08	1.942E-08	1.242E-08	6.602E-09
SE	66	9.642E-08	7.578E-08	6.766E-08	5.619E-08	4.760E-08	2.534E-08	1.625E-08	8.682E-09
SSE	69	7.399E-08	5.800E-08	4.699E-08	3.899E-08	3.299E-08	1.752E-08	1.118E-08	5.914E-09
S	74	8.037E-08	6.329E-08	5.144E-08	4.275E-08	3.621E-08	1.926E-08	1.237E-08	6.647E-09
SSW	108	9.610E-08	7.558E-08	6.142E-08	5.110E-08	4.333E-08	2.316E-08	1.489E-08	7.978E-09
SW	103	8.067E-08	6.289E-08	5.073E-08	4.195E-08	3.540E-08	1.860E-08	1.177E-08	6.136E-09
WSW	124	9.585E-08	7.549E-08	6.757E-08	5.632E-08	4.782E-08	2.336E-08	1.506E-08	8.092E-09
W	95	8.556E-08	6.696E-08	5.415E-08	4.485E-08	3.790E-08	2.000E-08	1.273E-08	6.717E-09
WNW	69	8.354E-08	6.522E-08	4.789E-08	3.968E-08	3.355E-08	1.776E-08	1.127E-08	5.877E-09
NW	70	9.024E-08	7.062E-08	5.713E-08	4.733E-08	4.002E-08	2.117E-08	1.348E-08	7.113E-09
NNW	56	1.057E-07	8.303E-08	6.740E-08	5.603E-08	4.752E-08	2.539E-08	1.628E-08	8.658E-09
AVERAGE	2119	1.577E-07	1.244E-07	1.019E-07	8.504E-08	7.236E-08	3.894E-08	2.520E-08	1.362E-08

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	202	1.377E-08	9.720E-09	7.354E-09	5.808E-09	4.704E-09	3.920E-09	3.321E-09	
NNE	428	1.929E-08	1.361E-08	1.028E-08	8.115E-09	6.569E-09	5.473E-09	4.635E-09	
NE	315	2.966E-08	2.120E-08	1.620E-08	1.291E-08	1.053E-08	8.811E-09	7.498E-09	
ENE	175	1.759E-08	1.254E-08	9.566E-09	7.606E-09	6.194E-09	5.180E-09	4.404E-09	
E	100	9.278E-09	6.589E-09	5.009E-09	3.971E-09	3.226E-09	2.693E-09	2.286E-09	
ESE	65	4.181E-09	2.941E-09	2.217E-09	1.748E-09	1.414E-09	1.180E-09	1.000E-09	
SE	66	5.510E-09	3.881E-09	2.930E-09	2.311E-09	1.871E-09	1.560E-09	1.323E-09	
SSE	69	3.741E-09	2.630E-09	1.982E-09	1.567E-09	1.264E-09	1.054E-09	8.941E-10	
S	74	4.239E-09	2.999E-09	2.270E-09	1.796E-09	1.459E-09	1.222E-09	1.039E-09	
SSW	108	5.087E-09	3.598E-09	2.724E-09	2.155E-09	1.749E-09	1.463E-09	1.243E-09	
SW	103	3.855E-09	2.697E-09	2.025E-09	1.591E-09	1.284E-09	1.070E-09	9.064E-10	
WSW	124	5.171E-09	3.663E-09	2.777E-09	2.199E-09	1.787E-09	1.495E-09	1.271E-09	
W	95	4.242E-09	2.979E-09	2.243E-09	1.767E-09	1.429E-09	1.192E-09	1.011E-09	
WNW	69	3.685E-09	2.573E-09	1.929E-09	1.513E-09	1.218E-09	1.011E-09	8.538E-10	
NW	70	4.485E-09	3.144E-09	2.365E-09	1.860E-09	1.502E-09	1.250E-09	1.058E-09	
NNW	56	5.475E-09	3.846E-09	2.898E-09	2.281E-09	1.842E-09	1.531E-09	1.295E-09	
AVERAGE	2119	8.703E-09	6.163E-09	4.673E-09	3.699E-09	3.002E-09	2.507E-09	2.128E-09	

Table B-2

Depleted X/Q Factors for Reactor Building Vent

BE 4th quarter 1993 general x/q's - ground level

SECTOR AVERAGE MOD

GROUND RELEASE: GROUND-LEVEL AVERAGE CH1/Q AFTER DEPLETION (REGULATORY GUIDE 1.111 DEPLETION MODEL) (SEC/M3)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	180	3.534E-05	1.022E-05	3.550E-06	1.925E-06	1.238E-06	6.491E-07	4.072E-07	2.851E-07
NNE	260	4.029E-05	1.180E-05	3.947E-06	2.129E-06	1.368E-06	7.212E-07	4.542E-07	3.188E-07
NE	252	5.130E-05	1.494E-05	4.647E-06	2.481E-06	1.596E-06	8.637E-07	5.536E-07	3.933E-07
ENE	245	4.813E-05	1.403E-05	4.592E-06	2.474E-06	1.593E-06	8.480E-07	5.377E-07	3.792E-07
E	211	3.483E-05	1.023E-05	3.542E-06	1.893E-06	1.206E-06	6.275E-07	3.930E-07	2.746E-07
ESE	119	1.542E-05	4.686E-06	1.596E-06	8.440E-07	5.352E-07	2.760E-07	1.719E-07	1.195E-07
SE	128	1.621E-05	4.924E-06	1.697E-06	8.896E-07	5.598E-07	2.881E-07	1.798E-07	1.251E-07
SSE	80	9.505E-06	2.893E-06	1.017E-06	5.369E-07	3.389E-07	1.735E-07	1.078E-07	7.474E-08
S	89	8.523E-06	2.562E-06	7.892E-07	4.127E-07	2.608E-07	1.340E-07	8.347E-08	5.808E-08
SSW	148	1.092E-05	3.404E-06	1.055E-06	5.472E-07	3.420E-07	1.732E-07	1.069E-07	7.380E-08
SW	44	5.003E-06	1.551E-06	4.798E-07	2.488E-07	1.556E-07	7.898E-08	4.891E-08	3.384E-08
WSW	37	5.168E-06	1.583E-06	4.732E-07	2.416E-07	1.498E-07	7.705E-08	4.838E-08	3.382E-08
W	47	6.478E-06	1.964E-06	6.261E-07	3.627E-07	2.282E-07	1.166E-07	6.580E-08	4.565E-08
WNW	59	6.581E-06	2.065E-06	7.248E-07	3.805E-07	2.388E-07	1.212E-07	8.225E-08	5.667E-08
NW	73	1.262E-05	3.775E-06	1.292E-06	6.904E-07	4.402E-07	2.285E-07	1.425E-07	9.925E-08
NNW	117	2.963E-05	8.524E-06	2.911E-06	1.585E-06	1.024E-06	5.402E-07	3.400E-07	2.387E-07
AVERAGE	2089	2.100E-05	6.197E-06	2.059E-06	1.103E-06	7.046E-07	3.698E-07	2.327E-07	1.631E-07

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	180	2.150E-07	1.692E-07	1.374E-07	1.141E-07	9.671E-08	5.147E-08	3.302E-08	1.765E-08
NNE	260	2.406E-07	1.895E-07	1.542E-07	1.283E-07	1.090E-07	5.845E-08	3.767E-08	2.025E-08
NE	252	2.989E-07	2.371E-07	1.941E-07	1.627E-07	1.391E-07	7.609E-08	4.974E-08	2.732E-08
ENE	245	2.870E-07	2.267E-07	1.849E-07	1.543E-07	1.314E-07	7.098E-08	4.597E-08	2.489E-08
E	211	2.065E-07	1.621E-07	1.315E-07	1.091E-07	9.233E-08	4.897E-08	3.132E-08	1.668E-08
ESE	119	8.918E-08	6.969E-08	5.633E-08	4.667E-08	3.944E-08	2.085E-08	1.325E-08	6.953E-09
SE	128	9.336E-08	7.293E-08	6.480E-08	5.365E-08	4.533E-08	2.171E-08	1.377E-08	7.215E-09
SSE	80	5.568E-08	4.342E-08	3.502E-08	2.893E-08	2.440E-08	1.279E-08	8.068E-09	4.185E-09
S	89	4.344E-08	3.400E-08	2.752E-08	2.282E-08	1.929E-08	1.021E-08	6.506E-09	3.440E-09
SSW	148	5.469E-08	4.249E-08	3.418E-08	2.821E-08	2.376E-08	1.243E-08	7.848E-09	4.083E-09
SW	44	2.514E-08	1.958E-08	1.578E-08	1.304E-08	1.100E-08	5.775E-09	3.654E-09	1.906E-09
WSW	37	2.531E-08	1.982E-08	1.765E-08	1.467E-08	1.243E-08	6.016E-09	3.857E-09	2.064E-09
W	47	3.406E-08	2.658E-08	2.145E-08	1.772E-08	1.495E-08	7.838E-09	4.960E-09	2.593E-09
WNW	59	4.188E-08	3.246E-08	2.369E-08	1.951E-08	1.641E-08	8.524E-09	5.332E-09	2.722E-09
NW	73	7.433E-08	5.821E-08	4.712E-08	3.906E-08	3.304E-08	1.750E-08	1.117E-08	5.910E-09
NNW	117	1.805E-07	1.423E-07	1.158E-07	9.640E-08	8.182E-08	4.380E-08	2.822E-08	1.518E-08
AVERAGE	2089	1.228E-07	9.664E-08	7.884E-08	6.558E-08	5.564E-08	2.959E-08	1.902E-08	1.019E-08

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	180	1.119E-08	7.872E-09	5.938E-09	4.680E-09	3.784E-09	3.153E-09	2.670E-09	
NNE	260	1.288E-08	9.088E-09	6.872E-09	5.426E-09	4.394E-09	3.663E-09	3.104E-09	
NE	252	1.759E-08	1.253E-08	9.549E-09	7.587E-09	6.176E-09	5.164E-09	4.389E-09	
ENE	245	1.590E-08	1.125E-08	8.528E-09	6.747E-09	5.473E-09	4.566E-09	3.873E-09	
E	211	1.056E-08	7.429E-09	5.601E-09	4.415E-09	3.572E-09	2.979E-09	2.525E-09	
ESE	119	4.377E-09	3.066E-09	2.304E-09	1.811E-09	1.462E-09	1.216E-09	1.030E-09	
SE	128	4.538E-09	3.177E-09	2.387E-09	1.877E-09	1.516E-09	1.263E-09	1.070E-09	
SSE	80	2.616E-09	1.823E-09	1.364E-09	1.068E-09	8.601E-10	7.150E-10	6.044E-10	
S	89	2.180E-09	1.535E-09	1.158E-09	9.138E-10	7.404E-10	6.187E-10	5.256E-10	
SSW	148	2.564E-09	1.794E-09	1.346E-09	1.058E-09	8.539E-10	7.112E-10	6.026E-10	
SW	44	1.199E-09	8.392E-10	6.303E-10	4.956E-10	4.003E-10	3.336E-10	2.828E-10	
WSW	37	1.316E-09	9.318E-10	7.064E-10	5.597E-10	4.550E-10	3.810E-10	3.244E-10	
W	47	1.627E-09	1.137E-09	8.532E-10	6.699E-10	5.403E-10	4.498E-10	3.807E-10	
WNW	59	1.687E-09	1.168E-09	8.695E-10	6.784E-10	5.441E-10	4.508E-10	3.800E-10	
NW	73	3.732E-09	2.619E-09	1.971E-09	1.551E-09	1.253E-09	1.043E-09	8.828E-10	
NNW	117	9.649E-09	6.804E-09	5.142E-09	4.058E-09	3.284E-09	2.738E-09	2.319E-09	
AVERAGE	2089	6.475E-09	4.566E-09	3.451E-09	2.725E-09	2.207E-09	1.840E-09	1.560E-09	

Table B-2

Depleted X/Q Factors for Reactor Building Vent

BE 1993 ENTIRE YEAR general ground level X/Qs beco
 GROUND RELEASE: GROUND-LEVEL AVERAGE CHI/Q AFTER DEPLETION (REGULATORY GUIDE 1.111 DEPLETION MODEL) - (SEC/M3) SECTOR AVERAGE MODEL

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	614	2.829E-05	8.304E-06	2.819E-06	1.522E-06	9.776E-07	5.131E-07	3.222E-07	2.256E-07
NNE	1114	3.983E-05	1.171E-05	3.895E-06	2.090E-06	1.341E-06	7.065E-07	4.452E-07	3.125E-07
NE	875	5.101E-05	1.480E-05	4.538E-06	2.416E-06	1.554E-06	8.468E-07	5.457E-07	3.892E-07
ENE	772	4.332E-05	1.258E-05	4.079E-06	2.196E-06	1.415E-06	7.559E-07	4.805E-07	3.395E-07
E	715	3.150E-05	9.267E-06	3.100E-06	1.658E-06	1.060E-06	5.563E-07	3.500E-07	2.455E-07
ESE	442	1.781E-05	5.313E-06	1.784E-06	9.454E-07	6.016E-07	3.131E-07	1.962E-07	1.371E-07
SE	424	1.655E-05	4.986E-06	1.717E-06	9.083E-07	5.752E-07	2.967E-07	1.849E-07	1.287E-07
SSE	351	1.332E-05	4.037E-06	1.375E-06	7.239E-07	4.576E-07	2.360E-07	1.473E-07	1.026E-07
S	427	1.360E-05	4.105E-06	1.261E-06	6.594E-07	4.163E-07	2.141E-07	1.334E-07	9.278E-08
SSW	491	1.344E-05	4.105E-06	1.247E-06	6.507E-07	4.103E-07	2.105E-07	1.309E-07	9.094E-08
SW	280	9.845E-06	3.022E-06	9.392E-07	4.918E-07	3.098E-07	1.584E-07	9.826E-08	6.807E-08
WSW	348	1.402E-05	4.245E-06	1.281E-06	6.729E-07	4.261E-07	2.203E-07	1.376E-07	9.595E-08
W	279	1.183E-05	3.585E-06	1.119E-06	6.487E-07	4.095E-07	2.105E-07	1.19E-07	8.285E-08
WNW	248	1.049E-05	3.185E-06	1.094E-06	5.826E-07	3.703E-07	1.913E-07	1.311E-07	9.108E-08
NW	268	1.453E-05	4.307E-06	1.485E-06	7.937E-07	5.056E-07	2.630E-07	1.645E-07	1.148E-07
NNW	310	1.951E-05	5.702E-06	1.963E-06	1.061E-06	6.816E-07	3.572E-07	2.240E-07	1.568E-07
AVERAGE	7958	2.181E-05	6.454E-06	2.106E-06	1.126E-06	7.194E-07	3.781E-07	2.382E-07	1.671E-07

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	614	1.699E-07	1.337E-07	1.086E-07	9.026E-08	7.655E-08	4.088E-08	2.625E-08	1.402E-08
NNE	1114	2.357E-07	1.856E-07	1.510E-07	1.258E-07	1.068E-07	5.732E-08	3.694E-08	1.984E-08
NE	875	2.965E-07	2.356E-07	1.932E-07	1.623E-07	1.389E-07	7.635E-08	5.006E-08	2.761E-08
ENE	772	2.573E-07	2.035E-07	1.662E-07	1.384E-07	1.183E-07	6.411E-08	4.163E-08	2.622E-08
E	715	1.851E-07	1.457E-07	1.185E-07	9.858E-08	8.367E-08	4.482E-08	2.885E-08	1.549E-08
ESE	442	1.029E-07	8.081E-08	6.555E-08	5.447E-08	4.616E-08	2.461E-08	1.577E-08	8.398E-09
SE	424	9.621E-08	7.525E-08	6.693E-08	5.544E-08	4.685E-08	2.249E-08	1.430E-08	7.517E-09
SSE	351	7.668E-08	5.999E-08	4.852E-08	4.022E-08	3.402E-08	1.801E-08	1.146E-08	6.027E-09
S	427	6.936E-08	5.427E-08	4.391E-08	3.641E-08	3.078E-08	1.629E-08	1.039E-08	5.693E-09
SSW	491	6.786E-08	5.303E-08	4.288E-08	3.554E-08	3.005E-08	1.592E-08	1.015E-08	5.357E-09
SW	280	5.064E-08	3.947E-08	3.183E-08	2.632E-08	2.221E-08	1.167E-08	7.391E-09	3.859E-09
WSW	348	7.184E-08	5.629E-08	5.017E-08	4.167E-08	3.529E-08	1.709E-08	1.094E-08	5.811E-09
W	279	6.187E-08	4.835E-08	3.907E-08	3.234E-08	2.732E-08	1.441E-08	9.159E-09	4.816E-09
WNW	248	6.798E-08	5.311E-08	3.901E-08	3.230E-08	2.729E-08	1.441E-08	9.145E-09	4.786E-09
NW	268	8.617E-08	6.758E-08	5.475E-08	4.541E-08	3.843E-08	2.037E-08	1.301E-08	6.902E-09
NNW	310	1.180E-07	9.28E-08	7.535E-08	6.258E-08	5.303E-08	2.823E-08	1.810E-08	9.650E-09
AVERAGE	7958	1.259E-07	9.907E-08	8.096E-08	6.741E-08	5.723E-08	3.044E-08	1.959E-08	1.051E-08

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	614	8.887E-09	6.255E-09	4.719E-09	3.720E-09	3.008E-09	2.506E-09	2.122E-09	
NNE	1114	1.263E-08	8.913E-09	6.741E-09	5.325E-09	4.314E-09	3.597E-09	3.049E-09	
NE	875	1.782E-08	1.272E-08	9.707E-09	7.722E-09	6.293E-09	5.265E-09	4.478E-09	
ENE	772	1.448E-08	1.026E-08	7.792E-09	6.171E-09	5.010E-09	4.183E-09	3.550E-09	
E	715	9.855E-09	6.956E-09	5.261E-09	4.156E-09	3.367E-09	2.809E-09	2.383E-09	
ESE	442	5.328E-09	3.754E-09	2.834E-09	2.236E-09	1.811E-09	1.511E-09	1.281E-09	
SE	424	4.735E-09	3.318E-09	2.494E-09	1.962E-09	1.584E-09	1.319E-09	1.117E-09	
SSE	351	3.800E-09	2.665E-09	2.005E-09	1.577E-09	1.274E-09	1.069E-09	8.995E-10	
S	427	3.480E-09	2.449E-09	1.848E-09	1.458E-09	1.181E-09	9.862E-10	8.375E-10	
SSW	491	3.391E-09	2.386E-09	1.799E-09	1.419E-09	1.149E-09	9.588E-10	8.137E-10	
SW	280	2.426E-09	1.698E-09	1.275E-09	1.002E-09	8.088E-10	6.735E-10	5.705E-10	
WSW	348	3.686E-09	2.597E-09	1.961E-09	1.548E-09	1.253E-09	1.046E-09	8.871E-10	
W	279	3.034E-09	2.126E-09	1.599E-09	1.258E-09	1.016E-09	8.462E-10	7.167E-10	
WNW	248	3.005E-09	2.100E-09	1.575E-09	1.236E-09	9.964E-10	8.280E-10	6.998E-10	
NW	268	4.362E-09	3.064E-09	2.308E-09	1.817E-09	1.469E-09	1.224E-09	1.037E-09	
NNW	310	6.110E-09	4.296E-09	3.239E-09	2.551E-09	2.062E-09	1.718E-09	1.454E-09	
AVERAGE	7958	6.689E-09	4.722E-09	3.572E-09	2.822E-09	2.287E-09	1.908E-09	1.619E-09	

Table B-3

Gamma X/Q Factors for Reactor Building Vent

BE 1st quarter 1993 general x/q's - ground level

GROUND RELEASE: AVERAGE GAMMA DILUTION FACTORS (MET. AND ATOMIC ENERGY 1968 FINITE CLOUD SECTOR AVERAGE MODEL) (SEC/M3)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	110	4.080E-06	1.757E-06	7.786E-07	4.762E-07	3.326E-07	1.970E-07	1.351E-07	1.007E-07
NNE	119	5.041E-06	2.163E-06	9.639E-07	5.955E-07	4.195E-07	2.518E-07	1.743E-07	1.309E-07
NE	125	5.322E-06	2.302E-06	1.013E-06	6.270E-07	4.435E-07	2.696E-07	1.884E-07	1.426E-07
ENE	201	9.303E-06	3.984E-06	1.763E-06	1.086E-06	7.646E-07	4.590E-07	3.179E-07	2.390E-07
E	284	1.047E-05	4.446E-06	1.911E-06	1.149E-06	7.984E-07	4.705E-07	3.221E-07	2.402E-07
ESE	174	7.233E-06	3.031E-06	1.257E-06	7.404E-07	5.128E-07	3.018E-07	2.065E-07	1.539E-07
SE	143	5.610E-06	2.370E-06	1.001E-06	5.933E-07	4.108E-07	2.403E-07	1.635E-07	1.210E-07
SSE	104	4.220E-06	1.773E-06	7.492E-07	4.456E-07	3.094E-07	1.820E-07	1.244E-07	9.258E-08
S	109	3.552E-06	1.482E-06	5.480E-07	3.168E-07	2.170E-07	1.255E-07	8.484E-08	6.263E-08
SSW	159	4.366E-06	1.793E-06	6.322E-07	3.559E-07	2.423E-07	1.391E-07	9.365E-08	6.909E-08
SW	64	2.185E-06	9.238E-07	3.516E-07	2.068E-07	1.422E-07	8.239E-08	5.565E-08	4.097E-08
WSW	101	3.696E-06	1.577E-06	6.073E-07	3.607E-07	2.485E-07	1.447E-07	9.826E-08	7.218E-08
W	58	2.697E-06	1.163E-06	4.565E-07	3.015E-07	2.082E-07	1.215E-07	7.509E-08	5.561E-08
WNW	42	1.938E-06	8.411E-07	3.689E-07	2.235E-07	1.550E-07	9.084E-08	6.807E-08	5.042E-08
NW	60	4.228E-06	1.805E-06	8.067E-07	4.977E-07	3.501E-07	2.105E-07	1.461E-07	1.100E-07
NNW	70	4.170E-06	1.778E-06	7.911E-07	4.860E-07	3.410E-07	2.037E-07	1.406E-07	1.054E-07
AVERAGE	1923	4.882E-06	2.074E-06	8.749E-07	5.289E-07	3.685E-07	2.181E-07	1.496E-07	1.117E-07

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	110	7.921E-08	6.457E-08	5.407E-08	4.615E-08	4.006E-08	2.352E-08	1.607E-08	9.330E-09
NNE	119	1.037E-07	8.503E-08	7.158E-08	6.135E-08	5.347E-08	3.180E-08	2.200E-08	1.304E-08
NE	125	1.137E-07	9.381E-08	7.941E-08	6.847E-08	5.999E-08	3.637E-08	2.553E-08	1.547E-08
ENE	201	1.896E-07	1.557E-07	1.312E-07	1.125E-07	9.814E-08	5.855E-08	4.061E-08	2.418E-08
E	284	1.890E-07	1.541E-07	1.292E-07	1.103E-07	9.584E-08	5.640E-08	3.864E-08	2.253E-08
ESE	174	1.209E-07	9.857E-08	8.256E-08	7.053E-08	6.129E-08	3.611E-08	2.474E-08	1.443E-08
SE	143	9.439E-08	7.645E-08	7.005E-08	5.954E-08	5.151E-08	2.716E-08	1.833E-08	1.038E-08
SSE	104	7.267E-08	5.917E-08	4.950E-08	4.222E-08	3.663E-08	2.146E-08	1.463E-08	8.467E-09
S	109	4.876E-08	3.945E-08	3.284E-08	2.790E-08	2.413E-08	1.398E-08	9.441E-09	5.373E-09
SSW	159	5.380E-08	4.355E-08	3.628E-08	3.087E-08	2.674E-08	1.558E-08	1.057E-08	6.062E-09
SW	64	3.182E-08	2.568E-08	2.133E-08	1.809E-08	1.561E-08	8.981E-09	6.028E-09	3.393E-09
WSW	101	5.691E-08	4.618E-08	4.240E-08	3.611E-08	3.129E-08	1.660E-08	1.128E-08	6.474E-09
W	58	4.344E-08	3.524E-08	2.940E-08	2.504E-08	2.169E-08	1.265E-08	8.591E-09	4.932E-09
WNW	42	3.934E-08	3.187E-08	2.415E-08	2.054E-08	1.778E-08	1.034E-08	6.988E-09	3.963E-09
NW	60	8.745E-08	7.192E-08	6.066E-08	5.206E-08	4.542E-08	2.710E-08	1.883E-08	1.127E-08
NNW	70	8.342E-08	6.837E-08	5.749E-08	4.921E-08	4.284E-08	2.535E-08	1.750E-08	1.037E-08
AVERAGE	1923	8.800E-08	7.185E-08	6.075E-08	5.193E-08	4.515E-08	2.637E-08	1.811E-08	1.060E-08

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	110	6.387E-09	4.778E-09	3.792E-09	3.122E-09	2.627E-09	2.265E-09	1.980E-09	
NNE	119	9.037E-09	6.821E-09	5.448E-09	4.510E-09	3.813E-09	3.301E-09	2.896E-09	
NE	125	1.087E-08	8.289E-09	6.676E-09	5.565E-09	4.733E-09	4.112E-09	3.622E-09	
ENE	201	1.680E-08	1.270E-08	1.016E-08	8.427E-09	7.133E-09	6.180E-09	5.427E-09	
E	284	1.547E-08	1.161E-08	9.231E-09	7.616E-09	6.419E-09	5.543E-09	4.853E-09	
ESE	174	9.920E-09	7.451E-09	5.935E-09	4.904E-09	4.139E-09	3.577E-09	3.135E-09	
SE	143	7.015E-09	5.197E-09	4.093E-09	3.349E-09	2.803E-09	2.405E-09	2.094E-09	
SSE	104	5.788E-09	4.327E-09	3.432E-09	2.825E-09	2.377E-09	2.050E-09	1.792E-09	
S	109	3.645E-09	2.711E-09	2.146E-09	1.764E-09	1.482E-09	1.277E-09	1.115E-09	
SSW	159	4.136E-09	3.090E-09	2.457E-09	2.027E-09	1.708E-09	1.474E-09	1.290E-09	
SW	64	2.284E-09	1.688E-09	1.330E-09	1.088E-09	9.109E-10	7.820E-10	6.810E-10	
WSW	101	4.410E-09	3.288E-09	2.605E-09	2.143E-09	1.801E-09	1.550E-09	1.354E-09	
W	58	3.360E-09	2.506E-09	1.987E-09	1.635E-09	1.374E-09	1.184E-09	1.034E-09	
WNW	42	2.678E-09	1.985E-09	1.563E-09	1.279E-09	1.069E-09	9.169E-10	7.975E-10	
NW	60	7.846E-09	5.946E-09	4.764E-09	3.955E-09	3.353E-09	2.911E-09	2.560E-09	
NNW	70	7.177E-09	5.415E-09	4.327E-09	3.584E-09	3.032E-09	2.628E-09	2.308E-09	
AVERAGE	1923	7.301E-09	5.488E-09	4.372E-09	3.612E-09	3.048E-09	2.635E-09	2.309E-09	

Table B-3

Gamma X/Q Factors for Reactor Building Vent

BE 2nd quarter 1993 general x/q's - ground level

GROUND RELEASE: AVERAGE GAMMA DILUTION FACTORS (NET, AND ATOMIC ENERGY 1968 FINITE CLOUD SECTOR AVERAGE MODEL) (SEC/M3)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	122	4.471E-06	1.891E-06	8.100E-07	4.899E-07	3.443E-07	2.062E-07	1.426E-07	1.070E-07
NNE	307	8.353E-06	3.501E-06	1.462E-06	8.717E-07	6.104E-07	3.662E-07	2.541E-07	1.915E-07
NE	183	7.316E-06	3.144E-06	1.348E-06	8.261E-07	5.847E-07	3.593E-07	2.536E-07	1.936E-07
ENE	151	7.348E-06	3.143E-06	1.379E-06	8.521E-07	6.035E-07	3.670E-07	2.567E-07	1.946E-07
E	120	5.841E-06	2.463E-06	1.048E-06	6.355E-07	4.481E-07	2.712E-07	1.892E-07	1.432E-07
ESE	84	4.310E-06	1.797E-06	7.496E-07	4.493E-07	3.165E-07	1.906E-07	1.323E-07	9.979E-08
SE	87	4.289E-06	1.803E-06	8.447E-07	5.047E-07	3.511E-07	2.075E-07	1.296E-07	9.698E-08
SSE	98	4.986E-06	2.112E-06	8.891E-07	4.807E-07	3.342E-07	1.978E-07	1.359E-07	1.015E-07
S	155	6.820E-06	2.828E-06	9.540E-07	5.529E-07	3.831E-07	2.248E-07	1.533E-07	1.138E-07
SSW	76	3.315E-06	1.405E-06	5.419E-07	3.217E-07	2.227E-07	1.304E-07	8.885E-08	6.591E-08
SW	69	3.369E-06	1.416E-06	5.394E-07	3.198E-07	2.224E-07	1.312E-07	8.987E-08	6.697E-08
WSW	86	5.266E-06	2.248E-06	8.749E-07	5.261E-07	3.663E-07	2.165E-07	1.484E-07	1.106E-07
W	79	4.039E-06	1.709E-06	6.632E-07	4.375E-07	3.051E-07	1.808E-07	1.128E-07	8.427E-08
WNW	78	3.890E-06	1.643E-06	7.145E-07	4.358E-07	3.071E-07	1.846E-07	1.407E-07	1.058E-07
NW	65	3.137E-06	1.345E-06	5.919E-07	3.612E-07	2.527E-07	1.502E-07	1.034E-07	7.731E-08
NNW	67	3.379E-06	1.454E-06	6.486E-07	3.990E-07	2.802E-07	1.678E-07	1.154E-07	8.636E-08
AVERAGE	1827	5.008E-06	2.119E-06	8.787E-07	5.290E-07	3.708E-07	2.220E-07	1.529E-07	1.150E-07

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	122	8.463E-08	6.935E-08	5.834E-08	5.001E-08	4.359E-08	2.596E-08	1.794E-08	1.059E-08
NNE	307	1.521E-07	1.251E-07	1.056E-07	9.085E-08	7.942E-08	4.777E-08	3.332E-08	2.002E-08
NE	183	1.554E-07	1.290E-07	1.097E-07	9.512E-08	8.373E-08	5.159E-08	3.665E-08	2.265E-08
ENE	151	1.555E-07	1.285E-07	1.089E-07	9.397E-08	8.236E-08	4.999E-08	3.515E-08	2.138E-08
E	120	1.143E-07	9.440E-08	7.994E-08	6.892E-08	6.038E-08	3.659E-08	2.570E-08	1.560E-08
ESE	84	7.941E-08	6.540E-08	5.527E-08	4.755E-08	4.159E-08	2.505E-08	1.751E-08	1.057E-08
SE	87	7.663E-08	6.273E-08	5.798E-08	4.962E-08	4.319E-08	2.557E-08	1.761E-08	1.037E-08
SSE	98	7.986E-08	6.517E-08	5.465E-08	4.675E-08	4.067E-08	2.407E-08	1.653E-08	9.650E-09
S	155	8.899E-08	7.226E-08	6.034E-08	5.142E-08	4.458E-08	2.606E-08	1.771E-08	1.017E-08
SSW	76	5.152E-08	4.181E-08	3.489E-08	2.969E-08	2.572E-08	1.498E-08	1.014E-08	5.783E-09
SW	69	5.262E-08	4.289E-08	3.593E-08	3.068E-08	2.665E-08	1.568E-08	1.073E-08	6.241E-09
WSW	86	8.701E-08	7.099E-08	6.546E-08	5.595E-08	4.865E-08	2.611E-08	1.792E-08	1.048E-08
W	79	6.635E-08	5.417E-08	4.543E-08	3.883E-08	3.376E-08	1.993E-08	1.367E-08	7.980E-09
WNW	78	8.401E-08	6.902E-08	5.289E-08	4.538E-08	3.959E-08	2.363E-08	1.640E-08	9.779E-09
NW	65	6.096E-08	4.982E-08	4.181E-08	3.576E-08	3.110E-08	1.838E-08	1.262E-08	7.383E-09
NNW	67	6.813E-08	5.570E-08	4.676E-08	3.999E-08	3.478E-08	2.055E-08	1.411E-08	8.244E-09
AVERAGE	1827	9.109E-08	7.477E-08	6.338E-08	5.441E-08	4.749E-08	2.824E-08	1.961E-08	1.168E-08

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	122	7.330E-09	5.528E-09	4.412E-09	3.651E-09	3.085E-09	2.668E-09	2.340E-09	
NNE	307	1.400E-08	1.065E-08	8.564E-09	7.131E-09	6.067E-09	5.266E-09	4.639E-09	
NE	183	1.611E-08	1.240E-08	1.007E-08	8.444E-09	7.221E-09	6.303E-09	5.576E-09	
ENE	151	1.504E-08	1.149E-08	9.259E-09	7.722E-09	6.571E-09	5.715E-09	5.037E-09	
E	120	1.098E-08	8.379E-09	6.754E-09	5.635E-09	4.796E-09	4.172E-09	3.679E-09	
ESE	84	7.404E-09	5.636E-09	4.535E-09	3.777E-09	3.210E-09	2.790E-09	2.457E-09	
SE	87	7.161E-09	5.393E-09	4.301E-09	3.557E-09	3.005E-09	2.601E-09	2.282E-09	
SSE	98	6.643E-09	4.992E-09	3.978E-09	3.287E-09	2.774E-09	2.397E-09	2.100E-09	
S	155	6.930E-09	5.170E-09	4.098E-09	3.371E-09	2.835E-09	2.442E-09	2.134E-09	
SSW	76	3.921E-09	2.913E-09	2.300E-09	1.885E-09	1.581E-09	1.359E-09	1.184E-09	
SW	69	4.282E-09	3.210E-09	2.553E-09	2.106E-09	1.776E-09	1.533E-09	1.342E-09	
WSW	86	7.211E-09	5.418E-09	4.319E-09	3.569E-09	3.013E-09	2.604E-09	2.281E-09	
W	79	5.486E-09	4.118E-09	3.277E-09	2.704E-09	2.280E-09	1.969E-09	1.724E-09	
WNW	78	6.800E-09	5.147E-09	4.121E-09	3.419E-09	2.896E-09	2.511E-09	2.207E-09	
NW	65	5.078E-09	3.813E-09	3.033E-09	2.503E-09	2.110E-09	1.822E-09	1.595E-09	
NNW	67	5.665E-09	4.250E-09	3.377E-09	2.784E-09	2.345E-09	2.024E-09	1.771E-09	
AVERAGE	1827	8.128E-09	6.157E-09	4.934E-09	4.097E-09	3.472E-09	3.011E-09	2.647E-09	

Table B-3

Gamma X/Q Factors for Reactor Building Vent

BE 3rd quarter 1993 ground level general x/q's

GROUND RELEASE: AVERAGE GAMMA DILUTION FACTORS (NET. AND ATOMIC ENERGY 1968 FINITE CLOUD SECTOR AVERAGE MODEL) (SEC/M3)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	202	1.016E-05	4.344E-06	1.891E-06	1.161E-06	8.193E-07	4.939E-07	3.431E-07	2.585E-07
NNE	428	1.521E-05	6.497E-06	2.814E-06	1.718E-06	1.207E-06	7.238E-07	5.010E-07	3.764E-07
NE	315	1.522E-05	6.614E-06	2.866E-06	1.776E-06	1.262E-06	7.788E-07	5.508E-07	4.210E-07
ENE	175	9.939E-06	4.285E-06	1.848E-06	1.139E-06	8.078E-07	4.953E-07	3.486E-07	2.655E-07
E	100	6.465E-06	2.738E-06	1.156E-06	7.011E-07	4.936E-07	2.981E-07	2.076E-07	1.571E-07
ESE	65	4.026E-06	1.678E-06	7.068E-07	4.213E-07	2.937E-07	1.740E-07	1.197E-07	8.957E-08
SE	66	4.440E-06	1.868E-06	8.793E-07	5.309E-07	3.721E-07	2.219E-07	1.391E-07	1.042E-07
SSE	69	4.438E-06	1.844E-06	7.590E-07	4.041E-07	2.791E-07	1.634E-07	1.115E-07	8.314E-08
S	74	5.346E-06	2.165E-06	7.250E-07	4.204E-07	2.924E-07	1.729E-07	1.187E-07	8.885E-08
SSW	108	6.008E-06	2.436E-06	8.752E-07	5.040E-07	3.507E-07	2.077E-07	1.422E-07	1.062E-07
SW	103	5.126E-06	2.128E-06	7.960E-07	4.657E-07	3.224E-07	1.887E-07	1.284E-07	9.515E-08
WSW	124	6.235E-06	2.515E-06	8.863E-07	5.036E-07	3.484E-07	2.049E-07	1.403E-07	1.049E-07
W	95	4.912E-06	2.066E-06	7.955E-07	5.191E-07	3.586E-07	2.099E-07	1.302E-07	9.688E-08
WNW	69	3.706E-06	1.582E-06	6.778E-07	4.080E-07	2.845E-07	1.681E-07	1.267E-07	9.427E-08
NW	70	4.300E-06	1.831E-06	7.921E-07	4.785E-07	3.334E-07	1.970E-07	1.350E-07	1.007E-07
NNW	56	4.305E-06	1.856E-06	8.206E-07	5.066E-07	3.572E-07	2.146E-07	1.486E-07	1.116E-07
AVERAGE	2119	6.865E-06	2.903E-06	1.206E-06	7.286E-07	5.114E-07	3.070E-07	2.120E-07	1.596E-07

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	202	2.054E-07	1.690E-07	1.426E-07	1.226E-07	1.072E-07	6.439E-08	4.488E-08	2.690E-08
NNE	428	2.982E-07	2.447E-07	2.061E-07	1.769E-07	1.544E-07	9.231E-08	6.406E-08	3.812E-08
NE	315	3.382E-07	2.810E-07	2.393E-07	2.076E-07	1.829E-07	1.130E-07	8.041E-08	4.977E-08
ENE	175	2.128E-07	1.764E-07	1.499E-07	1.298E-07	1.141E-07	7.009E-08	4.967E-08	3.054E-08
E	100	1.253E-07	1.035E-07	8.763E-08	7.558E-08	6.624E-08	4.022E-08	2.827E-08	1.717E-08
ESE	65	7.076E-08	5.791E-08	4.865E-08	4.162E-08	3.622E-08	2.143E-08	1.475E-08	8.683E-09
SE	66	8.236E-08	6.746E-08	6.239E-08	5.342E-08	4.652E-08	2.759E-08	1.905E-08	1.127E-08
SSE	69	6.540E-08	5.334E-08	4.470E-08	3.817E-08	3.316E-08	1.951E-08	1.336E-08	7.783E-09
S	74	7.025E-08	5.752E-08	4.834E-08	4.136E-08	3.598E-08	2.126E-08	1.466E-08	8.668E-09
SSW	108	8.370E-08	6.838E-08	5.738E-08	4.907E-08	4.268E-08	2.522E-08	1.735E-08	1.020E-08
SW	103	7.434E-08	6.030E-08	5.028E-08	4.277E-08	3.703E-08	2.151E-08	1.457E-08	8.327E-09
WSW	124	8.270E-08	6.762E-08	6.246E-08	5.346E-08	4.654E-08	2.509E-08	1.729E-08	1.019E-08
W	95	7.611E-08	6.201E-08	5.190E-08	4.427E-08	3.842E-08	2.250E-08	1.537E-08	8.926E-09
WNW	69	7.390E-08	6.012E-08	4.571E-08	3.900E-08	3.385E-08	1.987E-08	1.355E-08	7.812E-09
NW	70	7.919E-08	6.459E-08	5.412E-08	4.622E-08	4.015E-08	2.362E-08	1.618E-08	9.436E-09
NNW	56	8.829E-08	7.240E-08	6.094E-08	5.226E-08	4.557E-08	2.718E-08	1.881E-08	1.114E-08
AVERAGE	2119	1.267E-07	1.041E-07	8.828E-08	7.588E-08	6.630E-08	3.967E-08	2.764E-08	1.656E-08

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	202	1.877E-08	1.424E-08	1.143E-08	9.492E-09	8.048E-09	6.978E-09	6.133E-09	
NNE	428	2.650E-08	2.005E-08	1.606E-08	1.332E-08	1.128E-08	9.767E-09	8.576E-09	
NE	315	3.542E-08	2.728E-08	2.214E-08	1.857E-08	1.588E-08	1.305E-08	1.224E-08	
ENE	175	2.165E-08	1.662E-08	1.346E-08	1.126E-08	9.613E-09	8.374E-09	7.394E-09	
E	100	1.208E-08	9.223E-09	7.435E-09	6.201E-09	5.276E-09	4.586E-09	4.040E-09	
ESE	65	5.994E-09	4.512E-09	3.597E-09	2.974E-09	2.511E-09	2.173E-09	1.905E-09	
SE	66	7.804E-09	5.889E-09	4.705E-09	3.897E-09	3.296E-09	2.855E-09	2.506E-09	
SSE	69	5.344E-09	4.009E-09	3.188E-09	2.630E-09	2.217E-09	1.915E-09	1.677E-09	
S	74	6.000E-09	4.527E-09	3.617E-09	2.997E-09	2.537E-09	2.200E-09	1.933E-09	
SSW	108	7.044E-09	5.307E-09	4.238E-09	3.508E-09	2.967E-09	2.569E-09	2.255E-09	
SW	103	5.656E-09	4.208E-09	3.327E-09	2.732E-09	2.294E-09	1.975E-09	1.724E-09	
WSW	124	7.047E-09	5.316E-09	4.247E-09	3.518E-09	2.976E-09	2.578E-09	2.263E-09	
W	95	6.116E-09	4.581E-09	3.640E-09	3.002E-09	2.529E-09	2.185E-09	1.914E-09	
WNW	69	5.333E-09	3.982E-09	3.155E-09	2.594E-09	2.179E-09	1.876E-09	1.637E-09	
NW	70	6.480E-09	4.860E-09	3.866E-09	3.190E-09	2.689E-09	2.322E-09	2.033E-09	
NNW	56	7.720E-09	5.827E-09	4.654E-09	3.853E-09	3.256E-09	2.816E-09	2.469E-09	
AVERAGE	2119	1.156E-08	8.778E-09	7.047E-09	5.859E-09	4.971E-09	4.314E-09	3.794E-09	

Table B-3

Gamma X/Q Factors for Reactor Building Vent

BE 4th quarter 1993 general x/q's - ground level

GROUND RELEASE: AVERAGE GAMMA DILUTION FACTORS (MET. AND ATOMIC ENERGY 1968 FINITE CLOUD SECTOR AVERAGE MODEL) - (SEC/M3)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	180	8.792E-06	3.754E-06	1.675E-06	1.036E-06	7.303E-07	4.388E-07	3.039E-07	2.284E-07
NNE	260	9.782E-06	4.193E-06	1.844E-06	1.134E-06	7.978E-07	4.788E-07	3.316E-07	2.494E-07
NE	252	1.047E-05	4.532E-06	1.974E-06	1.219E-06	8.617E-07	5.253E-07	3.680E-07	2.791E-07
ENE	245	1.096E-05	4.706E-06	2.068E-06	1.276E-06	9.005E-07	5.444E-07	3.791E-07	2.862E-07
E	211	9.350E-06	3.966E-06	1.731E-06	1.052E-06	7.351E-07	4.369E-07	3.007E-07	2.251E-07
ESE	119	4.686E-06	1.967E-06	8.264E-07	4.909E-07	3.409E-07	2.005E-07	1.370E-07	1.018E-07
SE	128	4.837E-06	2.041E-06	8.689E-07	5.175E-07	3.584E-07	2.103E-07	1.436E-07	1.067E-07
SSE	80	2.921E-06	1.233E-06	5.279E-07	3.155E-07	2.188E-07	1.284E-07	8.761E-08	6.508E-08
S	89	2.928E-06	1.190E-06	4.301E-07	2.470E-07	1.708E-07	9.997E-08	6.808E-08	5.053E-08
SSW	148	3.624E-06	1.526E-06	5.777E-07	3.379E-07	2.311E-07	1.332E-07	8.970E-08	6.607E-08
SW	44	1.678E-06	7.018E-07	2.627E-07	1.528E-07	1.045E-07	6.023E-08	4.065E-08	3.002E-08
WSW	37	1.529E-06	6.473E-07	2.448E-07	1.427E-07	9.704E-08	5.590E-08	3.781E-08	2.804E-08
W	47	1.956E-06	8.304E-07	3.255E-07	2.142E-07	1.477E-07	8.610E-08	5.323E-08	3.953E-08
WNW	59	2.028E-06	8.732E-07	3.812E-07	2.293E-07	1.584E-07	9.218E-08	6.874E-08	5.074E-08
NW	73	3.455E-06	1.474E-06	6.414E-07	3.894E-07	2.719E-07	1.611E-07	1.105E-07	8.243E-08
NNW	117	7.198E-06	3.061E-06	1.353E-06	8.368E-07	5.917E-07	3.573E-07	2.483E-07	1.872E-07
AVERAGE	2089	5.387E-06	2.294E-06	9.832E-07	5.995E-07	4.198E-07	2.506E-07	1.730E-07	1.298E-07

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	180	1.813E-07	1.489E-07	1.255E-07	1.076E-07	9.383E-08	5.589E-08	3.876E-08	2.310E-08
NNE	260	1.979E-07	1.626E-07	1.371E-07	1.177E-07	1.027E-07	6.147E-08	4.274E-08	2.554E-08
NE	252	2.229E-07	1.843E-07	1.563E-07	1.350E-07	1.185E-07	7.225E-08	5.096E-08	3.113E-08
ENE	245	2.279E-07	1.877E-07	1.587E-07	1.366E-07	1.195E-07	7.205E-08	5.038E-08	3.037E-08
E	211	1.778E-07	1.455E-07	1.223E-07	1.046E-07	9.103E-08	5.384E-08	3.710E-08	2.189E-08
ESE	119	7.985E-08	6.496E-08	5.432E-08	4.631E-08	4.018E-08	2.354E-08	1.605E-08	9.273E-09
SE	128	8.365E-08	6.802E-08	6.253E-08	5.328E-08	4.620E-08	2.454E-08	1.670E-08	9.624E-09
SSE	80	5.099E-08	4.144E-08	3.461E-08	2.947E-08	2.553E-08	1.488E-08	1.010E-08	5.793E-09
S	89	3.958E-08	3.217E-08	2.688E-08	2.289E-08	1.984E-08	1.158E-08	7.884E-09	4.554E-09
SSW	148	5.138E-08	4.152E-08	3.452E-08	2.929E-08	2.530E-08	1.459E-08	9.821E-09	5.565E-09
SW	44	2.340E-08	1.894E-08	1.577E-08	1.340E-08	1.159E-08	6.712E-09	4.533E-09	2.581E-09
WSW	37	2.195E-08	1.784E-08	1.639E-08	1.398E-08	1.213E-08	6.452E-09	4.404E-09	2.559E-09
W	47	3.100E-08	2.521E-08	2.107E-08	1.795E-08	1.555E-08	9.069E-09	6.169E-09	3.558E-09
WNW	59	3.949E-08	3.192E-08	2.413E-08	2.047E-08	1.769E-08	1.020E-08	6.852E-09	3.858E-09
NW	73	6.488E-08	5.295E-08	4.439E-08	3.793E-08	3.296E-08	1.942E-08	1.333E-08	7.799E-09
NNW	117	1.490E-07	1.226E-07	1.035E-07	8.896E-08	7.769E-08	4.656E-08	3.244E-08	1.947E-08
AVERAGE	2089	1.027E-07	8.416E-08	7.112E-08	6.096E-08	5.314E-08	3.144E-08	2.176E-08	1.292E-08

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	180	1.605E-08	1.213E-08	9.706E-09	8.046E-09	6.810E-09	5.902E-09	5.183E-09	
NNE	260	1.779E-08	1.348E-08	1.080E-08	8.970E-09	7.601E-09	6.590E-09	5.791E-09	
NE	252	2.199E-08	1.684E-08	1.361E-08	1.138E-08	9.704E-09	8.447E-09	7.454E-09	
ENE	245	2.126E-08	1.617E-08	1.300E-08	1.082E-08	9.185E-09	7.975E-09	7.017E-09	
E	211	1.512E-08	1.140E-08	9.094E-09	7.525E-09	6.360E-09	5.506E-09	4.831E-09	
ESE	119	6.338E-09	4.737E-09	3.758E-09	3.094E-09	2.603E-09	2.244E-09	1.961E-09	
SE	128	6.567E-09	4.904E-09	3.886E-09	3.197E-09	2.689E-09	2.318E-09	2.027E-09	
SSE	80	3.939E-09	2.932E-09	2.317E-09	1.901E-09	1.595E-09	1.373E-09	1.198E-09	
S	89	3.113E-09	2.320E-09	1.848E-09	1.523E-09	1.283E-09	1.108E-09	9.699E-10	
SSW	148	3.761E-09	2.789E-09	2.203E-09	1.807E-09	1.516E-09	1.304E-09	1.138E-09	
SW	44	1.749E-09	1.300E-09	1.027E-09	8.435E-10	7.080E-10	6.093E-10	5.319E-10	
WSW	37	1.757E-09	1.319E-09	1.052E-09	8.707E-10	7.361E-10	6.372E-10	5.593E-10	
W	47	2.427E-09	1.811E-09	1.435E-09	1.180E-09	9.921E-10	8.554E-10	7.477E-10	
WNW	59	2.595E-09	1.916E-09	1.506E-09	1.230E-09	1.027E-09	8.805E-10	7.656E-10	
NW	73	5.366E-09	4.031E-09	3.211E-09	2.652E-09	2.238E-09	1.934E-09	1.694E-09	
NNW	117	1.358E-08	1.030E-08	8.259E-09	6.858E-09	5.813E-09	5.043E-09	4.433E-09	
AVERAGE	2089	8.962E-09	6.774E-09	5.420E-09	4.493E-09	3.804E-09	3.295E-09	2.894E-09	

Table B-3

Gamma X/Q Factors for Reactor Building Vent

BE 1993 ENTIRE YEAR general ground level X/Qs beco

GROUND RELEASE: AVERAGE GAMMA DILUTION FACTORS (MET. AND ATOMIC ENERGY 1968 FINITE CLOUD SECTOR AVERAGE MODEL) (SEC/M3)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	614	7.083E-06	3.023E-06	1.326E-06	8.140E-07	5.729E-07	3.436E-07	2.378E-07	1.787E-07
NNE	1114	9.881E-06	4.208E-06	1.822E-06	1.111E-06	7.801E-07	4.678E-07	3.238E-07	2.434E-07
NE	875	9.875E-06	4.274E-06	1.854E-06	1.145E-06	8.112E-07	4.974E-07	3.501E-07	2.666E-07
ENE	772	9.568E-06	4.107E-06	1.797E-06	1.108E-06	7.830E-07	4.747E-07	3.313E-07	2.506E-07
E	715	8.133E-06	3.445E-06	1.479E-06	8.949E-07	6.261E-07	3.735E-07	2.578E-07	1.935E-07
ESE	442	5.111E-06	2.137E-06	8.922E-07	5.298E-07	3.689E-07	2.183E-07	1.499E-07	1.120E-07
SE	424	4.862E-06	2.048E-06	8.704E-07	5.197E-07	3.611E-07	2.128E-07	1.456E-07	1.084E-07
SSE	351	3.981E-06	1.672E-06	7.019E-07	4.160E-07	2.883E-07	1.694E-07	1.158E-07	8.623E-08
S	427	4.479E-06	1.838E-06	6.728E-07	3.891E-07	2.689E-07	1.574E-07	1.072E-07	7.962E-08
SSW	491	4.419E-06	1.826E-06	6.697E-07	3.873E-07	2.667E-07	1.554E-07	1.055E-07	7.819E-08
SW	280	3.166E-06	1.323E-06	4.983E-07	2.924E-07	2.020E-07	1.179E-07	8.014E-08	5.934E-08
WSW	348	4.261E-06	1.777E-06	6.628E-07	3.883E-07	2.683E-07	1.572E-07	1.072E-07	7.980E-08
W	279	3.473E-06	1.471E-06	5.707E-07	3.747E-07	2.593E-07	1.520E-07	9.424E-08	7.007E-08
WNW	248	2.950E-06	1.259E-06	5.457E-07	3.301E-07	2.302E-07	1.361E-07	1.026E-07	7.641E-08
NW	268	3.845E-06	1.641E-06	7.190E-07	4.381E-07	3.063E-07	1.821E-07	1.253E-07	9.371E-08
NNW	310	4.863E-06	2.079E-06	9.278E-07	5.683E-07	4.004E-07	2.403E-07	1.664E-07	1.250E-07
AVERAGE	7958	5.622E-06	2.383E-06	1.000E-06	6.067E-07	4.246E-07	2.535E-07	1.751E-07	1.313E-07

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	614	1.416E-07	1.162E-07	9.784E-08	8.391E-08	7.317E-08	4.363E-08	3.024E-08	1.797E-08
NNE	1114	1.930E-07	1.584E-07	1.335E-07	1.146E-07	1.000E-07	5.981E-08	4.154E-08	2.477E-08
NE	875	2.135E-07	1.769E-07	1.504E-07	1.302E-07	1.144E-07	7.023E-08	4.975E-08	3.058E-08
ENE	772	1.998E-07	1.649E-07	1.395E-07	1.202E-07	1.053E-07	6.372E-08	4.468E-08	2.705E-08
E	715	1.533E-07	1.258E-07	1.059E-07	9.084E-08	7.922E-08	4.725E-08	3.276E-08	1.949E-08
ESE	442	8.826E-08	7.212E-08	6.053E-08	5.177E-08	4.504E-08	2.664E-08	1.833E-08	1.076E-08
SE	424	8.518E-08	6.940E-08	6.390E-08	5.452E-08	4.732E-08	2.524E-08	1.724E-08	1.000E-08
SSE	351	6.770E-08	5.513E-08	4.614E-08	3.937E-08	3.410E-08	2.006E-08	1.370E-08	7.939E-09
S	427	6.238E-08	5.072E-08	4.238E-08	3.612E-08	3.132E-08	1.830E-08	1.247E-08	7.209E-09
SSW	491	6.115E-08	4.965E-08	4.146E-08	3.531E-08	3.060E-08	1.786E-08	1.215E-08	7.004E-09
SW	280	4.635E-08	3.759E-08	3.134E-08	2.666E-08	2.308E-08	1.341E-08	9.088E-09	5.198E-09
WSW	348	6.267E-08	5.106E-08	4.703E-08	4.015E-08	3.488E-08	1.866E-08	1.278E-08	7.450E-09
W	279	5.498E-08	4.475E-08	3.742E-08	3.191E-08	2.768E-08	1.621E-08	1.106E-08	6.403E-09
WNW	248	6.000E-08	4.886E-08	3.718E-08	3.172E-08	2.754E-08	1.617E-08	1.104E-08	6.396E-09
NW	268	7.395E-08	6.047E-08	5.078E-08	4.343E-08	3.778E-08	2.233E-08	1.536E-08	9.035E-09
NNW	310	9.903E-08	8.126E-08	6.843E-08	5.866E-08	5.114E-08	3.044E-08	2.108E-08	1.252E-08
AVERAGE	7958	1.039E-07	8.520E-08	7.211E-08	6.183E-08	5.392E-08	3.187E-08	2.208E-08	1.311E-08

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	614	1.247E-08	9.428E-09	7.539E-09	6.248E-09	5.286E-09	4.578E-09	4.018E-09	
NNE	1114	1.723E-08	1.305E-08	1.046E-08	8.679E-09	7.354E-09	6.374E-09	5.600E-09	
NE	875	2.168E-08	1.665E-08	1.349E-08	1.129E-08	9.642E-09	8.402E-09	7.421E-09	
ENE	772	1.899E-08	1.448E-08	1.165E-08	9.710E-09	8.255E-09	7.173E-09	6.317E-09	
E	715	1.355E-08	1.025E-08	8.207E-09	6.808E-09	5.767E-09	4.998E-09	4.391E-09	
ESE	442	7.427E-09	5.592E-09	4.460E-09	3.689E-09	3.117E-09	2.696E-09	2.364E-09	
SE	424	6.850E-09	5.128E-09	4.072E-09	3.355E-09	2.825E-09	2.438E-09	2.133E-09	
SSE	351	5.436E-09	4.068E-09	3.230E-09	2.661E-09	2.241E-09	1.933E-09	1.691E-09	
S	427	4.931E-09	3.689E-09	2.931E-09	2.416E-09	2.036E-09	1.758E-09	1.539E-09	
SSW	491	4.784E-09	3.575E-09	2.839E-09	2.339E-09	1.970E-09	1.700E-09	1.487E-09	
SW	280	3.532E-09	2.629E-09	2.081E-09	1.709E-09	1.436E-09	1.236E-09	1.080E-09	
WSW	348	5.121E-09	3.845E-09	3.062E-09	2.530E-09	2.135E-09	1.845E-09	1.616E-09	
W	279	4.380E-09	3.277E-09	2.602E-09	2.144E-09	1.805E-09	1.557E-09	1.363E-09	
WNW	248	4.375E-09	3.272E-09	2.596E-09	2.137E-09	1.798E-09	1.549E-09	1.354E-09	
NW	268	6.232E-09	4.690E-09	3.739E-09	3.092E-09	2.611E-09	2.258E-09	1.980E-09	
NNW	310	8.483E-09	6.559E-09	5.243E-09	4.343E-09	3.673E-09	3.181E-09	2.792E-09	
AVERAGE	7958	9.105E-09	6.886E-09	5.512E-09	4.572E-09	3.872E-09	3.355E-09	2.947E-09	

Table B-4

Deposition D/Q Factors for Reactor Building Vent

BE 1st quarter 1993 general x/q's - ground level

SECTOR AVERAGE MODE

GROUND RELEASE: AVERAGE DEPOSITION RATES (REGULATORY GUIDE 1.111 MODEL) - (1/M2)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	110	9.676E-08	3.254E-08	1.099E-08	5.798E-09	3.588E-09	1.735E-09	1.058E-09	7.213E-10
NNE	119	1.047E-07	3.520E-08	1.189E-08	6.273E-09	3.881E-09	1.877E-09	1.145E-09	7.803E-10
NE	125	1.100E-07	3.698E-08	1.249E-08	6.589E-09	4.077E-09	1.971E-09	1.203E-09	8.196E-10
ENE	201	1.768E-07	5.946E-08	2.008E-08	1.060E-08	6.555E-09	3.170E-09	1.934E-09	1.318E-09
E	284	2.498E-07	8.401E-08	2.837E-08	1.497E-08	9.262E-09	4.479E-09	2.733E-09	1.862E-09
ESE	174	1.531E-07	5.147E-08	1.738E-08	9.172E-09	5.675E-09	2.744E-09	1.674E-09	1.141E-09
SE	143	1.258E-07	4.230E-08	1.428E-08	7.538E-09	4.664E-09	2.255E-09	1.376E-09	9.376E-10
SSE	104	9.148E-08	3.076E-08	1.039E-08	5.482E-09	3.392E-09	1.640E-09	1.001E-09	6.819E-10
S	109	1.055E-07	3.547E-08	1.089E-08	5.746E-09	3.555E-09	1.719E-09	1.049E-09	7.147E-10
SSW	159	1.538E-07	5.174E-08	1.588E-08	8.381E-09	5.186E-09	2.508E-09	1.530E-09	1.043E-09
SW	64	6.192E-08	2.082E-08	6.393E-09	3.374E-09	2.087E-09	1.009E-09	6.158E-10	4.196E-10
WSW	101	9.772E-08	3.286E-08	1.009E-08	5.324E-09	3.294E-09	1.593E-09	9.718E-10	6.623E-10
W	58	5.612E-08	1.887E-08	5.794E-09	3.363E-09	2.081E-09	1.006E-09	5.581E-10	3.803E-10
WNW	42	3.694E-08	1.242E-08	4.196E-09	2.214E-09	1.370E-09	6.624E-10	4.445E-10	3.029E-10
NW	60	5.278E-08	1.775E-08	5.994E-09	3.163E-09	1.957E-09	9.463E-10	5.773E-10	3.934E-10
NNW	70	6.157E-08	2.071E-08	6.993E-09	3.690E-09	2.283E-09	1.104E-09	6.736E-10	4.590E-10
AVERAGE	1923	1.084E-07	3.646E-08	1.201E-08	6.355E-09	3.932E-09	1.901E-09	1.159E-09	7.898E-10

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	110	5.278E-10	4.037E-10	3.192E-10	2.565E-10	2.116E-10	1.061E-10	6.525E-11	3.219E-11
NNE	119	5.709E-10	4.367E-10	3.453E-10	2.775E-10	2.290E-10	1.148E-10	7.059E-11	3.483E-11
NE	125	5.997E-10	4.587E-10	3.627E-10	2.915E-10	2.405E-10	1.206E-10	7.415E-11	3.658E-11
ENE	201	9.644E-10	7.376E-10	5.833E-10	4.687E-10	3.867E-10	1.939E-10	1.192E-10	5.883E-11
E	284	1.363E-09	1.042E-09	8.241E-10	6.623E-10	5.464E-10	2.740E-10	1.685E-10	8.312E-11
ESE	174	8.348E-10	6.385E-10	5.049E-10	4.057E-10	3.348E-10	1.678E-10	1.032E-10	5.092E-11
SE	143	6.861E-10	5.248E-10	4.565E-10	3.668E-10	3.026E-10	1.379E-10	8.482E-11	4.185E-11
SSE	104	4.990E-10	3.817E-10	3.018E-10	2.425E-10	2.001E-10	1.003E-10	6.169E-11	3.044E-11
S	109	5.230E-10	4.000E-10	3.163E-10	2.542E-10	2.097E-10	1.051E-10	6.466E-11	3.190E-11
SSW	159	7.629E-10	5.835E-10	4.614E-10	3.708E-10	3.059E-10	1.534E-10	9.432E-11	4.653E-11
SW	64	3.071E-10	2.349E-10	1.857E-10	1.492E-10	1.231E-10	6.174E-11	3.796E-11	1.873E-11
WSW	101	4.846E-10	3.707E-10	3.234E-10	2.591E-10	2.138E-10	9.743E-11	5.991E-11	2.956E-11
W	58	2.783E-10	2.128E-10	1.683E-10	1.352E-10	1.116E-10	5.595E-11	3.440E-11	1.697E-11
WNW	42	2.217E-10	1.695E-10	1.219E-10	9.794E-11	8.081E-11	4.052E-11	2.491E-11	1.229E-11
NW	60	2.879E-10	2.202E-10	1.741E-10	1.399E-10	1.154E-10	5.708E-11	3.559E-11	1.756E-11
NNW	70	3.358E-10	2.569E-10	2.031E-10	1.632E-10	1.347E-10	6.753E-11	4.152E-11	2.049E-11
AVERAGE	1923	5.779E-10	4.420E-10	3.532E-10	2.838E-10	2.342E-10	1.159E-10	7.129E-11	3.510E-11

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)						
		20.00	25.00	30.00	34.95	40.00	45.00	50.00
N	110	1.979E-11	1.332E-11	9.387E-12	7.039E-12	5.475E-12	4.478E-12	3.718E-12
NNE	119	2.141E-11	1.441E-11	1.015E-11	7.614E-12	5.923E-12	4.844E-12	4.022E-12
NE	125	2.249E-11	1.514E-11	1.067E-11	7.998E-12	6.222E-12	5.088E-12	4.225E-12
ENE	201	3.616E-11	2.434E-11	1.715E-11	1.286E-11	1.000E-11	8.182E-12	6.794E-12
E	284	5.109E-11	3.440E-11	2.424E-11	1.817E-11	1.414E-11	1.156E-11	9.599E-12
ESE	174	3.130E-11	2.107E-11	1.485E-11	1.113E-11	8.661E-12	7.083E-12	5.881E-12
SE	143	2.572E-11	1.732E-11	1.220E-11	9.150E-12	7.118E-12	5.821E-12	4.833E-12
SSE	104	1.871E-11	1.260E-11	8.875E-12	6.655E-12	5.177E-12	4.234E-12	3.515E-12
S	109	1.961E-11	1.320E-11	9.302E-12	6.975E-12	5.425E-12	4.437E-12	3.684E-12
SSW	159	2.860E-11	1.926E-11	1.357E-11	1.017E-11	7.914E-12	6.472E-12	5.374E-12
SW	64	1.151E-11	7.751E-12	5.461E-12	4.095E-12	3.186E-12	2.605E-12	2.163E-12
WSW	101	1.817E-11	1.223E-11	8.619E-12	6.463E-12	5.027E-12	4.111E-12	3.414E-12
W	58	1.043E-11	7.025E-12	4.949E-12	3.711E-12	2.887E-12	2.361E-12	1.960E-12
WNW	42	7.555E-12	5.087E-12	3.584E-12	2.687E-12	2.091E-12	1.710E-12	1.420E-12
NW	60	1.079E-11	7.267E-12	5.120E-12	3.839E-12	2.986E-12	2.442E-12	2.028E-12
NNW	70	1.259E-11	8.478E-12	5.974E-12	4.479E-12	3.484E-12	2.849E-12	2.366E-12
AVERAGE	1923	2.162E-11	1.456E-11	1.026E-11	7.690E-12	5.982E-12	4.892E-12	4.062E-12

Table B-4

Deposition D/Q Factors for Reactor Building Vent

BE 2nd quarter 1993 general x/q's - ground level

SECTOR AVERAGE MODEL

GROUND RELEASE: AVERAGE DEPOSITION RATES (REGULATORY GUIDE 1.111 MODEL) - (1/M2)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	122	1.130E-07	3.798E-08	1.283E-08	6.769E-09	4.188E-09	2.025E-09	1.236E-09	8.420E-10
NNE	307	2.842E-07	9.558E-08	3.228E-08	1.703E-08	1.054E-08	5.096E-09	3.109E-09	2.119E-09
NE	183	1.694E-07	5.698E-08	1.924E-08	1.015E-08	6.282E-09	3.038E-09	1.853E-09	1.263E-09
ENE	151	1.398E-07	4.701E-08	1.588E-08	8.378E-09	5.184E-09	2.507E-09	1.529E-09	1.042E-09
E	120	1.111E-07	3.736E-08	1.262E-08	6.658E-09	4.119E-09	1.992E-09	1.215E-09	8.282E-10
ESE	84	7.777E-08	2.615E-08	8.832E-09	4.661E-09	2.884E-09	1.394E-09	8.507E-10	5.797E-10
SE	87	8.055E-08	2.709E-08	1.006E-08	5.310E-09	3.285E-09	1.589E-09	8.811E-10	6.004E-10
SSE	98	9.980E-08	3.356E-08	1.133E-08	5.437E-09	3.364E-09	1.627E-09	9.925E-10	6.763E-10
S	155	1.722E-07	5.791E-08	1.630E-08	8.600E-09	5.321E-09	2.573E-09	1.570E-09	1.070E-09
SSW	76	7.740E-08	2.603E-08	7.991E-09	4.217E-09	2.609E-09	1.262E-09	7.697E-10	5.245E-10
SW	69	7.027E-08	2.363E-08	7.255E-09	3.828E-09	2.369E-09	1.145E-09	6.988E-10	4.762E-10
WSW	86	8.758E-08	2.945E-08	9.042E-09	4.771E-09	2.952E-09	1.428E-09	8.710E-10	5.935E-10
W	79	8.045E-08	2.706E-08	8.306E-09	4.821E-09	2.983E-09	1.443E-09	8.001E-10	5.452E-10
WNW	78	7.221E-08	2.428E-08	8.201E-09	4.328E-09	2.678E-09	1.295E-09	8.690E-10	5.921E-10
NW	65	6.018E-08	2.024E-08	6.834E-09	3.606E-09	2.231E-09	1.079E-09	6.583E-10	4.486E-10
NNW	67	6.203E-08	2.086E-08	7.045E-09	3.717E-09	2.300E-09	1.112E-09	6.786E-10	4.624E-10
AVERAGE	1827	1.099E-07	3.695E-08	1.213E-08	6.393E-09	3.955E-09	1.913E-09	1.161E-09	7.914E-10

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	122	6.161E-10	4.712E-10	3.726E-10	2.994E-10	2.471E-10	1.239E-10	7.617E-11	3.758E-11
NNE	307	1.550E-09	1.186E-09	9.377E-10	7.535E-10	6.217E-10	3.117E-10	1.917E-10	9.457E-11
NE	183	9.241E-10	7.069E-10	5.589E-10	4.492E-10	3.706E-10	1.858E-10	1.143E-10	5.637E-11
ENE	151	7.625E-10	5.833E-10	4.612E-10	3.706E-10	3.058E-10	1.533E-10	9.428E-11	4.652E-11
E	120	6.060E-10	4.635E-10	3.665E-10	2.945E-10	2.430E-10	1.218E-10	7.492E-11	3.697E-11
ESE	84	4.242E-10	3.241E-10	2.566E-10	2.062E-10	1.701E-10	8.529E-11	5.245E-11	2.588E-11
SE	87	4.393E-10	3.361E-10	2.923E-10	2.349E-10	1.938E-10	9.717E-11	5.975E-11	2.948E-11
SSE	98	4.949E-10	3.785E-10	2.993E-10	2.405E-10	1.985E-10	9.950E-11	6.119E-11	3.019E-11
S	155	7.827E-10	5.987E-10	4.734E-10	3.804E-10	3.139E-10	1.574E-10	9.677E-11	4.775E-11
SSW	76	3.838E-10	2.936E-10	2.321E-10	1.865E-10	1.539E-10	7.717E-11	4.745E-11	2.341E-11
SW	69	3.484E-10	2.665E-10	2.107E-10	1.694E-10	1.397E-10	7.006E-11	4.308E-11	2.126E-11
WSW	86	4.343E-10	3.322E-10	2.889E-10	2.322E-10	1.916E-10	8.732E-11	5.369E-11	2.649E-11
W	79	3.989E-10	3.051E-10	2.413E-10	1.939E-10	1.600E-10	8.021E-11	4.932E-11	2.434E-11
WNW	78	4.333E-10	3.314E-10	2.382E-10	1.914E-10	1.580E-10	7.920E-11	4.870E-11	2.403E-11
NW	65	3.282E-10	2.511E-10	1.985E-10	1.595E-10	1.316E-10	6.600E-11	4.058E-11	2.002E-11
NNW	67	3.383E-10	2.588E-10	2.046E-10	1.644E-10	1.357E-10	6.803E-11	4.183E-11	2.064E-11
AVERAGE	1827	5.791E-10	4.429E-10	3.521E-10	2.829E-10	2.334E-10	1.165E-10	7.163E-11	3.534E-11

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	122	2.310E-11	1.555E-11	1.096E-11	8.217E-12	6.392E-12	5.227E-12	4.340E-12	
NNE	307	5.813E-11	3.914E-11	2.757E-11	2.068E-11	1.608E-11	1.315E-11	1.092E-11	
NE	183	3.465E-11	2.333E-11	1.644E-11	1.232E-11	9.587E-12	7.841E-12	6.511E-12	
ENE	151	2.859E-11	1.925E-11	1.356E-11	1.017E-11	7.911E-12	6.470E-12	5.372E-12	
E	120	2.272E-11	1.530E-11	1.078E-11	8.082E-12	6.287E-12	5.142E-12	4.269E-12	
ESE	84	1.590E-11	1.071E-11	7.545E-12	5.657E-12	4.401E-12	3.599E-12	2.988E-12	
SE	87	1.812E-11	1.220E-11	8.596E-12	6.445E-12	5.014E-12	4.100E-12	3.405E-12	
SSE	98	1.856E-11	1.249E-11	8.802E-12	6.600E-12	5.134E-12	4.199E-12	3.487E-12	
S	155	2.935E-11	1.976E-11	1.392E-11	1.044E-11	8.120E-12	6.641E-12	5.514E-12	
SSW	76	1.439E-11	9.688E-12	6.826E-12	5.119E-12	3.982E-12	3.256E-12	2.704E-12	
SW	69	1.306E-11	8.796E-12	6.198E-12	4.647E-12	3.615E-12	2.956E-12	2.455E-12	
WSW	86	1.628E-11	1.096E-11	7.725E-12	5.792E-12	4.506E-12	3.685E-12	3.060E-12	
W	79	1.496E-11	1.007E-11	7.096E-12	5.321E-12	4.139E-12	3.385E-12	2.811E-12	
WNW	78	1.477E-11	9.943E-12	7.006E-12	5.253E-12	4.086E-12	3.342E-12	2.775E-12	
NW	65	1.231E-11	8.286E-12	5.838E-12	4.378E-12	3.405E-12	2.785E-12	2.312E-12	
NNW	67	1.269E-11	8.541E-12	6.018E-12	4.512E-12	3.510E-12	2.871E-12	2.384E-12	
AVERAGE	1827	2.172E-11	1.463E-11	1.031E-11	7.727E-12	6.011E-12	4.916E-12	4.082E-12	

Table B-4

Deposition D/Q Factors for Reactor Building Vent

BE 3rd quarter 1993 ground level general x/q's

SECTOR AVERAGE MOD

GROUND RELEASE: AVERAGE DEPOSITION RATES (REGULATORY GUIDE 1.111 MODEL) - (1/M2)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	202	1.612E-07	5.423E-08	1.831E-08	9.663E-09	5.979E-09	2.891E-09	1.764E-09	1.202E-09
NNE	428	3.416E-07	1.149E-07	3.880E-08	2.047E-08	1.267E-08	6.126E-09	3.737E-09	2.547E-09
NE	315	2.514E-07	8.456E-08	2.856E-08	1.507E-08	9.323E-09	4.509E-09	2.751E-09	1.874E-09
ENE	175	1.397E-07	4.698E-08	1.586E-08	8.371E-09	5.180E-09	2.505E-09	1.528E-09	1.041E-09
E	100	7.982E-08	2.684E-08	9.065E-09	4.784E-09	2.960E-09	1.431E-09	8.732E-10	5.950E-10
ESE	55	5.189E-08	1.745E-08	5.893E-09	3.109E-09	1.924E-09	9.303E-10	5.676E-10	3.868E-10
SE	66	5.268E-08	1.772E-08	6.582E-09	3.473E-09	2.149E-09	1.039E-09	5.763E-10	3.927E-10
SSE	69	6.059E-08	2.037E-08	6.881E-09	3.301E-09	2.042E-09	9.876E-10	6.025E-10	4.106E-10
S	74	7.088E-08	2.384E-08	6.708E-09	3.540E-09	2.190E-09	1.059E-09	6.462E-10	4.403E-10
SSW	108	9.483E-08	3.189E-08	9.791E-09	5.166E-09	3.197E-09	1.546E-09	9.431E-10	6.426E-10
SW	103	9.044E-08	3.041E-08	9.337E-09	4.927E-09	3.049E-09	1.474E-09	8.994E-10	6.129E-10
WSW	124	.089E-07	3.662E-08	1.124E-08	5.932E-09	3.670E-09	1.775E-09	1.083E-09	7.379E-10
W	95	.342E-08	2.805E-08	8.612E-09	4.999E-09	3.093E-09	1.496E-09	8.296E-10	5.653E-10
WNW	69	5.508E-08	1.852E-08	6.255E-09	3.301E-09	2.042E-09	9.876E-10	6.288E-10	4.516E-10
NW	70	5.580E-08	1.879E-08	6.346E-09	3.349E-09	2.072E-09	1.002E-09	6.113E-10	4.165E-10
NNW	56	4.470E-08	1.503E-08	5.077E-09	2.679E-09	1.657E-09	8.015E-10	4.890E-10	3.332E-10
AVERAGE	2119	1.089E-07	3.664E-08	1.208E-08	6.384E-09	3.950E-09	1.910E-09	1.160E-09	7.906E-10

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	202	8.795E-10	6.727E-10	5.319E-10	4.275E-10	3.527E-10	1.768E-10	1.087E-10	5.365E-11
NNE	428	1.864E-09	1.425E-09	1.127E-09	9.057E-10	7.473E-10	3.747E-10	2.304E-10	1.137E-10
NE	315	1.372E-09	1.049E-09	8.295E-10	6.666E-10	5.500E-10	2.758E-10	1.696E-10	8.366E-11
ENE	175	7.620E-10	5.828E-10	4.608E-10	3.703E-10	3.056E-10	1.532E-10	9.420E-11	4.648E-11
E	100	4.354E-10	3.330E-10	2.633E-10	2.116E-10	1.746E-10	8.754E-11	5.383E-11	2.656E-11
ESE	55	2.830E-10	2.165E-10	1.712E-10	1.376E-10	1.135E-10	5.690E-11	3.499E-11	1.726E-11
SE	66	2.874E-10	2.198E-10	1.912E-10	1.536E-10	1.268E-10	6.356E-11	3.908E-11	1.928E-11
SSE	69	3.004E-10	2.298E-10	1.817E-10	1.460E-10	1.205E-10	6.040E-11	3.714E-11	1.833E-11
S	74	3.222E-10	2.464E-10	1.949E-10	1.566E-10	1.292E-10	6.478E-11	3.984E-11	1.965E-11
SSW	108	4.702E-10	3.597E-10	2.844E-10	2.285E-10	1.886E-10	9.455E-11	5.814E-11	2.868E-11
SW	103	4.485E-10	3.430E-10	2.712E-10	2.180E-10	1.798E-10	9.017E-11	5.545E-11	2.736E-11
WSW	124	5.399E-10	4.130E-10	3.592E-10	2.886E-10	2.382E-10	1.086E-10	6.675E-11	3.293E-11
W	95	4.136E-10	3.164E-10	2.502E-10	2.010E-10	1.659E-10	8.317E-11	5.114E-11	2.523E-11
WNW	69	3.305E-10	2.528E-10	1.817E-10	1.460E-10	1.205E-10	6.040E-11	3.714E-11	1.833E-11
NW	70	3.048E-10	2.331E-10	1.843E-10	1.481E-10	1.222E-10	6.128E-11	3.768E-11	1.859E-11
NNW	56	2.438E-10	1.865E-10	1.475E-10	1.185E-10	9.778E-11	4.902E-11	3.015E-11	1.487E-11
AVERAGE	2119	5.785E-10	4.425E-10	3.519E-10	2.828E-10	2.333E-10	1.163E-10	7.151E-11	3.529E-11

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	202	3.298E-11	2.220E-11	1.564E-11	1.173E-11	9.124E-12	7.462E-12	6.196E-12	
NNE	428	6.987E-11	4.704E-11	3.315E-11	2.485E-11	1.933E-11	1.581E-11	1.313E-11	
NE	315	5.142E-11	3.462E-11	2.439E-11	1.829E-11	1.423E-11	1.164E-11	9.662E-12	
ENE	175	2.857E-11	1.923E-11	1.355E-11	1.016E-11	7.905E-12	6.465E-12	5.368E-12	
E	100	1.632E-11	1.099E-11	7.744E-12	5.807E-12	4.517E-12	3.694E-12	3.067E-12	
ESE	55	1.061E-11	7.144E-12	5.034E-12	3.774E-12	2.936E-12	2.401E-12	1.994E-12	
SE	66	1.185E-11	7.979E-12	5.622E-12	4.216E-12	3.279E-12	2.682E-12	2.227E-12	
SSE	69	1.126E-11	7.584E-12	5.344E-12	4.007E-12	3.117E-12	2.549E-12	2.117E-12	
S	74	1.208E-11	8.133E-12	5.731E-12	4.297E-12	3.343E-12	2.734E-12	2.270E-12	
SSW	108	1.763E-11	1.187E-11	8.364E-12	6.271E-12	4.878E-12	3.990E-12	3.313E-12	
SW	103	1.681E-11	1.132E-11	7.977E-12	5.981E-12	4.653E-12	3.805E-12	3.159E-12	
WSW	124	2.024E-11	1.363E-11	9.603E-12	7.200E-12	5.601E-12	4.581E-12	3.804E-12	
W	95	1.551E-11	1.044E-11	7.357E-12	5.516E-12	4.291E-12	3.509E-12	2.914E-12	
WNW	69	1.126E-11	7.584E-12	5.344E-12	4.007E-12	3.117E-12	2.549E-12	2.117E-12	
NW	70	1.143E-11	7.694E-12	5.421E-12	4.065E-12	3.162E-12	2.586E-12	2.147E-12	
NNW	56	9.142E-12	6.155E-12	4.337E-12	3.252E-12	2.530E-12	2.069E-12	1.718E-12	
AVERAGE	2119	2.169E-11	1.460E-11	1.029E-11	7.714E-12	6.001E-12	4.908E-12	4.075E-12	

Table B-4

Deposition D/Q Factors for Reactor Building Vent

BE 4th quarter 1993 general x/q/s + ground level

SECTOR AVERAGE MOD

GROUND RELEASE: AVERAGE DEPOSITION RATES (REGULATORY GUIDE 1.111 MODEL) - (1/M2)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	180	1.457E-07	4.901E-08	1.655E-08	8.734E-09	5.404E-09	2.613E-09	1.594E-09	1.086E-09
NNE	260	2.105E-07	7.080E-08	2.391E-08	1.262E-08	7.806E-09	3.775E-09	2.303E-09	1.569E-09
NE	252	2.040E-07	6.862E-08	2.317E-08	1.223E-08	7.566E-09	3.659E-09	2.232E-09	1.521E-09
ENE	245	1.984E-07	6.671E-08	2.253E-08	1.189E-08	7.356E-09	3.557E-09	2.170E-09	1.479E-09
E	211	1.708E-07	5.745E-08	1.940E-08	1.024E-08	6.335E-09	3.063E-09	1.869E-09	1.274E-09
ESE	119	9.636E-08	3.240E-08	1.094E-08	5.774E-09	3.573E-09	1.728E-09	1.054E-09	7.183E-10
SE	128	1.036E-07	3.485E-08	1.177E-08	6.211E-09	3.843E-09	1.858E-09	1.134E-09	7.726E-10
SSE	80	6.478E-08	2.178E-08	7.357E-09	3.882E-09	2.402E-09	1.161E-09	7.086E-10	4.829E-10
S	89	7.927E-08	2.666E-08	8.184E-09	4.319E-09	2.672E-09	1.292E-09	7.883E-10	5.372E-10
SSW	148	1.318E-07	4.433E-08	1.361E-08	7.182E-09	4.443E-09	2.149E-09	1.311E-09	8.933E-10
SW	44	3.919E-08	1.318E-08	4.046E-09	2.135E-09	1.321E-09	6.388E-10	3.897E-10	2.656E-10
WSW	37	3.296E-08	1.108E-08	3.402E-09	1.795E-09	1.111E-09	5.372E-10	3.277E-10	2.233E-10
W	47	4.186E-08	1.408E-08	4.322E-09	2.509E-09	1.552E-09	7.506E-10	4.163E-10	2.837E-10
WNW	59	4.777E-08	1.607E-08	5.425E-09	2.863E-09	1.771E-09	8.566E-10	5.749E-10	3.917E-10
NW	73	5.911E-08	1.988E-08	6.713E-09	3.542E-09	2.192E-09	1.060E-09	6.666E-10	4.406E-10
NNW	117	9.474E-08	3.186E-08	1.076E-08	5.677E-09	3.513E-09	1.699E-09	1.036E-09	7.062E-10
AVERAGE	2089	1.076E-07	3.617E-08	1.201E-08	6.350E-09	3.929E-09	1.900E-09	1.160E-09	7.903E-10

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	180	7.950E-10	6.081E-10	4.808E-10	3.864E-10	3.188E-10	1.598E-10	9.829E-11	4.849E-11
NNE	260	1.148E-09	8.783E-10	6.945E-10	5.581E-10	4.605E-10	2.309E-10	1.420E-10	7.005E-11
NE	252	1.113E-09	8.513E-10	6.731E-10	5.409E-10	4.463E-10	2.238E-10	1.376E-10	6.789E-11
ENE	245	1.082E-09	8.277E-10	6.544E-10	5.259E-10	4.339E-10	2.176E-10	1.338E-10	6.601E-11
E	211	9.319E-10	7.128E-10	5.636E-10	4.529E-10	3.737E-10	1.874E-10	1.152E-10	5.685E-11
ESE	119	5.256E-10	4.020E-10	3.179E-10	2.554E-10	2.108E-10	1.057E-10	6.498E-11	3.206E-11
SE	128	5.653E-10	4.324E-10	3.761E-10	3.022E-10	2.494E-10	1.137E-10	6.989E-11	3.449E-11
SSE	80	3.533E-10	2.703E-10	2.137E-10	1.717E-10	1.417E-10	7.104E-11	4.368E-11	2.155E-11
S	89	3.931E-10	3.007E-10	2.377E-10	1.910E-10	1.576E-10	7.903E-11	4.860E-11	2.399E-11
SSW	148	6.537E-10	5.000E-10	3.953E-10	3.177E-10	2.621E-10	1.314E-10	8.081E-11	3.987E-11
SW	44	1.943E-10	1.486E-10	1.175E-10	9.445E-11	7.793E-11	3.907E-11	2.403E-11	1.185E-11
WSW	37	1.634E-10	1.250E-10	1.087E-10	8.737E-11	7.208E-11	3.286E-11	2.020E-11	9.968E-12
W	47	2.076E-10	1.588E-10	1.255E-10	1.009E-10	8.324E-11	4.174E-11	2.566E-11	1.266E-11
WNW	59	2.866E-10	2.192E-10	1.576E-10	1.266E-10	1.045E-10	5.239E-11	3.222E-11	1.590E-11
NW	73	3.224E-10	2.466E-10	1.950E-10	1.567E-10	1.293E-10	6.482E-11	3.986E-11	1.967E-11
NNW	117	5.167E-10	3.952E-10	3.125E-10	2.512E-10	2.072E-10	1.039E-10	6.389E-11	3.152E-11
AVERAGE	2089	5.783E-10	4.423E-10	3.515E-10	2.825E-10	2.331E-10	1.159E-10	7.129E-11	3.518E-11

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	180	2.981E-11	2.007E-11	1.414E-11	1.060E-11	8.247E-12	6.745E-12	5.601E-12	
NNE	260	4.305E-11	2.899E-11	2.042E-11	1.531E-11	1.191E-11	9.743E-12	8.090E-12	
NE	252	4.173E-11	2.810E-11	1.980E-11	1.484E-11	1.155E-11	9.443E-12	7.841E-12	
ENE	245	4.057E-11	2.731E-11	1.925E-11	1.443E-11	1.123E-11	9.181E-12	7.623E-12	
E	211	3.494E-11	2.352E-11	1.658E-11	1.263E-11	9.668E-12	7.907E-12	6.565E-12	
ESE	119	1.971E-11	1.327E-11	9.348E-12	7.009E-12	5.453E-12	4.459E-12	3.703E-12	
SE	128	2.120E-11	1.427E-11	1.006E-11	7.539E-12	5.865E-12	4.796E-12	3.983E-12	
SSE	80	1.325E-11	8.919E-12	6.284E-12	4.712E-12	3.666E-12	2.998E-12	2.489E-12	
S	89	1.474E-11	9.922E-12	6.991E-12	5.242E-12	4.078E-12	3.335E-12	2.769E-12	
SSW	148	2.451E-11	1.650E-11	1.163E-11	8.718E-12	6.781E-12	5.546E-12	4.605E-12	
SW	44	7.286E-12	4.905E-12	3.456E-12	2.592E-12	2.016E-12	1.649E-12	1.369E-12	
WSW	37	6.127E-12	4.125E-12	2.907E-12	2.179E-12	1.695E-12	1.386E-12	1.151E-12	
W	47	7.783E-12	5.240E-12	3.692E-12	2.768E-12	2.154E-12	1.761E-12	1.462E-12	
WNW	59	9.770E-12	6.578E-12	4.635E-12	3.475E-12	2.703E-12	2.211E-12	1.836E-12	
NW	73	1.209E-11	8.139E-12	5.734E-12	4.300E-12	3.345E-12	2.735E-12	2.271E-12	
NNW	117	1.937E-11	1.304E-11	9.191E-12	6.892E-12	5.361E-12	4.384E-12	3.640E-12	
AVERAGE	2089	2.162E-11	1.456E-11	1.026E-11	7.690E-12	5.982E-12	4.892E-12	4.062E-12	

Table B-4

Deposition D/Q Factors for Reactor Building Vent

BE 1993 ENTIRE YEAR general ground level X/Qs beco

SECTOR AVERAGE MODEL

GROUND RELEASE: AVERAGE DEPOSITION RATES (REGULATORY GUIDE 1.111 MODEL) - (1/M2)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	614	1.305E-07	4.389E-08	1.482E-08	7.821E-09	4.839E-09	2.340E-09	1.428E-09	9.728E-10
NNE	1114	2.368E-07	7.963E-08	2.689E-08	1.419E-08	8.779E-09	4.246E-09	2.590E-09	1.765E-09
NE	875	1.860E-07	6.254E-08	2.112E-08	1.115E-08	6.896E-09	3.335E-09	2.034E-09	1.386E-09
ENE	772	1.641E-07	5.518E-08	1.864E-08	9.834E-09	6.084E-09	2.942E-09	1.795E-09	1.223E-09
E	715	1.520E-07	5.111E-08	1.726E-08	9.107E-09	5.635E-09	2.725E-09	1.662E-09	1.133E-09
ESE	442	9.395E-08	3.159E-08	1.067E-08	5.630E-09	3.483E-09	1.685E-09	1.028E-09	7.003E-10
SE	424	9.012E-08	3.031E-08	1.023E-08	5.401E-09	3.342E-09	1.616E-09	9.859E-10	6.718E-10
SSE	351	7.461E-08	2.509E-08	8.473E-09	4.471E-09	2.766E-09	1.338E-09	8.161E-10	5.561E-10
S	427	9.983E-08	3.357E-08	1.031E-08	5.439E-09	3.365E-09	1.627E-09	9.928E-10	6.766E-10
SSW	491	1.148E-07	3.861E-08	1.185E-08	6.254E-09	3.870E-09	1.871E-09	1.142E-09	7.780E-10
SW	280	6.547E-08	2.202E-08	6.759E-09	3.567E-09	2.207E-09	1.067E-09	6.510E-10	4.436E-10
WSW	348	8.136E-08	2.736E-08	8.400E-09	4.433E-09	2.743E-09	1.326E-09	8.091E-10	5.514E-10
W	279	6.523E-08	2.191E-08	6.735E-09	3.909E-09	2.419E-09	1.170E-09	6.487E-10	4.421E-10
WNW	248	5.271E-08	1.773E-08	5.986E-09	3.159E-09	1.954E-09	9.451E-10	6.343E-10	4.322E-10
NW	268	5.696E-08	1.916E-08	6.469E-09	3.414E-09	2.112E-09	1.021E-09	6.231E-10	4.246E-10
NNW	310	6.589E-08	2.216E-08	7.483E-09	3.949E-09	2.443E-09	1.181E-09	7.208E-10	4.912E-10
AVERAGE	7958	1.081E-07	3.637E-08	1.201E-08	6.358E-09	3.934E-09	1.902E-09	1.160E-09	7.905E-10

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	614	7.119E-10	5.445E-10	4.305E-10	3.460E-10	2.855E-10	1.431E-10	8.801E-11	4.342E-11
NNE	1114	1.292E-09	9.879E-10	7.811E-10	6.277E-10	5.179E-10	2.597E-10	1.597E-10	7.878E-11
NE	875	1.014E-09	7.759E-10	6.135E-10	4.930E-10	4.068E-10	2.040E-10	1.254E-10	6.188E-11
ENE	772	8.950E-10	6.846E-10	5.413E-10	4.350E-10	3.589E-10	1.800E-10	1.107E-10	5.460E-11
E	715	8.289E-10	6.341E-10	5.014E-10	4.029E-10	3.324E-10	1.667E-10	1.025E-10	5.057E-11
ESE	442	5.124E-10	3.920E-10	3.099E-10	2.491E-10	2.055E-10	1.030E-10	6.336E-11	3.126E-11
SE	424	4.916E-10	3.760E-10	3.270E-10	2.628E-10	2.168E-10	9.884E-11	6.078E-11	2.999E-11
SSE	351	4.069E-10	3.113E-10	2.461E-10	1.978E-10	1.632E-10	8.182E-11	5.031E-11	2.482E-11
S	427	4.951E-10	3.787E-10	2.994E-10	2.406E-10	1.985E-10	9.953E-11	6.121E-11	3.020E-11
SSW	491	5.693E-10	4.354E-10	3.443E-10	2.767E-10	2.283E-10	1.145E-10	7.038E-11	3.472E-11
SW	280	3.246E-10	2.483E-10	1.963E-10	1.578E-10	1.302E-10	6.527E-11	4.013E-11	1.980E-11
WSW	348	4.035E-10	3.086E-10	2.684E-10	2.157E-10	1.780E-10	8.112E-11	4.988E-11	2.461E-11
W	279	3.235E-10	2.474E-10	1.956E-10	1.572E-10	1.297E-10	6.504E-11	3.999E-11	1.973E-11
WNW	248	3.163E-10	2.419E-10	1.739E-10	1.397E-10	1.153E-10	5.781E-11	3.555E-11	1.754E-11
NW	268	3.107E-10	2.377E-10	1.879E-10	1.510E-10	1.246E-10	6.247E-11	3.841E-11	1.895E-11
NNW	310	3.594E-10	2.749E-10	2.174E-10	1.747E-10	1.441E-10	7.226E-11	4.443E-11	2.192E-11
AVERAGE	7958	5.784E-10	4.424E-10	3.521E-10	2.830E-10	2.335E-10	1.159E-10	7.129E-11	3.518E-11

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	614	2.669E-11	1.797E-11	1.266E-11	9.494E-12	7.385E-12	6.040E-12	5.015E-12	
NNE	1114	4.842E-11	3.260E-11	2.297E-11	1.722E-11	1.340E-11	1.096E-11	9.099E-12	
NE	875	3.804E-11	2.561E-11	1.804E-11	1.353E-11	1.052E-11	8.607E-12	7.147E-12	
ENE	772	3.356E-11	2.259E-11	1.592E-11	1.194E-11	9.285E-12	7.594E-12	6.305E-12	
E	715	3.108E-11	2.093E-11	1.474E-11	1.106E-11	8.600E-12	7.033E-12	5.840E-12	
ESE	442	1.921E-11	1.294E-11	9.114E-12	6.834E-12	5.316E-12	4.348E-12	3.610E-12	
SE	424	1.843E-11	1.241E-11	8.743E-12	6.556E-12	5.100E-12	4.171E-12	3.463E-12	
SSE	351	1.526E-11	1.027E-11	7.238E-12	5.427E-12	4.222E-12	3.453E-12	2.867E-12	
S	427	1.856E-11	1.250E-11	8.805E-12	6.602E-12	5.136E-12	4.200E-12	3.488E-12	
SSW	491	2.134E-11	1.437E-11	1.012E-11	7.592E-12	5.906E-12	4.830E-12	4.010E-12	
SW	280	1.217E-11	8.194E-12	5.774E-12	4.329E-12	3.368E-12	2.754E-12	2.287E-12	
WSW	348	1.513E-11	1.018E-11	7.176E-12	5.381E-12	4.186E-12	3.423E-12	2.842E-12	
W	279	1.213E-11	8.165E-12	5.753E-12	4.314E-12	3.356E-12	2.744E-12	2.279E-12	
WNW	248	1.078E-11	7.258E-12	5.114E-12	3.835E-12	2.983E-12	2.439E-12	2.026E-12	
NW	268	1.165E-11	7.843E-12	5.526E-12	4.144E-12	3.223E-12	2.636E-12	2.189E-12	
NNW	310	1.348E-11	9.072E-12	6.392E-12	4.793E-12	3.729E-12	3.049E-12	2.532E-12	
AVERAGE	7958	2.162E-11	1.456E-11	1.026E-11	7.690E-12	5.982E-12	4.892E-12	4.062E-12	

Table B-5

Undepleted X/Q Factors for Main Stack

BE 1st quarter 1993 general x/q's - elevated

SECTOR AVERAGE MODEL

STACK RELEASE: GROUND-LEVEL AVERAGE CHI/Q BEFORE DEPLETION (SEC/M3)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	77	2.246E-13	9.032E-10	4.876E-09	6.672E-09	9.851E-09	1.576E-08	1.763E-08	1.736E-08
NNE	83	5.018E-35	3.058E-16	1.306E-10	1.847E-09	4.977E-09	1.062E-08	1.296E-08	1.333E-08
NE	96	2.360E-13	7.332E-10	4.619E-09	6.501E-09	9.077E-09	1.386E-08	1.545E-08	1.528E-08
ENE	129	1.204E-10	6.615E-09	1.314E-08	1.183E-08	1.391E-08	1.995E-08	2.208E-08	2.164E-08
E	275	1.086E-09	3.674E-08	3.817E-08	3.066E-08	3.119E-08	3.808E-08	4.051E-08	3.928E-08
ESE	210	1.989E-09	5.730E-08	4.269E-08	3.669E-08	3.777E-08	4.296E-08	4.292E-08	4.000E-08
SE	157	1.498E-09	4.677E-08	4.105E-08	3.342E-08	3.585E-08	4.798E-08	3.794E-08	3.548E-08
SSE	91	1.383E-09	4.519E-08	4.877E-08	8.266E-08	8.833E-08	6.733E-08	5.046E-08	3.901E-08
S	114	3.354E-09	6.752E-08	1.401E-07	1.755E-07	1.325E-07	9.469E-08	6.602E-08	4.753E-08
SSW	86	2.937E-09	5.522E-08	1.226E-07	1.223E-07	1.423E-07	1.046E-07	6.661E-08	4.715E-08
SW	48	2.347E-09	1.596E-08	5.308E-08	6.767E-08	5.648E-08	4.008E-08	2.810E-08	2.088E-08
WSW	94	4.154E-09	4.900E-08	9.314E-08	9.406E-08	1.052E-07	8.155E-08	5.752E-08	4.291E-08
W	45	6.532E-12	4.009E-09	4.261E-08	4.556E-08	4.734E-08	4.134E-08	3.029E-08	2.446E-08
WNW	59	1.992E-10	5.066E-09	2.194E-08	3.206E-08	4.264E-08	4.362E-08	3.457E-08	2.901E-08
NW	56	1.469E-10	2.680E-09	4.900E-09	6.488E-09	8.078E-09	1.168E-08	1.325E-08	1.325E-08
NNW	62	4.930E-19	3.859E-11	1.818E-09	3.852E-09	6.275E-09	1.078E-08	1.259E-08	1.272E-08
AVERAGE	1682	1.201E-09	2.461E-08	4.210E-08	4.736E-08	4.823E-08	4.281E-08	3.431E-08	2.871E-08

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	77	1.617E-08	1.482E-08	1.353E-08	1.239E-08	1.135E-08	7.715E-09	5.654E-09	3.517E-09
NNE	83	1.272E-08	1.190E-08	1.105E-08	1.027E-08	9.527E-09	6.700E-09	5.004E-09	3.197E-09
NE	96	1.431E-08	1.323E-08	1.218E-08	1.125E-08	1.039E-08	7.273E-09	5.452E-09	3.518E-09
ENE	129	2.013E-08	1.847E-08	1.689E-08	1.550E-08	1.424E-08	9.773E-09	7.227E-09	4.575E-09
E	275	3.644E-08	3.345E-08	3.066E-08	2.820E-08	2.596E-08	1.799E-08	1.343E-08	8.643E-09
ESE	210	3.619E-08	3.258E-08	2.940E-08	2.669E-08	2.429E-08	1.629E-08	1.195E-08	7.514E-09
SE	157	3.202E-08	2.864E-08	2.563E-08	2.306E-08	2.083E-08	1.357E-08	9.720E-09	5.880E-09
SSE	91	3.112E-08	2.553E-08	2.144E-08	1.832E-08	1.589E-08	9.258E-09	6.263E-09	3.650E-09
S	114	3.599E-08	2.852E-08	2.336E-08	1.958E-08	1.674E-08	9.396E-09	6.272E-09	3.553E-09
SSW	86	3.564E-08	2.823E-08	2.312E-08	1.941E-08	1.662E-08	9.392E-09	6.289E-09	3.568E-09
SW	48	1.619E-08	1.302E-08	1.076E-08	9.088E-09	7.811E-09	4.434E-09	2.957E-09	1.654E-09
WSW	94	3.336E-08	2.686E-08	2.224E-08	1.880E-08	1.618E-08	9.213E-09	6.128E-09	3.398E-09
W	45	2.004E-08	1.677E-08	1.429E-08	1.236E-08	1.083E-08	7.715E-09	5.164E-09	2.916E-09
WNW	59	2.434E-08	2.070E-08	1.786E-08	1.560E-08	1.378E-08	7.947E-09	6.109E-09	3.532E-09
NW	56	1.245E-08	1.155E-08	1.067E-08	9.873E-09	9.124E-09	8.181E-09	5.814E-09	3.824E-09
NNW	62	1.203E-08	1.119E-08	1.034E-08	9.570E-09	8.848E-09	6.174E-09	4.910E-09	4.443E-09
AVERAGE	1682	2.432E-08	2.097E-08	1.834E-08	1.625E-08	1.453E-08	9.439E-09	6.771E-09	4.211E-09

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	77	2.497E-09	1.910E-09	1.536E-09	1.279E-09	1.087E-09	1.117E-09	9.767E-10	
NNE	83	2.305E-09	1.781E-09	1.443E-09	1.208E-09	1.032E-09	9.008E-10	7.968E-10	
NE	96	2.560E-09	1.993E-09	1.623E-09	1.365E-09	1.171E-09	1.027E-09	9.112E-10	
ENE	129	3.288E-09	2.600E-09	2.260E-09	1.882E-09	1.601E-09	1.393E-09	1.228E-09	
E	275	6.281E-09	4.889E-09	4.699E-09	3.918E-09	3.334E-09	2.902E-09	2.560E-09	
ESE	210	5.391E-09	4.517E-09	3.639E-09	3.035E-09	2.585E-09	2.251E-09	1.988E-09	
SE	157	4.112E-09	3.486E-09	2.762E-09	2.272E-09	1.911E-09	1.649E-09	1.443E-09	
SSE	91	2.465E-09	1.829E-09	1.442E-09	1.182E-09	9.920E-10	8.542E-10	7.467E-10	
S	114	2.414E-09	1.801E-09	1.428E-09	1.176E-09	9.909E-10	8.564E-10	7.512E-10	
SSW	86	2.424E-09	1.808E-09	1.433E-09	1.179E-09	9.928E-10	8.561E-10	7.495E-10	
SW	48	1.113E-09	8.241E-10	6.486E-10	5.311E-10	4.474E-10	3.846E-10	3.359E-10	
WSW	94	2.275E-09	1.680E-09	1.334E-09	1.088E-09	9.080E-10	7.802E-10	6.796E-10	
W	45	1.969E-09	1.461E-09	1.152E-09	9.446E-10	8.163E-10	7.013E-10	6.118E-10	
WNW	59	2.414E-09	1.870E-09	1.577E-09	1.326E-09	1.109E-09	9.526E-10	8.305E-10	
NW	56	2.656E-09	2.051E-09	1.652E-09	1.480E-09	1.246E-09	1.076E-09	9.423E-10	
NNW	62	3.026E-09	2.258E-09	1.789E-09	1.472E-09	1.238E-09	1.068E-09	9.338E-10	
AVERAGE	1682	2.949E-09	2.297E-09	1.901E-09	1.584E-09	1.341E-09	1.173E-09	1.030E-09	

Table B-5

Undepleted X/Q Factors for Main Stack

BE 2nd quarter 1993 general x/q's - elevated

SECTOR AVERAGE MOD

STACK RELEASE: GROUND-LEVEL AVERAGE CH1/Q BEFORE DEPLETION (SEC/M3)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	136	1.727E-09	4.604E-08	2.175E-08	1.433E-08	1.551E-08	1.921E-08	1.972E-08	1.864E-08
NNE	299	2.078E-09	6.503E-08	4.198E-08	3.114E-08	3.185E-08	3.750E-08	3.856E-08	3.662E-08
NE	158	7.453E-10	2.425E-08	1.811E-08	1.335E-08	1.267E-08	1.423E-08	1.488E-08	1.441E-08
ENE	98	5.259E-10	1.626E-08	8.293E-09	6.127E-09	6.854E-09	9.214E-09	1.023E-08	1.023E-08
E	160	9.646E-10	3.590E-08	2.481E-08	1.798E-08	1.682E-08	1.867E-08	1.975E-08	1.933E-08
ESE	108	9.018E-10	3.006E-08	1.561E-08	9.954E-09	9.857E-09	1.233E-08	1.360E-08	1.354E-08
SE	121	1.216E-09	4.096E-08	4.422E-08	3.338E-08	2.739E-08	3.011E-08	2.148E-08	2.018E-08
SSE	201	6.698E-09	1.852E-07	1.408E-07	1.352E-07	1.435E-07	1.128E-07	8.744E-08	6.948E-08
S	138	4.453E-09	7.537E-08	1.365E-07	2.296E-07	1.881E-07	1.638E-07	1.259E-07	9.323E-08
SSW	52	2.343E-09	3.993E-08	7.362E-08	1.064E-07	1.607E-07	1.211E-07	7.715E-08	5.462E-08
SW	69	2.796E-09	2.876E-08	6.860E-08	1.056E-07	1.029E-07	9.014E-08	6.971E-08	5.514E-08
WSW	46	3.997E-09	3.335E-08	5.139E-08	5.090E-08	6.372E-08	5.671E-08	4.203E-08	3.236E-08
W	97	4.678E-09	6.160E-08	7.659E-08	7.163E-08	7.825E-08	7.344E-08	5.592E-08	4.625E-08
WNW	99	1.305E-09	1.818E-08	2.511E-08	3.235E-08	4.747E-08	5.837E-08	5.194E-08	4.680E-08
NW	109	9.184E-10	1.559E-08	1.075E-08	1.204E-08	1.663E-08	2.328E-08	2.431E-08	2.304E-08
NNW	56	1.007E-10	2.826E-09	1.024E-09	1.772E-09	4.152E-09	8.384E-09	9.896E-09	9.963E-09
AVERAGE	1947	2.216E-09	4.496E-08	4.745E-08	5.448E-08	5.790E-08	5.308E-08	4.266E-08	3.524E-08

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	136	1.703E-08	1.542E-08	1.396E-08	1.271E-08	1.158E-08	7.806E-09	5.739E-09	3.622E-09
NNE	299	3.354E-08	3.046E-08	2.767E-08	2.524E-08	2.307E-08	1.562E-08	1.150E-08	7.268E-09
NE	158	1.343E-08	1.241E-08	1.147E-08	1.063E-08	9.847E-09	7.002E-09	5.346E-09	3.571E-09
ENE	98	9.701E-09	9.087E-09	8.477E-09	7.923E-09	7.388E-09	5.344E-09	4.109E-09	2.762E-09
E	160	1.809E-08	1.676E-08	1.550E-08	1.437E-08	1.330E-08	9.374E-09	7.079E-09	4.635E-09
ESE	108	1.278E-08	1.193E-08	1.108E-08	1.032E-08	9.586E-09	6.817E-09	5.172E-09	3.410E-09
SE	121	1.844E-08	1.679E-08	1.533E-08	1.406E-08	1.293E-08	8.996E-09	6.783E-09	4.453E-09
SSE	201	5.672E-08	4.748E-08	4.056E-08	3.518E-08	3.091E-08	1.881E-08	1.315E-08	8.436E-09
S	138	7.130E-08	5.692E-08	4.690E-08	3.952E-08	3.395E-08	1.935E-08	1.302E-08	7.438E-09
SSW	52	4.138E-08	3.276E-08	2.680E-08	2.242E-08	1.913E-08	1.067E-08	7.083E-09	3.981E-09
SW	69	4.473E-08	3.721E-08	3.160E-08	2.725E-08	2.384E-08	1.424E-08	9.814E-09	5.750E-09
WSW	46	2.576E-08	2.113E-08	1.774E-08	1.517E-08	1.317E-08	7.696E-09	5.237E-09	3.022E-09
W	97	3.859E-08	3.276E-08	2.825E-08	2.469E-08	2.180E-08	1.588E-08	1.074E-08	6.185E-09
WNW	99	4.129E-08	3.661E-08	2.995E-08	2.692E-08	2.433E-08	1.703E-08	1.259E-08	7.766E-09
NW	109	2.102E-08	1.905E-08	1.728E-08	1.576E-08	1.441E-08	1.298E-08	9.291E-09	6.333E-09
NNW	56	9.395E-09	8.684E-09	7.979E-09	7.341E-09	6.752E-09	4.638E-09	3.630E-09	3.312E-09
AVERAGE	1947	2.958E-08	2.534E-08	2.191E-08	1.934E-08	1.725E-08	1.139E-08	8.143E-09	5.122E-09

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)						
		20.00	25.00	30.00	34.95	40.00	45.00	50.00
N	136	2.609E-09	2.020E-09	1.641E-09	1.378E-09	1.181E-09	1.340E-09	1.177E-09
NNE	299	5.225E-09	4.039E-09	3.275E-09	2.746E-09	2.349E-09	2.055E-09	1.821E-09
NE	158	2.668E-09	2.120E-09	1.752E-09	1.493E-09	1.296E-09	1.147E-09	1.028E-09
ENE	98	2.068E-09	1.711E-09	1.612E-09	1.366E-09	1.178E-09	1.037E-09	9.243E-10
E	160	3.402E-09	2.667E-09	2.620E-09	2.196E-09	1.877E-09	1.640E-09	1.452E-09
ESE	108	2.517E-09	2.271E-09	1.856E-09	1.566E-09	1.348E-09	1.184E-09	1.054E-09
SE	121	3.287E-09	3.399E-09	2.751E-09	2.302E-09	1.965E-09	1.714E-09	1.514E-09
SSE	201	5.857E-09	4.430E-09	3.545E-09	2.940E-09	2.492E-09	2.162E-09	1.902E-09
S	138	5.055E-09	3.769E-09	2.987E-09	2.457E-09	2.066E-09	1.779E-09	1.555E-09
SSW	52	2.683E-09	1.989E-09	1.568E-09	1.286E-09	1.079E-09	9.298E-10	8.129E-10
SW	69	3.959E-09	2.974E-09	2.367E-09	1.954E-09	1.685E-09	1.455E-09	1.274E-09
WSW	46	2.066E-09	1.554E-09	1.279E-09	1.050E-09	8.817E-10	7.658E-10	6.693E-10
W	97	4.219E-09	3.153E-09	2.501E-09	2.060E-09	1.781E-09	1.536E-09	1.344E-09
WNW	99	5.499E-09	4.474E-09	3.946E-09	3.386E-09	2.848E-09	2.454E-09	2.145E-09
NW	109	4.426E-09	3.458E-09	2.801E-09	2.586E-09	2.171E-09	1.867E-09	1.629E-09
NNW	56	2.252E-09	1.678E-09	1.329E-09	1.092E-09	9.184E-10	7.917E-10	6.923E-10
AVERAGE	1947	3.612E-09	2.857E-09	2.364E-09	1.991E-09	1.695E-09	1.491E-09	1.312E-09

Table B-5

Undepleted X/Q Factors for Main Stack

BE 3rd quarter 1993 general x/q's - elevated

SECTOR AVERAGE MOD

STACK RELEASE: GROUND-LEVEL AVERAGE CH1/Q BEFORE DEPLETION - (SEC/M3)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	139	6.448E+10	3.164E-08	2.585E-08	1.724E-08	1.804E-08	2.180E-08	2.259E-08	2.163E-08
NNE	374	1.493E-09	4.640E-08	3.570E-08	3.057E-08	3.436E-08	4.627E-08	5.033E-08	4.906E-08
NE	211	4.024E-10	1.524E-08	1.480E-08	1.230E-08	1.330E-08	1.825E-08	2.088E-08	2.121E-08
ENE	136	3.567E-10	1.435E-08	1.397E-08	1.042E-08	9.635E-09	1.139E-08	1.267E-08	1.284E-08
E	145	6.393E-10	2.243E-08	1.556E-08	1.011E-08	8.977E-09	1.028E-08	1.142E-08	1.159E-08
ESE	118	8.211E-10	3.418E-08	2.176E-08	1.456E-08	1.354E-08	1.545E-08	1.627E-08	1.581E-08
SE	92	1.086E-09	3.647E-08	1.822E-08	1.135E-08	1.089E-08	1.497E-08	1.105E-08	1.105E-08
SSE	101	3.963E-09	1.214E-07	1.108E-07	6.966E-08	7.522E-08	6.234E-08	5.215E-08	4.449E-08
S	127	8.937E-09	1.814E-07	1.233E-07	1.885E-07	1.568E-07	1.382E-07	1.103E-07	8.398E-08
SSW	88	4.996E-09	8.110E-08	1.054E-07	1.261E-07	1.942E-07	1.885E-07	1.216E-07	8.703E-08
SW	82	7.339E-09	5.864E-08	6.662E-08	1.062E-07	1.063E-07	9.446E-08	7.256E-08	5.699E-08
WSW	58	1.466E-08	1.368E-07	7.246E-08	4.861E-08	5.694E-08	5.221E-08	3.993E-08	3.151E-08
W	101	1.086E-08	1.359E-07	8.508E-08	6.172E-08	6.452E-08	6.334E-08	5.052E-08	4.328E-08
WNW	125	1.984E-09	2.980E-08	5.543E-08	5.971E-08	7.461E-08	7.743E-08	6.388E-08	5.522E-08
NW	106	8.546E-10	1.619E-08	1.807E-08	1.706E-08	2.062E-08	2.702E-08	2.758E-08	2.569E-08
NNW	73	4.983E-11	1.490E-09	5.734E-10	1.505E-09	3.929E-09	8.599E-09	1.063E-08	1.106E-08
AVERAGE	2076	3.693E-09	6.021E-08	4.897E-08	4.910E-08	5.386E-08	5.315E-08	4.340E-08	3.640E-08

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	139	1.996E-08	1.825E-08	1.668E-08	1.531E-08	1.405E-08	9.660E-09	7.187E-09	4.607E-09
NNE	374	4.556E-08	4.175E-08	3.816E-08	3.499E-08	3.210E-08	2.197E-08	1.625E-08	1.029E-08
NE	211	2.030E-08	1.914E-08	1.795E-08	1.685E-08	1.577E-08	1.152E-08	8.898E-09	6.007E-09
ENE	136	1.238E-08	1.178E-08	1.115E-08	1.057E-08	9.985E-09	7.561E-09	6.006E-09	4.230E-09
E	145	1.117E-08	1.064E-08	1.007E-08	9.536E-09	8.997E-09	6.770E-09	5.352E-09	3.745E-09
ESE	118	1.477E-08	1.366E-08	1.261E-08	1.168E-08	1.081E-08	7.651E-09	5.822E-09	3.866E-09
SE	92	1.054E-08	9.950E-09	9.365E-09	8.825E-09	8.296E-09	6.197E-09	4.888E-09	3.417E-09
SSE	101	3.843E-08	3.370E-08	2.991E-08	2.679E-08	2.419E-08	1.605E-08	1.185E-08	8.637E-09
S	127	6.524E-08	5.271E-08	4.384E-08	3.724E-08	3.218E-08	1.868E-08	1.278E-08	7.519E-09
SSW	88	6.663E-08	5.328E-08	4.398E-08	3.714E-08	3.197E-08	1.837E-08	1.248E-08	7.246E-09
SW	82	4.602E-08	3.813E-08	3.227E-08	2.775E-08	2.420E-08	1.431E-08	9.794E-09	5.691E-09
WSW	58	2.568E-08	2.149E-08	1.838E-08	1.596E-08	1.404E-08	8.614E-09	6.058E-09	3.661E-09
W	101	3.709E-08	3.220E-08	2.830E-08	2.514E-08	2.250E-08	2.013E-08	1.406E-08	8.447E-09
WNW	125	4.748E-08	4.126E-08	3.324E-08	2.952E-08	2.642E-08	1.785E-08	1.297E-08	7.861E-09
NW	106	2.313E-08	2.068E-08	1.853E-08	1.671E-08	1.512E-08	1.240E-08	8.709E-09	5.620E-09
NNW	73	1.070E-08	1.014E-08	9.532E-09	8.965E-09	8.411E-09	6.200E-09	5.323E-09	8.077E-09
AVERAGE	2076	3.094E-08	2.680E-08	2.337E-08	2.081E-08	1.869E-08	1.275E-08	9.276E-09	6.183E-09

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	139	3.344E-09	2.601E-09	2.119E-09	1.784E-09	1.531E-09	1.670E-09	1.467E-09	
NNE	374	7.404E-09	5.723E-09	4.640E-09	3.890E-09	3.327E-09	2.909E-09	2.577E-09	
NE	211	4.501E-09	3.578E-09	2.957E-09	2.519E-09	2.184E-09	1.932E-09	1.729E-09	
ENE	136	3.260E-09	2.782E-09	2.736E-09	2.334E-09	2.026E-09	1.792E-09	1.603E-09	
E	145	2.875E-09	2.325E-09	2.766E-09	2.351E-09	2.034E-09	1.793E-09	1.601E-09	
ESE	118	2.876E-09	2.665E-09	2.185E-09	1.849E-09	1.595E-09	1.404E-09	1.251E-09	
SE	92	2.621E-09	3.187E-09	2.608E-09	2.202E-09	1.893E-09	1.660E-09	1.474E-09	
SSE	101	6.187E-09	4.774E-09	3.872E-09	3.245E-09	2.772E-09	2.416E-09	2.134E-09	
S	127	5.204E-09	3.935E-09	3.152E-09	2.618E-09	2.221E-09	1.928E-09	1.697E-09	
SSW	88	4.967E-09	3.728E-09	2.970E-09	2.453E-09	2.069E-09	1.785E-09	1.563E-09	
SW	82	3.899E-09	2.919E-09	2.317E-09	1.910E-09	1.632E-09	1.409E-09	1.234E-09	
WSW	58	2.581E-09	2.010E-09	1.855E-09	1.542E-09	1.309E-09	1.181E-09	1.039E-09	
W	101	5.914E-09	4.501E-09	3.618E-09	3.013E-09	2.854E-09	2.473E-09	2.172E-09	
WNW	125	5.520E-09	4.437E-09	3.864E-09	3.296E-09	2.769E-09	2.384E-09	2.083E-09	
NW	106	3.875E-09	2.978E-09	2.390E-09	2.137E-09	1.790E-09	1.538E-09	1.341E-09	
NNW	73	5.655E-09	4.301E-09	3.457E-09	2.876E-09	2.441E-09	2.117E-09	1.862E-09	
AVERAGE	2076	4.418E-09	3.520E-09	2.969E-09	2.501E-09	2.153E-09	1.899E-09	1.677E-09	

Table B-5

Undepleted X/Q Factors for Main Stack

BE 4th quarter 1993 general x/q's - elevated

SECTOR AVERAGE MOD

STACK RELEASE: GROUND-LEVEL AVERAGE CH1/Q BEFORE DEPLETION (SEC/M3)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	113	5.053E-18	6.801E-11	2.080E-09	4.475E-09	7.783E-09	1.421E-08	1.711E-08	1.764E-08
NNE	228	9.117E-13	3.058E-09	1.475E-08	1.597E-08	1.868E-08	2.684E-08	3.071E-08	3.093E-08
NE	216	7.987E-11	2.814E-09	1.208E-08	1.653E-08	1.970E-08	2.538E-08	2.682E-08	2.590E-08
ENE	151	5.011E-11	4.058E-09	1.092E-08	9.908E-09	1.152E-08	1.731E-08	1.993E-08	2.004E-08
E	208	4.355E-10	1.387E-08	1.435E-08	1.413E-08	1.673E-08	2.274E-08	2.467E-08	2.411E-08
ESE	149	9.548E-10	2.924E-08	1.568E-08	1.409E-08	1.687E-08	2.128E-08	2.151E-08	2.009E-08
SE	137	7.527E-10	2.894E-08	2.785E-08	2.224E-08	2.337E-08	3.067E-08	2.442E-08	2.302E-08
SSE	106	1.778E-09	4.435E-08	2.889E-08	6.179E-08	6.991E-08	5.555E-08	4.283E-08	3.380E-08
S	116	2.513E-09	4.584E-08	1.093E-07	1.435E-07	1.110E-07	8.756E-08	6.961E-08	5.330E-08
SSW	87	1.611E-09	2.529E-08	8.305E-08	1.010E-07	1.257E-07	8.362E-08	5.272E-08	3.708E-08
SW	31	1.735E-09	2.110E-08	3.511E-08	3.643E-08	3.152E-08	2.537E-08	1.932E-08	1.522E-08
WSW	38	7.481E-10	1.467E-08	3.936E-08	3.246E-08	3.370E-08	2.668E-08	1.918E-08	1.454E-08
W	51	1.381E-09	1.941E-08	2.892E-08	2.827E-08	2.933E-08	2.593E-08	1.981E-08	1.677E-08
WNW	79	3.343E-10	7.595E-09	2.928E-08	3.336E-08	4.092E-08	4.095E-08	3.294E-08	2.815E-08
NW	100	3.942E-10	8.492E-09	7.116E-09	8.228E-09	1.156E-08	1.735E-08	1.902E-08	1.852E-08
NNW	109	2.444E-35	1.765E-16	1.068E-10	1.703E-09	4.928E-09	1.141E-08	1.441E-08	1.514E-08
AVERAGE	1919	7.980E-10	1.680E-08	2.868E-08	3.400E-08	3.583E-08	3.330E-08	2.844E-08	2.464E-08

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	113	1.691E-08	1.590E-08	1.484E-08	1.386E-08	1.290E-08	9.200E-09	6.940E-09	4.500E-09
NNE	228	2.925E-08	2.724E-08	2.523E-08	2.341E-08	2.170E-08	1.524E-08	1.142E-08	7.345E-09
NE	216	2.397E-08	2.200E-08	2.017E-08	1.856E-08	1.711E-08	1.192E-08	8.956E-09	5.824E-09
ENE	151	1.895E-08	1.762E-08	1.630E-08	1.511E-08	1.399E-08	9.847E-09	7.404E-09	4.801E-09
E	208	2.246E-08	2.068E-08	1.901E-08	1.754E-08	1.618E-08	1.131E-08	8.498E-09	5.530E-09
ESE	149	1.820E-08	1.642E-08	1.485E-08	1.350E-08	1.232E-08	8.358E-09	6.193E-09	3.969E-09
SE	137	2.088E-08	1.882E-08	1.699E-08	1.542E-08	1.404E-08	9.376E-09	6.826E-09	4.238E-09
SSE	106	2.745E-08	2.288E-08	1.947E-08	1.683E-08	1.474E-08	8.881E-09	6.156E-09	3.878E-09
S	116	4.122E-08	3.316E-08	2.748E-08	2.327E-08	2.007E-08	1.155E-08	7.858E-09	4.598E-09
SSW	87	2.793E-08	2.202E-08	1.796E-08	1.499E-08	1.277E-08	7.068E-09	4.689E-09	2.618E-09
SW	31	1.235E-08	1.029E-08	8.758E-09	7.569E-09	6.632E-09	3.998E-09	2.787E-09	1.669E-09
WSW	38	1.149E-08	9.377E-09	7.850E-09	6.694E-09	5.804E-09	3.389E-09	2.317E-09	1.353E-09
W	51	1.435E-08	1.248E-08	1.100E-08	9.802E-09	8.813E-09	8.423E-09	5.872E-09	3.504E-09
WNW	79	2.401E-08	2.073E-08	1.813E-08	1.602E-08	1.429E-08	8.657E-09	6.866E-09	4.123E-09
NW	100	1.714E-08	1.570E-08	1.436E-08	1.317E-08	1.210E-08	1.079E-08	7.666E-09	5.069E-09
NNW	109	1.463E-08	1.382E-08	1.295E-08	1.212E-08	1.131E-08	8.126E-09	6.678E-09	6.886E-09
AVERAGE	1919	2.132E-08	1.870E-08	1.658E-08	1.487E-08	1.342E-08	9.135E-09	6.695E-09	4.369E-09

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	113	3.275E-09	2.547E-09	2.073E-09	1.743E-09	1.494E-09	1.687E-09	1.479E-09	
NNE	228	5.321E-09	4.128E-09	3.355E-09	2.817E-09	2.411E-09	2.110E-09	1.870E-09	
NE	216	4.266E-09	3.338E-09	2.729E-09	2.305E-09	1.983E-09	1.743E-09	1.551E-09	
ENE	151	3.504E-09	2.818E-09	2.516E-09	2.107E-09	1.799E-09	1.571E-09	1.390E-09	
E	208	4.057E-09	3.181E-09	3.343E-09	2.809E-09	2.407E-09	2.108E-09	1.870E-09	
ESE	149	2.890E-09	2.556E-09	2.075E-09	1.742E-09	1.492E-09	1.306E-09	1.157E-09	
SE	137	3.011E-09	2.691E-09	2.149E-09	1.779E-09	1.505E-09	1.305E-09	1.147E-09	
SSE	106	2.673E-09	2.012E-09	1.603E-09	1.326E-09	1.121E-09	9.705E-10	8.524E-10	
S	116	3.173E-09	2.395E-09	1.917E-09	1.591E-09	1.350E-09	1.172E-09	1.033E-09	
SSW	87	1.759E-09	1.301E-09	1.024E-09	8.388E-10	7.032E-10	6.053E-10	5.288E-10	
SW	31	1.166E-09	8.854E-10	7.103E-10	5.905E-10	5.127E-10	4.447E-10	3.911E-10	
WSW	38	9.331E-10	7.070E-10	5.850E-10	4.824E-10	4.068E-10	3.538E-10	3.101E-10	
W	51	2.439E-09	1.847E-09	1.479E-09	1.227E-09	1.135E-09	9.768E-10	8.528E-10	
WNW	79	2.879E-09	2.295E-09	1.975E-09	1.670E-09	1.402E-09	1.206E-09	1.053E-09	
NW	100	3.516E-09	2.714E-09	2.183E-09	1.941E-09	1.630E-09	1.404E-09	1.226E-09	
NNW	109	4.712E-09	3.527E-09	2.801E-09	2.308E-09	1.944E-09	1.676E-09	1.466E-09	
AVERAGE	1919	3.098E-09	2.436E-09	2.032E-09	1.705E-09	1.456E-09	1.290E-09	1.136E-09	

Table B-5

Undepleted X/Q Factors for Main Stack

RE 1993 ENTIRE YEAR General x/q's for elevated locations

SECTOR AVERAGE MODE

STACK RELEASE: GROUND-LEVEL AVERAGE CH1/Q BEFORE DEPLETION (SEC/M3)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	465	5.168E-10	2.059E-08	1.419E-08	1.095E-08	1.301E-08	1.789E-08	1.938E-08	1.892E-08
NNE	984	9.375E-10	3.001E-08	2.418E-08	2.071E-08	2.329E-08	3.127E-08	3.414E-08	3.343E-08
NE	681	3.200E-10	1.121E-08	1.272E-08	1.235E-08	1.382E-08	1.805E-08	1.964E-08	1.935E-08
ENE	514	2.706E-10	1.054E-08	1.157E-08	9.506E-09	1.034E-08	1.421E-08	1.595E-08	1.593E-08
E	788	7.697E-10	2.687E-08	2.261E-08	1.766E-08	1.783E-08	2.169E-08	2.330E-08	2.283E-08
ESE	585	1.133E-09	3.699E-08	2.327E-08	1.815E-08	1.878E-08	2.219E-08	2.279E-08	2.164E-08
SE	507	9.023E-10	3.046E-08	2.903E-08	2.307E-08	2.286E-08	2.898E-08	2.301E-08	2.178E-08
SSE	499	2.476E-09	7.060E-08	6.182E-08	8.730E-08	9.421E-08	7.461E-08	5.844E-08	4.697E-08
S	495	4.372E-09	8.395E-08	1.269E-07	1.848E-07	1.479E-07	1.224E-07	9.428E-08	7.058E-08
SSW	313	2.890E-09	4.881E-08	9.544E-08	1.139E-07	1.570E-07	1.264E-07	8.078E-08	5.738E-08
SW	230	3.473E-09	3.048E-08	5.324E-08	7.997E-08	7.561E-08	6.397E-08	4.862E-08	3.804E-08
WSW	236	5.158E-09	5.147E-08	6.078E-08	5.516E-08	6.346E-08	5.341E-08	3.913E-08	2.997E-08
W	294	4.500E-09	5.850E-08	5.635E-08	5.182E-08	5.538E-08	5.165E-08	3.970E-08	3.321E-08
WNW	362	1.002E-09	1.579E-08	3.206E-08	3.795E-08	4.965E-08	5.316E-08	4.402E-08	3.822E-08
NW	371	5.989E-10	1.112E-08	1.054E-08	1.122E-08	1.455E-08	2.025E-08	2.143E-08	2.046E-08
NNW	300	3.930E-11	1.136E-09	8.456E-10	2.141E-09	4.755E-09	9.733E-09	1.183E-08	1.217E-08
AVERAGE	7624	1.841E-09	3.366E-08	3.972E-08	4.604E-08	4.890E-08	4.561E-08	3.728E-08	3.113E-08

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	465	1.761E-08	1.618E-08	1.483E-08	1.363E-08	1.254E-08	8.641E-09	6.417E-09	4.088E-09
NNE	984	3.114E-08	2.863E-08	2.625E-08	2.413E-08	2.219E-08	1.529E-08	1.134E-08	7.212E-09
NE	681	1.815E-08	1.684E-08	1.558E-08	1.446E-08	1.341E-08	9.531E-09	7.245E-09	4.790E-09
ENE	514	1.506E-08	1.404E-08	1.303E-08	1.212E-08	1.127E-08	8.058E-09	6.143E-09	4.075E-09
E	788	2.135E-08	1.976E-08	1.825E-08	1.690E-08	1.565E-08	1.105E-08	8.368E-09	5.502E-09
ESE	585	1.985E-08	1.808E-08	1.649E-08	1.510E-08	1.385E-08	9.523E-09	7.101E-09	4.580E-09
SE	507	1.990E-08	1.805E-08	1.640E-08	1.496E-08	1.369E-08	9.338E-09	6.926E-09	4.431E-09
SSE	499	3.872E-08	3.269E-08	2.813E-08	2.456E-08	2.170E-08	1.345E-08	9.514E-09	6.388E-09
S	495	5.429E-08	4.353E-08	3.598E-08	3.041E-08	2.618E-08	1.501E-08	1.017E-08	5.888E-09
SSW	313	4.360E-08	3.465E-08	2.844E-08	2.389E-08	2.047E-08	1.158E-08	7.775E-09	4.436E-09
SW	230	3.064E-08	2.535E-08	2.144E-08	1.843E-08	1.607E-08	9.519E-09	6.527E-09	3.803E-09
WSW	236	2.382E-08	1.953E-08	1.642E-08	1.405E-08	1.222E-08	7.196E-09	4.922E-09	2.859E-09
W	294	2.799E-08	2.397E-08	2.084E-08	1.834E-08	1.630E-08	1.336E-08	9.189E-09	5.405E-09
WNW	362	3.293E-08	2.866E-08	2.520E-08	2.239E-08	2.004E-08	1.230E-08	9.824E-09	5.941E-09
NW	371	1.873E-08	1.700E-08	1.543E-08	1.407E-08	1.286E-08	1.121E-08	7.957E-09	5.267E-09
NNW	300	1.165E-08	1.092E-08	1.017E-08	9.478E-09	8.814E-09	6.280E-09	5.140E-09	5.759E-09
AVERAGE	7624	2.659E-08	2.299E-08	2.018E-08	1.793E-08	1.608E-08	1.071E-08	7.785E-09	5.020E-09

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	465	2.952E-09	2.287E-09	1.857E-09	1.559E-09	1.334E-09	1.468E-09	1.288E-09	
NNE	984	5.198E-09	4.022E-09	3.262E-09	2.736E-09	2.341E-09	2.047E-09	1.813E-09	
NE	681	3.546E-09	2.796E-09	2.297E-09	1.949E-09	1.683E-09	1.484E-09	1.325E-09	
ENE	514	3.023E-09	2.477E-09	2.289E-09	1.930E-09	1.659E-09	1.456E-09	1.293E-09	
E	788	4.059E-09	3.193E-09	3.301E-09	2.772E-09	2.374E-09	2.078E-09	1.842E-09	
ESE	585	3.343E-09	2.946E-09	2.394E-09	2.012E-09	1.724E-09	1.510E-09	1.340E-09	
SE	507	3.218E-09	3.182E-09	2.563E-09	2.136E-09	1.818E-09	1.582E-09	1.395E-09	
SSE	499	4.397E-09	3.341E-09	2.681E-09	2.229E-09	1.892E-09	1.643E-09	1.446E-09	
S	495	4.040E-09	3.034E-09	2.419E-09	2.000E-09	1.691E-09	1.463E-09	1.285E-09	
SSW	313	3.015E-09	2.249E-09	1.783E-09	1.468E-09	1.235E-09	1.065E-09	9.315E-10	
SW	230	2.612E-09	1.959E-09	1.557E-09	1.285E-09	1.103E-09	9.520E-10	8.340E-10	
WSW	236	1.967E-09	1.493E-09	1.273E-09	1.049E-09	8.842E-10	7.783E-10	6.819E-10	
W	294	3.736E-09	2.818E-09	2.250E-09	1.864E-09	1.698E-09	1.466E-09	1.284E-09	
WNW	362	4.165E-09	3.341E-09	2.905E-09	2.475E-09	2.079E-09	1.790E-09	1.563E-09	
NW	371	3.656E-09	2.830E-09	2.280E-09	2.057E-09	1.727E-09	1.486E-09	1.298E-09	
NNW	300	3.969E-09	2.986E-09	2.381E-09	1.968E-09	1.662E-09	1.436E-09	1.259E-09	
AVERAGE	7624	3.556E-09	2.810E-09	2.343E-09	1.968E-09	1.681E-09	1.481E-09	1.305E-09	

Table B-6

Depleted X/Q Factors for Main Stack

BE 1st quarter 1993 general x/q's - elevated
 STACK RELEASE: GROUND-LEVEL AVERAGE CH1/Q AFTER DEPLETION (MET. AND ATOMIC ENERGY 1968 DEPLETION MODEL) - (SEC/M3)

SECTOR AVERAGE MODEL

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	77	2.246E-13	9.032E-10	4.869E-09	6.658E-09	9.830E-09	1.570E-08	1.750E-08	1.714E-08
NNE	83	5.018E-35	3.058E-16	1.306E-10	1.847E-09	4.975E-09	1.059E-08	1.290E-08	1.322E-08
NE	96	2.360E-13	7.331E-10	4.615E-09	6.489E-09	9.056E-09	1.381E-08	1.535E-08	1.511E-08
ENE	129	1.204E-10	6.612E-09	1.311E-08	1.178E-08	1.386E-08	1.987E-08	2.193E-08	2.142E-08
E	275	1.086E-09	3.672E-08	3.810E-08	3.056E-08	3.108E-08	3.792E-08	4.024E-08	3.888E-08
ESE	210	1.989E-09	5.727E-08	4.260E-08	3.654E-08	3.759E-08	4.269E-08	4.249E-08	3.941E-08
SE	157	1.498E-09	4.675E-08	4.096E-08	3.331E-08	3.575E-08	4.776E-08	3.758E-08	3.488E-08
SSE	91	1.383E-09	4.515E-08	4.865E-08	8.248E-08	8.799E-08	6.662E-08	4.945E-08	3.780E-08
S	114	3.354E-09	6.746E-08	1.398E-07	1.750E-07	1.318E-07	9.328E-08	6.402E-08	4.537E-08
SSW	86	2.937E-09	5.518E-08	1.224E-07	1.220E-07	1.415E-07	1.024E-07	6.412E-08	4.457E-08
SW	48	2.347E-09	1.595E-08	5.300E-08	6.747E-08	5.618E-08	3.955E-08	2.742E-08	2.014E-08
WSW	94	4.154E-09	4.895E-08	9.292E-08	9.379E-08	1.047E-07	8.052E-08	5.620E-08	4.144E-08
W	45	6.532E-12	4.008E-09	4.253E-08	4.543E-08	4.712E-08	4.089E-08	2.968E-08	2.371E-08
WNW	59	1.992E-10	5.064E-09	2.191E-08	3.201E-08	4.255E-08	4.334E-08	3.411E-08	2.840E-08
NW	56	1.469E-10	2.678E-09	4.894E-09	6.468E-09	8.045E-09	1.161E-08	1.314E-08	1.308E-08
NNW	62	4.930E-19	3.859E-11	1.817E-09	3.843E-09	6.256E-09	1.073E-08	1.250E-08	1.258E-08
AVERAGE	1682	1.201E-09	7.459E-08	4.202E-08	4.723E-08	4.802E-08	4.233E-08	3.366E-08	2.795E-08

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	77	1.587E-08	1.445E-08	1.310E-08	1.190E-08	1.082E-08	7.064E-09	4.967E-09	2.850E-09
NNE	83	1.256E-08	1.169E-08	1.079E-08	9.969E-09	9.185E-09	6.227E-09	4.477E-09	2.654E-09
NE	96	1.408E-08	1.294E-08	1.184E-08	1.085E-08	9.950E-09	6.683E-09	4.808E-09	2.880E-09
ENE	129	1.983E-08	1.811E-08	1.648E-08	1.504E-08	1.374E-08	9.146E-09	6.559E-09	3.914E-09
E	275	3.591E-08	3.281E-08	2.993E-08	2.739E-08	2.508E-08	1.690E-08	1.227E-08	7.480E-09
ESE	210	3.545E-08	3.172E-08	2.843E-08	2.563E-08	2.316E-08	1.497E-08	1.057E-08	6.193E-09
SE	157	3.121E-08	2.765E-08	2.451E-08	2.183E-08	1.952E-08	1.210E-08	8.277E-09	4.617E-09
SSE	91	2.980E-08	2.416E-08	2.005E-08	1.693E-08	1.452E-08	8.020E-09	5.174E-09	2.745E-09
S	114	3.388E-08	2.647E-08	2.139E-08	1.770E-08	1.494E-08	7.932E-09	5.047E-09	2.646E-09
SSW	86	3.305E-08	2.566E-08	2.060E-08	1.695E-08	1.422E-08	7.301E-09	4.482E-09	2.205E-09
SW	48	1.543E-08	1.225E-08	1.000E-08	8.343E-09	7.087E-09	3.808E-09	2.419E-09	1.248E-09
WSW	94	3.184E-08	2.535E-08	2.075E-08	1.735E-08	1.477E-08	8.004E-09	5.099E-09	2.632E-09
W	45	1.921E-08	1.587E-08	1.336E-08	1.141E-08	9.876E-09	6.417E-09	4.049E-09	2.066E-09
WNW	59	2.362E-08	1.990E-08	1.700E-08	1.471E-08	1.286E-08	7.024E-09	5.128E-09	2.710E-09
NW	56	1.222E-08	1.125E-08	1.031E-08	9.468E-09	8.673E-09	7.210E-09	4.847E-09	2.808E-09
NNW	62	1.184E-08	1.094E-08	1.006E-08	9.255E-09	8.506E-09	5.744E-09	4.386E-09	3.136E-09
AVERAGE	1682	2.349E-08	2.008E-08	1.741E-08	1.530E-08	1.356E-08	8.409E-09	5.795E-09	3.299E-09

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	77	1.873E-09	1.330E-09	9.964E-10	7.753E-10	6.164E-10	4.984E-10	4.071E-10	
NNE	83	1.783E-09	1.291E-09	9.833E-10	7.773E-10	6.275E-10	5.194E-10	4.364E-10	
NE	96	1.965E-09	1.445E-09	1.118E-09	8.965E-10	7.341E-10	6.155E-10	5.233E-10	
ENE	129	2.662E-09	1.986E-09	1.599E-09	1.266E-09	1.024E-09	8.496E-10	7.156E-10	
E	275	5.163E-09	3.823E-09	3.304E-09	2.609E-09	2.103E-09	1.739E-09	1.459E-09	
ESE	210	4.152E-09	3.138E-09	2.365E-09	1.854E-09	1.487E-09	1.225E-09	1.027E-09	
SE	157	3.009E-09	2.274E-09	1.692E-09	1.315E-09	1.047E-09	8.585E-10	7.166E-10	
SSE	91	1.733E-09	1.211E-09	9.053E-10	7.072E-10	5.670E-10	4.681E-10	3.934E-10	
S	114	1.692E-09	1.201E-09	9.118E-10	7.234E-10	5.892E-10	4.936E-10	4.210E-10	
SSW	86	1.351E-09	9.338E-10	6.977E-10	5.487E-10	4.451E-10	3.723E-10	3.178E-10	
SW	48	7.875E-10	5.515E-10	4.135E-10	3.245E-10	2.601E-10	2.159E-10	1.826E-10	
WSW	94	1.662E-09	1.163E-09	8.578E-10	6.716E-10	5.402E-10	4.406E-10	3.720E-10	
W	45	1.280E-09	8.799E-10	6.478E-10	4.988E-10	3.723E-10	2.775E-10	2.292E-10	
WNW	59	1.709E-09	1.208E-09	9.055E-10	6.189E-10	4.658E-10	3.747E-10	3.074E-10	
NW	56	1.776E-09	1.246E-09	9.225E-10	5.525E-10	4.303E-10	3.459E-10	2.831E-10	
NNW	62	1.913E-09	1.296E-09	9.417E-10	7.173E-10	5.613E-10	4.534E-10	3.728E-10	
AVERAGE	1682	2.157E-09	1.561E-09	1.204E-09	9.285E-10	7.419E-10	6.092E-10	5.103E-10	

Table B-6

Depleted X/Q Factors for Main Stack

BE 2nd quarter 1993 general x/q's - elevated
 STACK RELEASE: GROUND-LEVEL AVERAGE CH1/Q AFTER DEPLETION (MET. AND ATOMIC ENERGY 1968 DEPLETION MODEL) - (SEC/M3) SECTOR AVERAGE MOD

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	136	1.727E-09	4.602E-08	2.170E-08	1.430E-08	1.547E-08	1.914E-08	1.958E-08	1.842E-08
NNE	299	2.078E-09	6.499E-08	4.189E-08	3.104E-08	3.173E-08	3.734E-08	3.828E-08	3.621E-08
NE	158	7.453E-10	2.424E-08	1.807E-08	1.330E-08	1.262E-08	1.416E-08	1.476E-08	1.426E-08
ENE	98	5.259E-10	1.625E-08	8.272E-09	6.107E-09	6.830E-09	9.174E-09	1.016E-08	1.012E-08
E	160	9.646E-10	3.588E-08	2.473E-08	1.790E-08	1.672E-08	1.854E-08	1.958E-08	1.909E-08
ESE	108	9.018E-10	3.004E-08	1.556E-08	9.915E-09	9.819E-09	1.227E-08	1.352E-08	1.341E-08
SE	121	1.216E-09	4.094E-08	4.412E-08	3.323E-08	2.724E-08	2.989E-08	2.125E-08	1.986E-08
SSE	201	6.698E-09	1.851E-07	1.404E-07	1.349E-07	1.430E-07	1.119E-07	8.615E-08	6.788E-08
S	138	4.453E-09	7.531E-08	1.364E-07	2.291E-07	1.873E-07	1.616E-07	1.225E-07	8.924E-08
SSW	52	2.343E-09	3.988E-08	7.344E-08	1.060E-07	1.596E-07	1.170E-07	7.246E-08	4.978E-08
SW	69	2.796E-09	2.874E-08	6.842E-08	1.053E-07	1.024E-07	8.897E-08	6.793E-08	5.291E-08
WSW	46	3.997E-09	3.331E-08	5.127E-08	5.070E-08	6.335E-08	5.586E-08	4.090E-08	3.103E-08
W	97	4.678E-09	6.153E-08	7.638E-08	7.142E-08	7.793E-08	7.280E-08	5.502E-08	4.510E-08
WNW	99	1.305E-09	1.816E-08	2.505E-08	3.228E-08	4.736E-08	5.806E-08	5.137E-08	4.594E-08
NW	109	9.184E-10	1.558E-08	1.072E-08	1.200E-08	1.659E-08	2.317E-08	2.409E-08	2.271E-08
NNW	56	1.007E-10	2.824E-09	1.021E-09	1.770E-09	4.148E-09	8.360E-09	9.827E-09	9.841E-09
AVERAGE	1947	2.216E-09	4.492E-08	4.734E-08	5.433E-08	5.763E-08	5.239E-08	4.171E-08	3.411E-08

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	136	1.674E-08	1.507E-08	1.356E-08	1.226E-08	1.111E-08	7.251E-09	5.167E-09	3.073E-09
NNE	299	3.302E-08	2.984E-08	2.697E-08	2.448E-08	2.224E-08	1.466E-08	1.052E-08	6.337E-09
NE	158	1.324E-08	1.219E-08	1.121E-08	1.035E-08	9.556E-09	6.659E-09	4.984E-09	3.208E-09
ENE	98	9.560E-09	8.914E-09	8.277E-09	7.698E-09	7.143E-09	5.035E-09	3.773E-09	2.416E-09
E	160	1.779E-08	1.641E-08	1.510E-08	1.393E-08	1.283E-08	8.798E-09	6.469E-09	4.025E-09
ESE	108	1.260E-08	1.170E-08	1.081E-08	1.001E-08	9.246E-09	6.369E-09	4.677E-09	2.893E-09
SE	121	1.802E-08	1.629E-08	1.474E-08	1.341E-08	1.223E-08	8.134E-09	5.868E-09	3.544E-09
SSE	201	5.489E-08	4.551E-08	3.849E-08	3.305E-08	2.875E-08	1.666E-08	1.113E-08	6.485E-09
S	138	6.722E-08	5.283E-08	4.284E-08	3.553E-08	3.004E-08	1.582E-08	9.867E-09	4.899E-09
SSW	52	3.658E-08	2.812E-08	2.234E-08	1.817E-08	1.510E-08	7.456E-09	4.466E-09	2.125E-09
SW	69	4.220E-08	3.449E-08	2.875E-08	2.433E-08	2.088E-08	1.134E-08	7.126E-09	3.514E-09
WSW	46	2.433E-08	1.964E-08	1.623E-08	1.365E-08	1.166E-08	6.303E-09	3.989E-09	2.022E-09
W	97	3.724E-08	3.127E-08	2.667E-08	2.303E-08	2.010E-08	1.316E-08	8.303E-09	4.214E-09
WNW	99	4.020E-08	3.530E-08	2.860E-08	2.544E-08	2.275E-08	1.495E-08	1.035E-08	5.643E-09
NW	109	2.059E-08	1.853E-08	1.669E-08	1.510E-08	1.370E-08	1.158E-08	7.875E-09	4.650E-09
NNW	56	9.222E-09	8.467E-09	7.725E-09	7.056E-09	6.443E-09	4.259E-09	3.190E-09	2.462E-09
AVERAGE	1947	2.834E-08	2.403E-08	2.056E-08	1.797E-08	1.586E-08	9.902E-09	6.734E-09	3.844E-09

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	136	2.091E-09	1.532E-09	1.180E-09	9.424E-10	7.687E-10	6.920E-10	5.798E-10	
NNE	299	4.368E-09	3.247E-09	2.539E-09	2.058E-09	1.703E-09	1.443E-09	1.241E-09	
NE	158	2.313E-09	1.774E-09	1.415E-09	1.165E-09	9.767E-10	8.357E-10	7.238E-10	
ENE	98	1.724E-09	1.357E-09	1.199E-09	9.678E-10	7.959E-10	6.888E-10	5.695E-10	
E	160	2.813E-09	2.102E-09	1.870E-09	1.489E-09	1.211E-09	1.009E-09	8.533E-10	
ESE	108	2.009E-09	1.666E-09	1.282E-09	1.023E-09	8.325E-10	6.940E-10	5.870E-10	
SE	121	2.416E-09	2.096E-09	1.549E-09	1.191E-09	9.369E-10	7.575E-10	6.234E-10	
SSE	201	4.177E-09	2.951E-09	2.216E-09	1.734E-09	1.389E-09	1.144E-09	9.576E-10	
S	138	2.946E-09	1.973E-09	1.422E-09	1.076E-09	8.396E-10	6.771E-10	5.582E-10	
SSW	52	1.260E-09	8.407E-10	6.063E-10	4.604E-10	3.606E-10	2.919E-10	2.413E-10	
SW	69	2.075E-09	1.359E-09	9.567E-10	7.087E-10	5.319E-10	4.206E-10	3.402E-10	
WSW	46	1.236E-09	8.346E-10	5.812E-10	4.393E-10	3.419E-10	2.648E-10	2.177E-10	
W	97	2.574E-09	1.742E-09	1.264E-09	9.610E-10	6.982E-10	5.273E-10	4.360E-10	
WNW	99	3.540E-09	2.441E-09	1.682E-09	1.032E-09	7.525E-10	5.942E-10	4.792E-10	
NW	109	2.898E-09	1.984E-09	1.433E-09	7.882E-10	6.131E-10	4.930E-10	4.046E-10	
NNW	56	1.527E-09	1.042E-09	7.587E-10	5.761E-10	4.478E-10	3.583E-10	2.916E-10	
AVERAGE	1947	2.498E-09	1.809E-09	1.372E-09	1.038E-09	8.250E-10	6.794E-10	5.690E-10	

Table B-6

Depleted X/Q Factors for Main Stack

BE 3rd quarter 1993 general x/q's - elevated
 STACK RELEASE: GROUND-LEVEL AVERAGE CH1/Q AFTER DEPLETION (MET. AND ATOMIC ENERGY 1968 DEPLETION MODEL) - (SEC/M3)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	139	6.44E-10	3.161E-08	2.558E-08	1.704E-08	1.784E-08	2.157E-08	2.230E-08	2.126E-08
NNE	374	1.493E-09	4.638E-08	3.560E-08	3.035E-08	3.411E-08	4.598E-08	4.990E-08	4.846E-08
NE	211	4.024E-10	1.523E-08	1.477E-08	1.226E-08	1.324E-08	1.815E-08	2.072E-08	2.097E-08
ENE	136	3.567E-10	1.434E-08	1.393E-08	1.037E-08	9.579E-09	1.131E-08	1.255E-08	1.267E-08
E	145	6.393E-10	2.241E-08	1.551E-08	1.006E-08	8.932E-09	1.023E-08	1.134E-08	1.147E-08
ESE	118	8.211E-10	3.415E-08	2.168E-08	1.448E-08	1.346E-08	1.534E-08	1.610E-08	1.555E-08
SE	92	1.086E-09	3.644E-08	1.816E-08	1.130E-08	1.084E-08	1.488E-08	1.095E-08	1.090E-08
SSE	101	3.963E-09	1.213E-07	1.104E-07	6.942E-08	7.490E-08	6.177E-08	5.131E-08	4.340E-08
S	127	8.937E-09	1.812E-07	1.229E-07	1.879E-07	1.559E-07	1.361E-07	1.072E-07	8.054E-08
SSW	88	4.996E-09	8.102E-08	1.051E-07	1.257E-07	1.930E-07	1.850E-07	1.175E-07	8.236E-08
SW	82	7.339E-09	5.856E-08	6.644E-08	1.059E-07	1.058E-07	9.328E-08	7.073E-08	5.467E-08
WSW	58	1.466E-08	1.366E-07	7.208E-08	4.832E-08	5.660E-08	5.150E-08	3.891E-08	3.027E-08
W	101	1.086E-08	1.357E-07	8.472E-08	6.146E-08	6.422E-08	6.274E-08	4.959E-08	4.198E-08
WNW	125	1.984E-09	2.978E-08	5.530E-08	5.955E-08	7.436E-08	7.688E-08	6.301E-08	5.401E-08
NW	106	3.546E-10	1.618E-08	1.801E-08	1.698E-08	2.053E-08	2.686E-08	2.728E-08	2.524E-08
NNW	73	4.983E-11	1.489E-09	5.717E-10	1.504E-09	3.926E-09	8.573E-09	1.056E-08	1.093E-08
AVERAGE	2076	3.693E-09	6.016E-08	4.879E-08	4.891E-08	5.358E-08	5.252E-08	4.250E-08	3.529E-08

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	139	1.951E-08	1.773E-08	1.610E-08	1.468E-08	1.338E-08	8.880E-09	6.374E-09	3.812E-09
NNE	374	4.479E-08	4.083E-08	3.712E-08	3.384E-08	3.087E-08	2.052E-08	1.474E-08	8.839E-09
NE	211	1.998E-08	1.875E-08	1.749E-08	1.633E-08	1.520E-08	1.078E-08	8.082E-09	5.150E-09
ENE	136	1.214E-08	1.149E-08	1.082E-08	1.019E-08	9.570E-09	7.026E-09	5.416E-09	3.603E-09
E	145	1.101E-08	1.043E-08	9.825E-09	9.262E-09	8.695E-09	6.382E-09	4.924E-09	3.289E-09
ESE	113	1.443E-08	1.373E-08	1.215E-08	1.117E-08	1.026E-08	7.005E-09	5.152E-09	3.218E-09
SE	92	1.034E-08	9.706E-09	9.084E-09	8.509E-09	7.951E-09	5.751E-09	4.387E-09	2.855E-09
SSE	101	3.709E-08	3.209E-08	2.801E-08	2.459E-08	2.170E-08	1.242E-08	7.762E-09	3.790E-09
S	127	6.176E-08	4.924E-08	4.043E-08	3.390E-08	2.892E-08	1.574E-08	1.012E-08	5.301E-09
SSW	88	6.156E-08	4.795E-08	3.849E-08	3.157E-08	2.638E-08	1.305E-08	7.708E-09	3.533E-09
SW	82	4.335E-08	3.526E-08	2.927E-08	2.469E-08	2.112E-08	1.136E-08	7.127E-09	3.554E-09
WSW	58	2.431E-08	2.005E-08	1.690E-08	1.447E-08	1.255E-08	7.207E-09	4.779E-09	2.606E-09
W	101	3.550E-08	3.037E-08	2.629E-08	2.299E-08	2.025E-08	1.612E-08	1.041E-08	5.435E-09
WNW	125	4.601E-08	3.959E-08	3.156E-08	2.773E-08	2.45E-08	1.559E-08	1.066E-08	5.783E-09
NW	106	2.259E-08	2.000E-08	1.777E-08	1.588E-08	1.425E-08	1.098E-08	7.343E-09	4.194E-09
NNW	73	1.051E-08	9.892E-09	9.242E-09	8.632E-09	8.041E-09	5.707E-09	4.619E-09	5.423E-09
AVERAGE	2076	2.968E-08	2.541E-08	2.191E-08	1.928E-08	1.710E-08	1.091E-08	7.478E-09	4.399E-09

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.75	40.00	45.00	50.00	
N	139	2.590E-09	1.892E-09	1.450E-09	1.152E-09	9.335E-10	8.204E-10	6.773E-10	
NNE	374	6.040E-09	4.441E-09	3.431E-09	2.746E-09	2.242E-09	1.873E-09	1.591E-09	
NE	211	3.651E-09	2.749E-09	2.154E-09	1.743E-09	1.437E-09	1.209E-09	1.031E-09	
ENE	136	2.626E-09	2.106E-09	1.902E-09	1.526E-09	1.245E-09	1.037E-09	8.740E-10	
E	145	2.413E-09	1.864E-09	2.032E-09	1.642E-09	1.348E-09	1.128E-09	9.568E-10	
ESE	118	2.261E-09	1.947E-09	1.507E-09	1.207E-09	9.858E-10	8.230E-10	6.966E-10	
SE	92	2.031E-09	2.053E-09	1.535E-09	1.191E-09	9.436E-10	7.659E-10	6.312E-10	
SSE	101	2.285E-09	1.572E-09	1.164E-09	9.007E-10	7.153E-10	5.847E-10	4.868E-10	
S	127	3.292E-09	2.253E-09	1.647E-09	1.260E-09	9.909E-10	8.040E-10	6.660E-10	
SSW	88	2.027E-09	1.326E-09	9.462E-10	7.152E-10	5.597E-10	4.540E-10	3.769E-10	
SW	82	2.138E-09	1.429E-09	1.026E-09	7.727E-10	5.918E-10	4.735E-10	3.869E-10	
WSW	58	1.676E-09	1.189E-09	8.803E-10	6.644E-10	5.160E-10	3.828E-10	3.156E-10	
W	101	3.360E-09	2.280E-09	1.647E-09	1.243E-09	7.894E-10	5.250E-10	4.338E-10	
WNW	125	3.862E-09	2.561E-09	1.810E-09	1.159E-09	8.628E-10	6.904E-10	5.643E-10	
NW	106	2.621E-09	1.800E-09	1.306E-09	7.496E-10	5.861E-10	4.735E-10	3.904E-10	
NNW	73	3.232E-09	2.102E-09	1.454E-09	1.051E-09	7.795E-10	5.963E-10	4.659E-10	
AVERAGE	2076	2.869E-09	2.098E-09	1.618E-09	1.233E-09	9.704E-10	7.902E-10	6.590E-10	

Table B-6

Depleted X/Q Factors for Main Stack

BE 4th quarter 1993 general x/q's - elevated

SECTOR AVERAGE MO

STACK RELEASE: GROUND-LEVEL AVERAGE CH1/Q AFTER DEPLETION (MET. AND ATOMIC ENERGY 1968 DEPLETION MODEL) - (SEC/M3)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)								
		.12	.25	.50	.75	1.00	1.50	2.00	2.50	
N	113	5.053E-18	6.801E-11	2.079E-09	4.470E-09	7.772E-09	1.416E-08	1.701E-08	1.746E-08	
NNE	228	9.117E-13	3.058E-09	1.473E-08	1.593E-08	1.862E-08	2.674E-08	3.053E-08	3.064E-08	
NE	216	7.987E-11	2.813E-09	1.207E-08	1.650E-08	1.964E-08	2.526E-08	2.663E-08	2.563E-08	
ENE	151	5.011E-11	4.057E-09	1.090E-08	9.876E-09	1.148E-08	1.724E-08	1.979E-08	1.981E-08	
E	208	4.355E-10	1.386E-08	1.433E-08	1.409E-08	1.668E-08	2.265E-08	2.452E-08	2.388E-08	
ESE	149	9.548E-10	2.922E-08	1.563E-08	1.404E-08	1.680E-08	2.117E-08	2.133E-08	1.985E-08	
SE	137	7.527E-10	2.891E-08	2.775E-08	2.214E-08	2.329E-08	3.055E-08	2.426E-08	2.277E-08	
SSE	106	1.778E-09	4.432E-08	2.882E-08	6.173E-08	6.977E-08	5.522E-08	4.232E-08	3.318E-08	
S	116	2.513E-09	4.580E-08	1.091E-07	1.431E-07	1.105E-07	8.637E-08	6.778E-08	5.126E-08	
SSW	87	1.611E-09	2.526E-08	8.296E-08	1.008E-07	1.251E-07	8.194E-08	5.092E-08	3.528E-08	
SW	31	1.735E-09	2.109E-08	3.500E-08	3.627E-08	3.135E-08	2.509E-08	1.895E-08	1.478E-08	
WSW	38	7.481E-10	1.466E-08	3.925E-08	3.232E-08	3.351E-08	2.640E-08	1.885E-08	1.419E-08	
W	51	1.381E-09	1.940E-08	2.883E-08	2.820E-08	2.925E-08	2.577E-08	1.958E-08	1.648E-08	
WNW	79	3.343E-10	7.590E-09	2.923E-08	3.328E-08	4.078E-08	4.067E-08	3.251E-08	2.757E-08	
NW	100	3.942E-10	8.484E-09	7.099E-09	8.206E-09	1.153E-08	1.727E-08	1.887E-08	1.829E-08	
NNW	109	2.444E-35	1.765E-16	1.068E-10	1.703E-09	4.926E-09	1.138E-08	1.436E-08	1.500E-08	
AVERAGE	1919	7.980E-10	1.679E-08	2.862E-08	3.391E-08	3.569E-08	3.299E-08	2.801E-08	2.413E-08	

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)								
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00	
N	113	1.665E-08	1.557E-08	1.443E-08	1.338E-08	1.236E-08	8.456E-09	6.111E-09	3.647E-09	
NNE	228	2.886E-08	2.676E-08	2.467E-08	2.278E-08	2.100E-08	1.434E-08	1.044E-08	6.342E-09	
NE	216	2.363E-08	2.159E-08	1.970E-08	1.805E-08	1.656E-08	1.127E-08	8.261E-09	5.133E-09	
ENE	151	1.864E-08	1.725E-08	1.587E-08	1.463E-08	1.347E-08	9.209E-09	6.731E-09	4.138E-09	
E	208	2.215E-08	2.032E-08	1.859E-08	1.707E-08	1.568E-08	1.069E-08	7.842E-09	4.869E-09	
ESE	149	1.791E-08	1.608E-08	1.447E-08	1.310E-08	1.190E-08	7.880E-09	5.703E-09	3.489E-09	
SE	137	2.055E-08	1.841E-08	1.651E-08	1.488E-08	1.345E-08	8.629E-09	6.033E-09	3.469E-09	
SSE	106	2.674E-08	2.213E-08	1.869E-08	1.603E-08	1.394E-08	8.083E-09	5.404E-09	3.139E-09	
S	116	3.917E-08	3.115E-08	2.552E-08	2.137E-08	1.823E-08	9.948E-09	6.430E-09	3.410E-09	
SSW	87	2.618E-08	2.035E-08	1.636E-08	1.347E-08	1.133E-08	5.924E-09	3.721E-09	1.903E-09	
SW	31	1.187E-08	9.777E-09	8.222E-09	7.020E-09	6.077E-09	3.440E-09	2.253E-09	1.198E-09	
WSW	38	1.113E-08	9.010E-09	7.483E-09	6.332E-09	5.447E-09	3.062E-09	2.020E-09	1.106E-09	
W	51	1.402E-08	1.211E-08	1.059E-08	9.356E-09	8.331E-09	6.667E-09	4.076E-09	1.903E-09	
WNW	79	2.331E-08	1.994E-08	1.727E-08	1.511E-08	1.333E-08	7.627E-09	5.731E-09	3.138E-09	
NW	100	1.683E-08	1.533E-08	1.393E-08	1.269E-08	1.158E-08	9.783E-09	6.668E-09	3.989E-09	
NNW	109	1.442E-08	1.356E-08	1.264E-08	1.177E-08	1.092E-08	7.617E-09	6.044E-09	5.212E-09	
AVERAGE	1919	2.075E-08	1.808E-08	1.593E-08	1.419E-08	1.272E-08	8.289E-09	5.841E-09	3.505E-09	

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)								
		20.00	25.00	30.00	34.95	40.00	45.00	50.00		
N	113	2.457E-09	1.779E-09	1.354E-09	1.068E-09	8.606E-10	7.805E-10	6.405E-10		
NNE	228	4.347E-09	3.198E-09	2.467E-09	1.971E-09	1.606E-09	1.339E-09	1.133E-09		
NE	216	3.599E-09	2.699E-09	2.116E-09	1.716E-09	1.418E-09	1.198E-09	1.025E-09		
ENE	151	2.869E-09	2.184E-09	1.815E-09	1.444E-09	1.171E-09	9.731E-10	8.197E-10		
E	208	3.415E-09	2.562E-09	2.478E-09	1.983E-09	1.617E-09	1.349E-09	1.141E-09		
ESE	149	2.424E-09	1.985E-09	1.530E-09	1.222E-09	9.961E-10	8.316E-10	7.045E-10		
SE	137	2.303E-09	1.833E-09	1.377E-09	1.083E-09	8.704E-10	7.192E-10	6.042E-10		
SSE	106	2.026E-09	1.433E-09	1.077E-09	8.422E-10	6.742E-10	5.547E-10	4.637E-10		
S	116	2.140E-09	1.474E-09	1.081E-09	8.271E-10	6.493E-10	5.251E-10	4.333E-10		
SSW	87	1.190E-09	8.282E-10	6.177E-10	4.821E-10	3.866E-10	3.194E-10	2.689E-10		
SW	31	7.491E-10	5.146E-10	3.769E-10	2.889E-10	2.246E-10	1.825E-10	1.513E-10		
WSW	38	7.183E-10	5.126E-10	3.831E-10	3.003E-10	2.412E-10	1.942E-10	1.632E-10		
W	51	1.094E-09	7.207E-10	5.211E-10	4.001E-10	3.012E-10	2.362E-10	1.984E-10		
WNW	79	2.020E-09	1.456E-09	1.083E-09	7.310E-10	5.522E-10	4.453E-10	3.561E-10		
NW	100	2.555E-09	1.805E-09	1.340E-09	8.044E-10	6.272E-10	5.045E-10	4.133E-10		
NNW	109	3.243E-09	2.221E-09	1.623E-09	1.237E-09	9.649E-10	7.750E-10	6.331E-10		
AVERAGE	1919	2.322E-09	1.700E-09	1.328E-09	1.025E-09	8.225E-10	6.830E-10	5.724E-10		

Table B-6

Depleted X/Q Factors for Main Stack

BE 1993 ENTIRE YEAR General x/q's for elevated locations
 STACK RELEASE: GROUND-LEVEL AVERAGE CH1/Q AFTER DEPLETION (MET. AND ATOMIC ENERGY 1968 DEPLETION MODEL) (SEC/M3)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	465	6.168E-10	2.058E-08	1.411E-08	1.088E-08	1.293E-08	1.779E-08	1.921E-08	1.867E-08
NNE	984	9.374E-10	2.999E-08	2.413E-08	2.061E-08	2.318E-08	3.112E-08	3.389E-08	3.307E-08
NE	681	3.200E-10	1.121E-08	1.219E-08	1.232E-08	1.377E-08	1.796E-08	1.950E-08	1.914E-08
ENE	514	2.706E-10	1.054E-08	1.154E-08	9.469E-09	1.030E-08	1.415E-08	1.583E-08	1.575E-08
E	788	7.697E-10	2.685E-08	2.255E-08	1.760E-08	1.776E-08	2.159E-08	2.314E-08	2.259E-08
ESE	585	1.133E-09	3.696E-08	2.321E-08	1.807E-08	1.870E-08	2.206E-08	2.258E-08	2.135E-08
SE	507	9.023E-10	3.044E-08	2.895E-08	2.297E-08	2.277E-08	2.883E-08	2.280E-08	2.146E-08
SSE	499	2.476E-09	7.055E-08	6.164E-08	8.710E-08	9.388E-08	7.398E-08	5.753E-08	4.584E-08
S	495	4.372E-09	8.388E-08	1.266E-07	1.843E-07	1.472E-07	1.207E-07	9.166E-08	6.763E-08
SSW	313	2.890E-09	4.876E-08	9.525E-08	1.136E-07	1.560E-07	1.235E-07	7.746E-08	5.385E-08
SW	230	3.473E-09	3.045E-08	5.310E-08	7.974E-08	7.526E-08	6.316E-08	4.743E-08	3.656E-08
WSW	236	5.158E-09	5.141E-08	6.058E-08	5.493E-08	6.312E-08	5.270E-08	3.818E-08	2.888E-08
W	294	4.500E-09	5.844E-08	5.617E-08	5.165E-08	5.515E-08	5.119E-08	3.903E-08	3.233E-08
WNW	362	1.002E-09	1.578E-08	3.199E-08	3.786E-08	4.951E-08	5.281E-08	4.346E-08	3.744E-08
NW	371	5.989E-10	1.111E-08	1.051E-08	1.118E-08	1.450E-08	2.014E-08	2.123E-08	2.016E-08
NNW	300	3.930E-11	1.135E-09	8.441E-10	2.138E-09	4.749E-09	9.702E-09	1.176E-08	1.204E-08
AVERAGE	7624	1.841E-09	3.363E-08	3.962E-08	4.590E-08	4.867E-08	4.508E-08	3.654E-08	3.042E-08

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	465	1.728E-08	1.578E-08	1.437E-08	1.312E-08	1.198E-08	7.957E-09	5.689E-09	3.370E-09
NNE	984	3.067E-08	2.806E-08	2.559E-08	2.340E-08	2.140E-08	1.431E-08	1.031E-08	6.207E-09
NE	681	1.788E-08	1.651E-08	1.520E-08	1.403E-08	1.294E-08	8.946E-09	6.614E-09	4.149E-09
ENE	514	1.482E-08	1.374E-08	1.269E-08	1.174E-08	1.085E-08	7.535E-09	5.580E-09	3.503E-09
E	788	2.104E-08	1.938E-08	1.781E-08	1.642E-08	1.512E-08	1.040E-08	7.673E-09	4.799E-09
ESE	585	1.948E-08	1.764E-08	1.598E-08	1.455E-08	1.326E-08	8.820E-09	6.366E-09	3.860E-09
SE	507	1.947E-08	1.754E-08	1.580E-08	1.430E-08	1.298E-08	8.485E-09	6.037E-09	3.574E-09
SSE	499	3.742E-08	3.126E-08	2.658E-08	2.291E-08	1.996E-08	1.144E-08	7.457E-09	4.084E-09
S	495	5.132E-08	4.058E-08	3.309E-08	2.759E-08	2.343E-08	1.258E-08	8.008E-09	4.137E-09
SSW	313	3.999E-08	3.102E-08	2.485E-08	2.037E-08	1.703E-08	8.561E-09	5.165E-09	2.470E-09
SW	230	2.897E-08	2.357E-08	1.959E-08	1.655E-08	1.418E-08	7.697E-09	4.861E-09	2.442E-09
WSW	236	2.266E-08	1.833E-08	1.521E-08	1.285E-08	1.102E-08	6.109E-09	3.953E-09	2.085E-09
W	294	2.694E-08	2.280E-08	1.958E-08	1.701E-08	1.492E-08	1.084E-08	6.873E-09	3.491E-09
WNW	362	3.197E-08	2.756E-08	2.400E-08	2.109E-08	1.869E-08	1.080E-08	8.121E-09	4.404E-09
NW	371	1.833E-08	1.652E-08	1.488E-08	1.346E-08	1.221E-08	1.000E-08	6.758E-09	3.953E-09
NNW	300	1.146E-08	1.068E-08	9.889E-09	9.156E-09	8.460E-09	5.826E-09	4.578E-09	4.109E-09
AVERAGE	7624	2.561E-08	2.194E-08	1.907E-08	1.678E-08	1.490E-08	9.395E-09	6.503E-09	3.790E-09

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	465	2.271E-09	1.648E-09	1.257E-09	9.943E-10	8.031E-10	7.065E-10	5.835E-10	
NNE	984	4.248E-09	3.128E-09	2.420E-09	1.941E-09	1.588E-09	1.331E-09	1.131E-09	
NE	681	2.924E-09	2.200E-09	1.727E-09	1.402E-09	1.160E-09	9.801E-10	8.392E-10	
ENE	514	2.465E-09	1.908E-09	1.634E-09	1.305E-09	1.063E-09	8.854E-10	7.476E-10	
E	788	3.374E-09	2.533E-09	2.385E-09	1.902E-09	1.547E-09	1.288E-09	1.087E-09	
ESE	585	2.655E-09	2.148E-09	1.645E-09	1.306E-09	1.060E-09	8.810E-10	7.435E-10	
SE	507	2.413E-09	2.057E-09	1.534E-09	1.191E-09	9.463E-10	7.724E-10	6.413E-10	
SSE	499	2.581E-09	1.810E-09	1.353E-09	1.056E-09	8.444E-10	6.942E-10	5.806E-10	
S	495	2.561E-09	1.753E-09	1.285E-09	9.857E-10	7.776E-10	6.329E-10	5.258E-10	
SSW	313	1.471E-09	9.903E-10	7.219E-10	5.547E-10	4.400E-10	3.607E-10	3.020E-10	
SW	230	1.474E-09	9.875E-10	7.098E-10	5.357E-10	4.109E-10	3.299E-10	2.706E-10	
WSW	236	1.319E-09	9.224E-10	6.738E-10	5.169E-10	4.077E-10	3.179E-10	2.647E-10	
W	294	2.130E-09	1.441E-09	1.045E-09	7.947E-10	5.512E-10	3.983E-10	3.300E-10	
WNW	362	2.786E-09	1.954E-09	1.395E-09	8.996E-10	6.889E-10	5.345E-10	4.360E-10	
NW	371	2.489E-09	1.726E-09	1.262E-09	7.298E-10	5.690E-10	4.581E-10	3.761E-10	
NNW	300	2.508E-09	1.683E-09	1.206E-09	9.029E-10	6.933E-10	5.490E-10	4.429E-10	
AVERAGE	7624	2.479E-09	1.806E-09	1.391E-09	1.064E-09	8.456E-10	6.950E-10	5.814E-10	

Table B-7

Gamma X/Q Factors for Main Stack

BE 1st quarter 1993 general x/q's - elevated

STACK RELEASE: AVERAGE GAMMA DILUTION FACTORS (MET. AND ATOMIC ENERGY 1968 FINITE CLOUD SECTOR AVERAGE MODEL) - (SEC/M3)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	77	3.271E-07	1.657E-07	8.574E-08	5.913E-08	4.582E-08	3.242E-08	2.528E-08	2.072E-08
NNE	83	2.779E-07	1.401E-07	7.168E-08	4.938E-08	3.839E-08	2.735E-08	2.148E-08	1.769E-08
NE	96	3.301E-07	1.670E-07	8.614E-08	5.927E-08	4.579E-08	3.218E-08	2.501E-08	2.047E-08
ENE	129	4.408E-07	2.249E-07	1.158E-07	7.836E-08	5.993E-08	4.165E-08	3.222E-08	2.636E-08
E	275	8.770E-07	4.537E-07	2.279E-07	1.497E-07	1.139E-07	7.842E-08	6.032E-08	4.921E-08
ESE	210	7.912E-07	4.160E-07	2.029E-07	1.353E-07	1.031E-07	7.097E-08	5.431E-08	4.402E-08
SE	157	8.799E-07	4.579E-07	2.718E-07	1.595E-07	1.066E-07	7.475E-08	4.445E-08	3.617E-08
SSE	91	6.340E-07	3.336E-07	1.908E-07	9.343E-08	7.286E-08	4.757E-08	3.444E-08	2.658E-08
S	114	5.552E-07	2.983E-07	1.631E-07	1.135E-07	8.157E-08	5.318E-08	3.766E-08	2.827E-08
SSW	86	5.357E-07	2.850E-07	1.463E-07	9.672E-08	8.050E-08	5.227E-08	3.554E-08	2.650E-08
SW	48	2.778E-07	1.443E-07	8.461E-08	5.598E-08	4.127E-08	2.655E-08	1.870E-08	1.416E-08
WSW	94	6.951E-07	3.632E-07	1.791E-07	1.080E-07	8.016E-08	5.304E-08	3.746E-08	2.850E-08
W	45	3.862E-07	1.972E-07	1.229E-07	7.138E-08	5.424E-08	3.613E-08	2.414E-08	1.884E-08
WNW	59	2.981E-07	1.521E-07	1.194E-07	7.517E-08	6.312E-08	4.317E-08	2.970E-08	2.353E-08
NW	56	2.683E-07	1.362E-07	6.967E-08	4.765E-08	3.685E-08	2.590E-08	2.011E-08	1.642E-08
NNW	62	2.635E-07	1.330E-07	6.846E-08	4.728E-08	3.671E-08	2.602E-08	2.033E-08	1.667E-08
AVERAGE	1682	4.899E-07	2.543E-07	1.379E-07	8.749E-08	6.630E-08	4.510E-08	3.257E-08	2.588E-08

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	77	1.746E-08	1.503E-08	1.315E-08	1.166E-08	1.045E-08	6.758E-09	4.882E-09	3.021E-09
NNE	83	1.498E-08	1.295E-08	1.139E-08	1.015E-08	9.131E-09	5.995E-09	4.382E-09	2.765E-09
NE	96	1.725E-08	1.487E-08	1.303E-08	1.158E-08	1.040E-08	6.792E-09	4.953E-09	3.122E-09
ENE	129	2.222E-08	1.913E-08	1.676E-08	1.488E-08	1.334E-08	8.673E-09	6.299E-09	3.939E-09
E	275	4.141E-08	3.565E-08	3.123E-08	2.773E-08	2.488E-08	1.621E-08	1.181E-08	7.437E-09
ESE	210	3.683E-08	3.153E-08	2.748E-08	2.429E-08	2.171E-08	1.395E-08	1.006E-08	6.244E-09
SE	157	3.030E-08	2.593E-08	2.256E-08	1.990E-08	1.775E-08	1.129E-08	8.062E-09	4.899E-09
SSE	91	2.137E-08	1.771E-08	1.502E-08	1.297E-08	1.136E-08	6.849E-09	4.738E-09	2.817E-09
S	114	2.221E-08	1.811E-08	1.517E-08	1.297E-08	1.127E-08	6.641E-09	4.542E-09	2.634E-09
SSW	86	2.084E-08	1.701E-08	1.427E-08	1.221E-08	1.063E-08	6.306E-09	4.333E-09	2.526E-09
SW	48	1.121E-08	9.177E-09	7.709E-09	6.601E-09	5.744E-09	3.382E-09	2.300E-09	1.312E-09
WSW	94	2.265E-08	1.860E-08	1.566E-08	1.344E-08	1.172E-08	6.955E-09	4.747E-09	2.714E-09
W	45	1.527E-08	1.274E-08	1.086E-08	9.417E-09	8.281E-09	5.505E-09	3.782E-09	2.201E-09
WNW	59	1.929E-08	1.623E-08	1.394E-08	1.215E-08	1.074E-08	6.167E-09	4.792E-09	2.845E-09
NW	56	1.381E-08	1.189E-08	1.042E-08	9.263E-09	8.317E-09	6.232E-09	4.458E-09	2.882E-09
NNW	62	1.407E-08	1.214E-08	1.066E-08	9.476E-09	8.514E-09	5.561E-09	4.206E-09	3.221E-09
AVERAGE	1682	2.132E-08	1.804E-08	1.558E-08	1.367E-08	1.214E-08	7.704E-09	5.522E-09	3.411E-09

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	77	2.145E-09	1.642E-09	1.323E-09	1.103E-09	9.382E-10	9.085E-10	7.906E-10	
NNE	83	1.987E-09	1.535E-09	1.245E-09	1.043E-09	8.914E-10	7.781E-10	6.880E-10	
NE	96	2.245E-09	1.737E-09	1.411E-09	1.184E-09	1.013E-09	8.852E-10	7.836E-10	
ENE	129	2.818E-09	2.203E-09	1.861E-09	1.553E-09	1.322E-09	1.151E-09	1.015E-09	
E	275	5.347E-09	4.136E-09	3.702E-09	3.094E-09	2.637E-09	2.298E-09	2.029E-09	
ESE	210	4.449E-09	3.599E-09	2.904E-09	2.424E-09	2.064E-09	1.797E-09	1.585E-09	
SE	157	3.439E-09	2.802E-09	2.234E-09	1.845E-09	1.557E-09	1.345E-09	1.178E-09	
SSE	91	1.934E-09	1.448E-09	1.151E-09	9.480E-10	7.981E-10	6.882E-10	6.018E-10	
S	114	1.807E-09	1.354E-09	1.078E-09	8.907E-10	7.516E-10	6.495E-10	5.691E-10	
SSW	86	1.739E-09	1.306E-09	1.042E-09	8.612E-10	7.272E-10	6.282E-10	5.505E-10	
SW	48	8.890E-10	6.595E-10	5.216E-10	4.281E-10	3.606E-10	3.098E-10	2.700E-10	
WSW	94	1.841E-09	1.369E-09	1.091E-09	8.921E-10	7.460E-10	6.406E-10	5.570E-10	
W	45	1.511E-09	1.131E-09	8.997E-10	7.420E-10	6.348E-10	5.473E-10	4.785E-10	
WNW	59	1.973E-09	1.518E-09	1.248E-09	1.041E-09	8.765E-10	7.557E-10	6.607E-10	
NW	56	2.035E-09	1.575E-09	1.276E-09	1.110E-09	9.430E-10	8.199E-10	7.222E-10	
NNW	62	2.249E-09	1.706E-09	1.368E-09	1.136E-09	9.633E-10	8.359E-10	7.350E-10	
AVERAGE	1682	2.400E-09	1.858E-09	1.522E-09	1.269E-09	1.077E-09	9.398E-10	8.262E-10	

Table B-7

Gamma X/Q Factors for Main Stack

BE 2nd quarter 1993 general x/q's - elevated

STACK RELEASE: AVERAGE GAMMA DILUTION FACTORS (MET. AND ATOMIC ENERGY 1968 FINITE CLOUD SECTOR AVERAGE MODEL) - (SEC/M3)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	136	4.183E-07	2.233E-07	1.034E-07	6.288E-08	4.825E-08	3.370E-08	2.607E-08	2.126E-08
NNE	299	7.960E-07	4.203E-07	2.021E-07	1.272E-07	9.711E-08	6.719E-08	5.168E-08	4.206E-08
NE	158	4.215E-07	2.194E-07	1.074E-07	6.889E-08	5.223E-08	3.570E-08	2.733E-08	2.223E-08
ENE	98	2.992E-07	1.552E-07	7.525E-08	4.849E-08	3.716E-08	2.585E-08	2.001E-08	1.636E-08
E	160	4.867E-07	2.563E-07	1.239E-07	7.807E-08	5.936E-08	4.082E-08	3.138E-08	2.559E-08
ESE	108	3.578E-07	1.887E-07	8.919E-08	5.772E-08	4.393E-08	3.035E-08	2.343E-08	1.916E-08
SE	121	9.871E-07	5.108E-07	2.566E-07	1.402E-07	8.769E-08	5.990E-08	3.265E-08	2.648E-08
SSE	201	1.904E-06	1.012E-06	5.129E-07	1.715E-07	1.336E-07	8.768E-08	6.405E-08	4.988E-08
S	138	8.843E-07	4.647E-07	2.337E-07	1.748E-07	1.291E-07	8.979E-08	6.604E-08	5.035E-08
SSW	52	5.493E-07	2.878E-07	1.424E-07	1.000E-07	8.898E-08	6.034E-08	4.153E-08	3.109E-08
SW	69	7.010E-07	3.607E-07	2.125E-07	1.324E-07	9.983E-08	6.756E-08	4.922E-08	3.826E-08
WSW	46	5.840E-07	3.029E-07	1.354E-07	7.631E-08	5.803E-08	3.993E-08	2.874E-08	2.208E-08
W	97	8.012E-07	4.190E-07	2.523E-07	1.295E-07	9.894E-08	6.679E-08	4.516E-08	3.557E-08
WNW	99	5.264E-07	2.696E-07	2.189E-07	1.357E-07	1.132E-07	7.841E-08	5.528E-08	4.451E-08
WW	109	4.723E-07	2.422E-07	1.211E-07	8.108E-08	6.270E-08	4.401E-08	3.404E-08	2.770E-08
NW	56	1.999E-07	1.016E-07	5.130E-08	3.489E-08	2.717E-08	1.943E-08	1.527E-08	1.256E-08
AVERAGE	1947	6.494E-07	3.397E-07	1.774E-07	1.012E-07	7.733E-08	5.297E-08	3.624E-08	3.032E-08

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	136	1.787E-08	1.535E-08	1.342E-08	1.188E-08	1.064E-08	6.884E-09	4.987E-09	3.109E-09
NNE	299	3.531E-08	3.031E-08	2.649E-08	2.346E-08	2.100E-08	1.358E-08	9.832E-09	6.135E-09
NE	158	1.870E-08	1.611E-08	1.413E-08	1.258E-08	1.131E-08	7.455E-09	5.498E-09	3.542E-09
ENE	98	1.380E-08	1.193E-08	1.049E-08	9.350E-09	8.424E-09	5.580E-09	4.125E-09	2.664E-09
E	160	2.154E-08	1.857E-08	1.629E-08	1.449E-08	1.302E-08	8.541E-09	6.263E-09	3.993E-09
ESE	108	1.617E-08	1.397E-08	1.228E-08	1.095E-08	9.862E-09	6.521E-09	4.813E-09	3.099E-09
SE	121	2.210E-08	1.905E-08	1.666E-08	1.477E-08	1.324E-08	8.618E-09	6.292E-09	3.988E-09
SSE	201	4.047E-08	3.382E-08	2.891E-08	2.513E-08	2.215E-08	1.366E-08	9.639E-09	6.031E-09
S	138	3.992E-08	3.279E-08	2.765E-08	2.377E-08	2.077E-08	1.248E-08	8.661E-09	5.131E-09
SSW	52	2.452E-08	2.005E-08	1.683E-08	1.441E-08	1.254E-08	7.425E-09	5.101E-09	2.979E-09
SW	69	3.098E-08	2.584E-08	2.204E-08	1.912E-08	1.683E-08	1.030E-08	7.224E-09	4.331E-09
WSW	46	1.771E-08	1.465E-08	1.242E-08	1.071E-08	9.383E-09	5.649E-09	3.913E-09	2.305E-09
W	97	2.907E-08	2.442E-08	2.095E-08	1.826E-08	1.613E-08	1.099E-08	7.638E-09	4.543E-09
WNW	99	3.704E-08	3.160E-08	2.518E-08	2.220E-08	1.981E-08	1.309E-08	9.548E-09	5.938E-09
WW	109	2.324E-08	1.994E-08	1.742E-08	1.543E-08	1.382E-08	1.032E-08	7.375E-09	4.782E-09
NW	56	1.062E-08	9.172E-09	8.047E-09	7.152E-09	6.421E-09	4.183E-09	3.147E-09	2.393E-09
AVERAGE	1947	2.495E-08	2.110E-08	1.808E-08	1.585E-08	1.409E-08	9.079E-09	6.503E-09	4.060E-09

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	136	2.222E-09	1.712E-09	1.387E-09	1.161E-09	9.916E-10	1.000E-09	8.805E-10	
NNE	299	4.386E-09	3.379E-09	2.738E-09	2.293E-09	1.959E-09	1.710E-09	1.312E-09	
NE	158	2.590E-09	2.031E-09	1.667E-09	1.412E-09	1.218E-09	1.072E-09	9.554E-10	
ENE	98	1.949E-09	1.563E-09	1.377E-09	1.163E-09	1.000E-09	8.778E-10	7.802E-10	
E	160	2.894E-09	2.253E-09	2.051E-09	1.722E-09	1.474E-09	1.289E-09	1.141E-09	
ESE	108	2.261E-09	1.918E-09	1.566E-09	1.320E-09	1.135E-09	9.957E-10	8.847E-10	
SE	121	2.884E-09	2.589E-09	2.099E-09	1.759E-09	1.504E-09	1.312E-09	1.161E-09	
SSE	201	4.232E-09	3.223E-09	2.593E-09	2.161E-09	1.837E-09	1.597E-09	1.408E-09	
S	138	3.563E-09	2.693E-09	2.155E-09	1.786E-09	1.511E-09	1.308E-09	1.148E-09	
SSW	52	2.049E-09	1.538E-09	1.224E-09	1.011E-09	8.526E-10	7.367E-10	6.454E-10	
SW	69	3.024E-09	2.293E-09	1.838E-09	1.526E-09	1.309E-09	1.135E-09	9.964E-10	
WSW	46	1.593E-09	1.204E-09	9.839E-10	8.128E-10	6.859E-10	5.959E-10	5.220E-10	
W	97	3.158E-09	2.389E-09	1.912E-09	1.586E-09	1.366E-09	1.183E-09	1.039E-09	
WNW	99	4.236E-09	3.376E-09	2.873E-09	2.447E-09	2.079E-09	1.806E-09	1.591E-09	
WW	109	3.373E-09	2.617E-09	2.120E-09	1.869E-09	1.584E-09	1.372E-09	1.206E-09	
NW	56	1.666E-09	1.261E-09	1.009E-09	8.359E-10	7.074E-10	6.128E-10	5.380E-10	
AVERAGE	1947	2.880E-09	2.252E-09	1.849E-09	1.554E-09	1.326E-09	1.163E-09	1.025E-09	

Table B-7

Gamma X/Q Factors for Main Stack

BE 3rd quarter 1993 general x/q's - elevated

STACK RELEASE: AVERAGE GAMMA DILUTION FACTORS (MET. AND ATOMIC ENERGY 1968 FINITE CLOUD SECTOR AVERAGE MODEL) (SEC/M3)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	139	4.754E-07	2.530E-07	1.245E-07	7.565E-08	5.797E-08	4.045E-08	3.130E-08	2.557E-08
NNE	374	1.034E-06	5.354E-07	2.669E-07	1.755E-07	1.344E-07	9.328E-08	7.209E-08	5.899E-08
NE	211	6.151E-07	3.144E-07	1.581E-07	1.052E-07	8.028E-08	5.554E-08	4.292E-08	3.513E-08
ENE	136	4.679E-07	2.399E-07	1.199E-07	7.884E-08	5.972E-08	4.083E-08	3.136E-08	2.563E-08
E	145	4.370E-07	2.264E-07	1.106E-07	7.089E-08	5.359E-08	3.657E-08	2.807E-08	2.294E-08
ESE	118	4.295E-07	2.268E-07	1.085E-07	7.031E-08	5.321E-08	3.643E-08	2.792E-08	2.281E-08
SE	92	8.944E-07	4.603E-07	2.081E-07	1.097E-07	6.980E-08	4.827E-08	2.482E-08	2.027E-08
SSE	101	1.728E-06	9.062E-07	4.684E-07	1.345E-07	1.044E-07	6.915E-08	5.138E-08	4.078E-08
S	127	1.030E-06	5.654E-07	2.230E-07	1.513E-07	1.113E-07	7.749E-08	5.744E-08	4.417E-08
SSW	88	7.812E-07	4.141E-07	1.935E-07	1.311E-07	1.173E-07	8.330E-08	5.777E-08	4.359E-08
SW	82	7.467E-07	3.888E-07	2.150E-07	1.313E-07	9.984E-08	6.818E-08	4.982E-08	3.756E-08
WSW	58	8.138E-07	4.386E-07	1.589E-07	7.972E-08	5.867E-08	3.983E-08	2.874E-08	2.238E-08
W	101	9.774E-07	5.226E-07	2.825E-07	1.394E-07	1.029E-07	6.961E-08	4.749E-08	3.781E-08
WNW	125	6.167E-07	3.186E-07	2.580E-07	1.582E-07	1.309E-07	8.915E-08	6.196E-08	4.941E-08
NW	106	4.740E-07	2.439E-07	1.237E-07	8.277E-08	6.351E-08	4.414E-08	3.394E-08	2.756E-08
NNW	73	3.439E-07	1.734E-07	8.775E-08	5.966E-08	4.596E-08	3.226E-08	2.514E-08	2.064E-08
AVERAGE	2076	7.416E-07	3.892E-07	1.942E-07	1.096E-07	8.398E-08	5.778E-08	4.201E-08	3.352E-08

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	139	2.153E-08	1.853E-08	1.623E-08	1.441E-08	1.293E-08	8.421E-09	6.133E-09	3.857E-09
NNE	374	4.972E-08	4.284E-08	3.753E-08	3.331E-08	2.988E-08	1.943E-08	1.412E-08	8.836E-09
NE	211	2.968E-08	2.567E-08	2.259E-08	2.016E-08	1.817E-08	1.206E-08	8.925E-09	5.770E-09
ENE	136	2.166E-08	1.875E-08	1.652E-08	1.476E-08	1.333E-08	8.918E-09	6.651E-09	4.360E-09
E	145	1.938E-08	1.678E-08	1.480E-08	1.322E-08	1.194E-08	7.999E-09	5.971E-09	3.920E-09
ESE	118	1.922E-08	1.658E-08	1.455E-08	1.295E-08	1.165E-08	7.674E-09	5.652E-09	3.628E-09
SE	92	1.710E-08	1.478E-08	1.301E-08	1.161E-08	1.048E-08	6.984E-09	5.199E-09	3.400E-09
SSE	101	3.365E-08	2.855E-08	2.472E-08	2.175E-08	1.938E-08	1.241E-08	9.007E-09	6.039E-09
S	127	3.526E-08	2.912E-08	2.468E-08	2.129E-08	1.867E-08	1.135E-08	7.964E-09	4.819E-09
SSW	88	3.465E-08	2.854E-08	2.413E-08	2.080E-08	1.822E-08	1.104E-08	7.736E-09	4.662E-09
SW	82	3.130E-08	2.608E-08	2.223E-08	1.926E-08	1.694E-08	1.033E-08	7.223E-09	4.314E-09
WSW	58	1.818E-08	1.521E-08	1.302E-08	1.133E-08	9.997E-09	6.195E-09	4.387E-09	2.674E-09
W	101	3.122E-08	2.647E-08	2.290E-08	2.011E-08	1.788E-08	1.315E-08	9.321E-09	5.709E-09
WNW	125	4.078E-08	3.454E-08	2.736E-08	2.399E-08	2.131E-08	1.381E-08	9.948E-09	6.077E-09
NW	106	2.307E-08	1.973E-08	1.718E-08	1.516E-08	1.353E-08	9.752E-09	6.892E-09	4.335E-09
NNW	73	1.748E-08	1.514E-08	1.335E-08	1.192E-08	1.076E-08	7.171E-09	5.605E-09	5.223E-09
AVERAGE	2076	2.774E-08	2.358E-08	2.030E-08	1.788E-08	1.594E-08	1.042E-08	7.546E-09	4.851E-09

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)						
		20.00	25.00	30.00	34.95	40.00	45.00	50.00
N	139	2.771E-09	2.143E-09	1.740E-09	1.461E-09	1.250E-09	1.249E-09	1.100E-09
NNE	374	6.324E-09	4.875E-09	3.948E-09	3.306E-09	2.823E-09	2.462E-09	2.176E-09
NE	211	4.223E-09	3.310E-09	2.715E-09	2.290E-09	1.982E-09	1.743E-09	1.552E-09
ENE	136	3.224E-09	2.617E-09	2.348E-09	1.990E-09	1.718E-09	1.512E-09	1.347E-09
E	145	2.901E-09	2.294E-09	2.264E-09	1.917E-09	1.653E-09	1.454E-09	1.295E-09
ESE	118	2.646E-09	2.257E-09	1.843E-09	1.555E-09	1.336E-09	1.172E-09	1.041E-09
SE	92	2.510E-09	2.419E-09	1.979E-09	1.671E-09	1.437E-09	1.261E-09	1.120E-09
SSE	101	4.341E-09	3.363E-09	2.738E-09	2.303E-09	1.975E-09	1.727E-09	1.530E-09
S	127	3.391E-09	2.590E-09	2.089E-09	1.744E-09	1.486E-09	1.294E-09	1.142E-09
SSW	88	3.271E-09	2.492E-09	2.007E-09	1.673E-09	1.423E-09	1.236E-09	1.089E-09
SW	82	3.004E-09	2.273E-09	1.819E-09	1.508E-09	1.289E-09	1.116E-09	9.802E-10
WSW	58	1.890E-09	1.457E-09	1.239E-09	1.033E-09	8.791E-10	7.759E-10	6.842E-10
W	101	4.044E-09	3.102E-09	2.508E-09	2.098E-09	1.870E-09	1.628E-09	1.437E-09
WNW	125	4.292E-09	3.382E-09	2.849E-09	2.412E-09	2.043E-09	1.771E-09	1.555E-09
NW	106	3.023E-09	2.318E-09	1.863E-09	1.612E-09	1.360E-09	1.175E-09	1.029E-09
NNW	73	3.722E-09	2.867E-09	2.324E-09	1.948E-09	1.665E-09	1.453E-09	1.285E-09
AVERAGE	2076	3.474E-09	2.735E-09	2.267E-09	1.908E-09	1.637E-09	1.439E-09	1.273E-09

Table B-7

Gamma X/Q Factors for Main Stack

BE 4th quarter 1993 general x/q's - elevated

STACK RELEASE: AVERAGE GAMMA DILUTION FACTORS (MET. AND ATOMIC ENERGY 1968 FINITE CLOUD SECTOR AVERAGE MODEL) (SEC/M3)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	113	3.964E-07	2.000E-07	1.026E-07	7.066E-08	5.478E-08	3.881E-08	3.039E-08	2.499E-08
NNE	228	6.789E-07	3.441E-07	1.781E-07	1.220E-07	9.365E-08	6.533E-08	5.066E-08	4.148E-08
NE	216	5.827E-07	2.955E-07	1.527E-07	1.050E-07	8.100E-08	5.652E-08	4.359E-08	3.545E-08
ENE	151	4.534E-07	2.303E-07	1.187E-07	8.069E-08	6.174E-08	4.298E-08	3.334E-08	2.734E-08
E	208	5.917E-07	3.026E-07	1.529E-07	1.025E-07	7.866E-08	5.472E-08	4.226E-08	3.447E-08
ESE	149	4.257E-07	2.231E-07	1.075E-07	7.194E-08	5.541E-08	3.867E-08	2.979E-08	2.419E-08
SE	137	6.111E-07	3.175E-07	1.894E-07	1.113E-07	7.398E-08	5.147E-08	3.051E-08	2.482E-08
SSE	106	5.470E-07	2.879E-07	1.608E-07	7.900E-08	6.220E-08	4.116E-08	3.018E-08	2.354E-08
S	116	4.904E-07	2.604E-07	1.484E-07	1.061E-07	7.674E-08	5.167E-08	3.776E-08	2.884E-08
SSW	87	3.768E-07	1.971E-07	1.084E-07	7.558E-08	6.479E-08	4.204E-08	2.877E-08	2.144E-08
SW	31	2.159E-07	1.139E-07	6.312E-08	3.993E-08	2.907E-08	1.883E-08	1.345E-08	1.040E-08
WSW	38	2.413E-07	1.262E-07	6.396E-08	3.818E-08	2.771E-08	1.809E-08	1.271E-08	9.685E-09
W	51	3.449E-07	1.785E-07	1.029E-07	5.723E-08	4.315E-08	2.876E-08	1.947E-08	1.547E-08
WW	79	3.212E-07	1.645E-07	1.283E-07	7.983E-08	6.653E-08	4.518E-08	3.105E-08	2.466E-08
NW	100	3.671E-07	1.875E-07	9.468E-08	6.394E-08	4.947E-08	3.484E-08	2.706E-08	2.209E-08
NNW	109	3.562E-07	1.794E-07	9.162E-08	6.292E-08	4.877E-08	3.463E-08	2.718E-08	2.241E-08
AVERAGE	1919	4.375E-07	2.255E-07	1.228E-07	7.917E-08	6.048E-08	4.148E-08	3.051E-08	2.446E-08

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	113	2.115E-08	1.830E-08	1.610E-08	1.435E-08	1.293E-08	8.513E-09	6.242E-09	3.963E-09
NNE	228	3.499E-08	3.020E-08	2.651E-08	2.359E-08	2.121E-08	1.389E-08	1.015E-08	6.425E-09
NE	216	2.975E-08	2.556E-08	2.236E-08	1.983E-08	1.779E-08	1.157E-08	8.436E-09	5.331E-09
ENE	151	2.310E-08	1.995E-08	1.752E-08	1.560E-08	1.402E-08	9.196E-09	6.729E-09	4.263E-09
E	208	2.900E-08	2.498E-08	2.189E-08	1.945E-08	1.748E-08	1.144E-08	8.379E-09	5.328E-09
ESE	149	2.026E-08	1.737E-08	1.517E-08	1.342E-08	1.202E-08	7.774E-09	5.644E-09	3.543E-09
SE	137	2.081E-08	1.785E-08	1.557E-08	1.378E-08	1.233E-08	7.938E-09	5.730E-09	3.554E-09
SSE	106	1.912E-08	1.599E-08	1.368E-08	1.189E-08	1.048E-08	6.466E-09	4.561E-09	2.843E-09
S	116	2.287E-08	1.879E-08	1.585E-08	1.362E-08	1.190E-08	7.142E-09	4.963E-09	2.961E-09
SSW	87	1.684E-08	1.373E-08	1.150E-08	9.824E-09	8.537E-09	5.026E-09	3.436E-09	1.990E-09
SW	31	8.412E-09	7.017E-09	5.983E-09	5.191E-09	4.570E-09	2.804E-09	1.975E-09	1.198E-09
WSW	38	7.733E-09	6.380E-09	5.396E-09	4.647E-09	4.064E-09	2.438E-09	1.689E-09	9.992E-10
W	51	1.276E-08	1.081E-08	9.352E-09	8.214E-09	7.309E-09	5.487E-09	3.894E-09	2.382E-09
NNW	79	2.027E-08	1.712E-08	1.475E-08	1.291E-08	1.144E-08	6.685E-09	5.267E-09	3.194E-09
NW	100	1.958E-08	1.598E-08	1.398E-08	1.241E-08	1.112E-08	8.299E-09	5.924E-09	3.816E-09
NNW	109	1.900E-08	1.648E-08	1.450E-08	1.294E-08	1.167E-08	7.716E-09	5.925E-09	4.798E-09
AVERAGE	1919	2.029E-08	1.728E-08	1.501E-08	1.323E-08	1.180E-08	7.649E-09	5.559E-09	3.537E-09

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	113	2.860E-09	2.218E-09	1.804E-09	1.516E-09	1.298E-09	1.320E-09	1.163E-09	
NNE	228	4.629E-09	3.586E-09	2.916E-09	2.449E-09	2.098E-09	1.835E-09	1.625E-09	
NE	216	3.845E-09	2.982E-09	2.430E-09	2.045E-09	1.754E-09	1.536E-09	1.363E-09	
ENE	151	3.075E-09	2.426E-09	2.080E-09	1.743E-09	1.489E-09	1.299E-09	1.149E-09	
E	208	3.860E-09	3.004E-09	2.812E-09	2.362E-09	2.022E-09	1.769E-09	1.567E-09	
ESE	149	2.547E-09	2.115E-09	1.714E-09	1.437E-09	1.228E-09	1.072E-09	9.486E-10	
SE	137	2.530E-09	2.132E-09	1.713E-09	1.424E-09	1.209E-09	1.050E-09	9.243E-10	
SSE	106	1.992E-09	1.515E-09	1.216E-09	1.011E-09	8.578E-10	7.449E-10	6.556E-10	
S	116	2.067E-09	1.570E-09	1.262E-09	1.052E-09	8.943E-10	7.778E-10	6.858E-10	
SSW	87	1.362E-09	1.019E-09	8.091E-10	6.667E-10	5.613E-10	4.842E-10	4.235E-10	
SW	31	8.437E-10	6.441E-10	5.196E-10	4.338E-10	3.745E-10	3.259E-10	2.874E-10	
WSW	38	6.931E-10	5.255E-10	4.310E-10	3.573E-10	3.025E-10	2.632E-10	2.312E-10	
W	51	1.686E-09	1.292E-09	1.043E-09	8.709E-10	7.766E-10	6.743E-10	5.933E-10	
WW	79	2.246E-09	1.760E-09	1.474E-09	1.241E-09	1.051E-09	9.099E-10	7.988E-10	
NW	100	2.688E-09	2.076E-09	1.679E-09	1.458E-09	1.235E-09	1.071E-09	9.417E-10	
NNW	109	3.372E-09	2.571E-09	2.067E-09	1.721E-09	1.463E-09	1.271E-09	1.119E-09	
AVERAGE	1919	2.518E-09	1.965E-09	1.623E-09	1.362E-09	1.163E-09	1.025E-09	9.047E-10	

Table B-7

Gamma X/Q Factors for Main Stack

BE 1993 ENTIRE YEAR General x/q's for elevated locations
 STACK RELEASE: AVERAGE GAMMA DILUTION FACTORS (MET. AND ATOMIC ENERGY 1-68 FINITE CLOUD SECTOR AVERAGE MODEL) - (SEC/M3)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	465	4.083E-07	2.129E-07	1.051E-07	6.750E-08	5.201E-08	3.654E-08	2.841E-08	2.325E-08
NNE	984	7.173E-07	3.708E-07	1.850E-07	1.219E-07	9.345E-08	6.504E-08	5.032E-08	4.115E-08
NE	681	4.948E-07	2.529E-07	1.279E-07	8.575E-08	6.569E-08	4.556E-08	3.515E-08	2.868E-08
ENE	514	4.152E-07	2.126E-07	1.073E-07	7.145E-08	5.451E-08	3.772E-08	2.914E-08	2.385E-08
E	788	5.358E-07	3.034E-07	1.505E-07	9.807E-08	7.468E-08	5.145E-08	3.960E-08	3.231E-08
ESE	585	4.900E-07	2.578E-07	1.241E-07	8.183E-08	6.240E-08	4.306E-08	3.307E-08	2.690E-08
SE	507	6.604E-07	3.422E-07	2.038E-07	1.197E-07	7.940E-08	5.504E-08	3.258E-08	2.651E-08
SSE	499	8.594E-07	4.534E-07	2.528E-07	1.209E-07	9.429E-08	6.209E-08	4.555E-08	3.564E-08
S	495	6.745E-07	3.620E-07	1.937E-07	1.376E-07	1.006E-07	6.878E-08	5.033E-08	3.839E-08
SSW	313	5.440E-07	2.871E-07	1.486E-07	1.016E-07	8.872E-08	6.021E-08	4.142E-08	3.105E-08
SW	230	4.708E-07	2.444E-07	1.380E-07	9.198E-08	6.913E-08	4.644E-08	3.366E-08	2.657E-08
WSW	236	5.169E-07	2.725E-07	1.275E-07	7.465E-08	5.547E-08	3.731E-08	2.664E-08	2.046E-08
W	294	6.429E-07	3.378E-07	1.843E-07	1.002E-07	7.615E-08	5.124E-08	3.470E-08	2.744E-08
WNW	362	4.491E-07	2.306E-07	1.751E-07	1.079E-07	9.025E-08	6.179E-08	4.278E-08	3.415E-08
NW	371	4.014E-07	2.056E-07	1.038E-07	6.986E-08	5.389E-08	3.775E-08	2.918E-08	2.376E-08
NNW	300	2.925E-07	1.477E-07	7.517E-08	5.143E-08	3.983E-08	2.920E-08	2.207E-08	1.814E-08
AVERAGE	7624	5.390E-07	2.809E-07	1.502E-07	9.390E-08	7.190E-08	4.926E-08	3.591E-08	2.861E-08

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	465	1.960E-08	1.689E-08	1.480E-08	1.314E-08	1.180E-08	7.683E-09	5.590E-09	3.507E-09
NNE	984	3.467E-08	2.986E-08	2.617E-08	2.324E-08	2.085E-08	1.357E-08	9.876E-09	6.199E-09
NE	681	2.414E-08	2.081E-08	1.826E-08	1.624E-08	1.461E-08	9.596E-09	7.048E-09	4.505E-09
ENE	514	2.013E-08	1.739E-08	1.528E-08	1.361E-08	1.225E-08	8.079E-09	5.946E-09	3.808E-09
E	788	2.721E-08	2.346E-08	2.059E-08	1.831E-08	1.646E-08	1.081E-08	7.938E-09	5.068E-09
ESE	585	2.259E-08	1.941E-08	1.698E-08	1.506E-08	1.350E-08	8.788E-09	6.408E-09	4.049E-09
SE	507	2.225E-08	1.910E-08	1.669E-08	1.479E-08	1.325E-08	8.591E-09	6.243E-09	3.919E-09
SSE	499	2.903E-08	2.435E-08	2.088E-08	1.820E-08	1.608E-08	1.001E-08	7.109E-09	4.523E-09
S	495	3.046E-08	2.503E-08	2.112E-08	1.816E-08	1.587E-08	9.540E-09	6.833E-09	3.950E-09
SSW	313	2.454E-08	2.010E-08	1.691E-08	1.451E-08	1.266E-08	7.560E-09	5.230E-09	3.089E-09
SW	230	2.104E-08	1.750E-08	1.490E-08	1.290E-08	1.133E-08	6.899E-09	4.819E-09	2.873E-09
WSW	236	1.642E-08	1.360E-08	1.153E-08	9.959E-09	8.730E-09	5.279E-09	3.667E-09	2.167E-09
W	294	2.251E-08	1.898E-08	1.634E-08	1.429E-08	1.266E-08	8.984E-09	6.304E-09	3.800E-09
WNW	362	2.821E-08	2.391E-08	2.067E-08	1.814E-08	1.611E-08	9.502E-09	7.532E-09	4.604E-09
NW	371	1.994E-08	1.711E-08	1.495E-08	1.323E-08	1.185E-08	8.755E-09	6.234E-09	3.998E-09
NNW	300	1.536E-08	1.321E-08	1.169E-08	1.042E-08	9.381E-09	6.187E-09	4.747E-09	3.949E-09
AVERAGE	7624	2.363E-08	2.005E-08	1.736E-08	1.526E-08	1.359E-08	8.740E-09	6.333E-09	4.001E-09

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	465	2.515E-09	1.941E-09	1.574E-09	1.319E-09	1.127E-09	1.128E-09	9.924E-10	
NNE	984	4.445E-09	3.431E-09	2.782E-09	2.332E-09	1.993E-09	1.740E-09	1.539E-09	
NE	681	3.274E-09	2.553E-09	2.087E-09	1.762E-09	1.515E-09	1.330E-09	1.182E-09	
ENE	514	2.770E-09	2.208E-09	1.925E-09	1.620E-09	1.389E-09	1.217E-09	1.079E-09	
E	788	3.680E-09	2.868E-09	2.664E-09	2.238E-09	1.917E-09	1.677E-09	1.486E-09	
ESE	585	2.920E-09	2.430E-09	1.974E-09	1.657E-09	1.418E-09	1.240E-09	1.098E-09	
SE	507	2.815E-09	2.475E-09	1.999E-09	1.670E-09	1.423E-09	1.240E-09	1.094E-09	
SSE	499	3.192E-09	2.440E-09	1.968E-09	1.643E-09	1.399E-09	1.218E-09	1.074E-09	
S	495	2.753E-09	2.087E-09	1.675E-09	1.392E-09	1.182E-09	1.026E-09	8.025E-10	
SSW	313	2.141E-09	1.616E-09	1.293E-09	1.072E-09	9.070E-10	7.853E-10	6.894E-10	
SW	230	2.000E-09	1.513E-09	1.211E-09	1.004E-09	8.595E-10	7.444E-10	6.535E-10	
WSW	236	1.502E-09	1.139E-09	9.378E-10	7.757E-10	6.554E-10	5.711E-10	5.008E-10	
W	294	2.666E-09	2.030E-09	1.632E-09	1.359E-09	1.193E-09	1.036E-09	9.117E-10	
WNW	362	3.252E-09	2.562E-09	2.156E-09	1.824E-09	1.545E-09	1.339E-09	1.177E-09	
NW	371	2.810E-09	2.169E-09	1.753E-09	1.528E-09	1.294E-09	1.121E-09	9.845E-10	
NNW	300	2.782E-09	2.125E-09	1.712E-09	1.427E-09	1.214E-09	1.056E-09	9.306E-10	
AVERAGE	7624	2.845E-09	2.224E-09	1.834E-09	1.539E-09	1.315E-09	1.154E-09	1.018E-09	

Table B-8

Deposition D/Q Factors for Main Stack

BE 1st quarter 1993 general x/q/s - elevated

SECTOR AVERAGE MODEL

STACK RELEASE: AVERAGE DEPOSITION RATES (DEPLETED CH1/Q * DEP. VELOCITY MODEL - MET. AND ATOMIC ENERGY 1968) - (1/M2)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	77	2.246E-15	9.032E-12	4.869E-11	6.658E-11	9.830E-11	1.570E-10	1.750E-10	1.714E-10
NNE	83	5.018E-37	3.058E-18	1.306E-12	1.847E-11	4.975E-11	1.059E-10	1.290E-10	1.322E-10
NE	96	2.360E-15	7.331E-12	4.615E-11	6.489E-11	9.056E-11	1.381E-10	1.535E-10	1.511E-10
ENE	129	1.204E-12	6.612E-11	1.311E-10	1.178E-10	1.386E-10	1.987E-10	2.193E-10	2.142E-10
E	275	1.086E-11	3.672E-10	3.810E-10	3.056E-10	3.108E-10	3.792E-10	4.024E-10	3.888E-10
ESE	210	1.989E-11	5.727E-10	4.260E-10	3.654E-10	3.759E-10	4.269E-10	4.249E-10	3.941E-10
SE	157	1.493E-11	4.675E-10	4.096E-10	3.331E-10	3.575E-10	4.776E-10	3.758E-10	3.488E-10
SSE	91	1.383E-11	4.515E-10	4.865E-10	8.248E-10	8.799E-10	6.662E-10	4.945E-10	3.780E-10
S	114	3.354E-11	6.746E-10	1.398E-09	1.750E-09	1.318E-09	9.328E-10	6.402E-10	4.537E-10
SSW	86	2.937E-11	5.518E-10	1.224E-09	1.220E-09	1.415E-09	1.024E-09	6.412E-10	4.457E-10
SW	48	2.347E-11	1.595E-10	5.300E-10	6.747E-10	5.618E-10	3.955E-10	2.742E-10	2.014E-10
WSW	94	4.154E-11	4.895E-10	9.292E-10	9.379E-10	1.047E-09	8.052E-10	5.620E-10	4.144E-10
W	45	6.532E-14	4.008E-11	4.253E-10	4.543E-10	4.712E-10	4.089E-10	2.968E-10	2.371E-10
WNW	59	1.992E-12	5.064E-11	2.191E-10	3.201E-10	4.255E-10	4.334E-10	3.411E-10	2.840E-10
NW	56	1.469E-12	2.678E-11	4.894E-11	6.468E-11	8.045E-11	1.161E-10	1.314E-10	1.308E-10
NNW	62	4.930E-21	3.859E-13	1.817E-11	3.843E-11	6.256E-11	1.073E-10	1.250E-10	1.258E-10
AVERAGE	1682	1.201E-11	2.459E-10	4.202E-10	4.723E-10	4.802E-10	4.233E-10	3.366E-10	2.795E-10

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	77	1.587E-10	1.445E-10	1.310E-10	1.190E-10	1.082E-10	7.064E-11	4.967E-11	2.850E-11
NNE	83	1.256E-10	1.169E-10	1.079E-10	9.969E-11	9.185E-11	6.227E-11	4.477E-11	2.654E-11
NE	96	1.408E-10	1.294E-10	1.184E-10	1.085E-10	9.950E-11	6.683E-11	4.808E-11	2.880E-11
ENE	129	1.983E-10	1.811E-10	1.648E-10	1.504E-10	1.374E-10	9.146E-11	6.559E-11	3.914E-11
E	275	3.591E-10	3.281E-10	2.993E-10	2.739E-10	2.508E-10	1.690E-10	1.227E-10	7.480E-11
ESE	210	3.545E-10	3.172E-10	2.843E-10	2.563E-10	2.316E-10	1.497E-10	1.057E-10	6.193E-11
SE	157	3.121E-10	2.765E-10	2.451E-10	2.183E-10	1.952E-10	1.210E-10	8.277E-11	4.617E-11
SSE	91	2.980E-10	2.416E-10	2.005E-10	1.693E-10	1.452E-10	8.020E-11	5.174E-11	2.745E-11
S	114	3.368E-10	2.647E-10	2.139E-10	1.770E-10	1.494E-10	7.932E-11	5.047E-11	2.646E-11
SSW	86	3.305E-10	2.566E-10	2.060E-10	1.695E-10	1.422E-10	7.301E-11	4.482E-11	2.205E-11
SW	48	1.543E-10	1.225E-10	1.000E-10	8.343E-11	7.087E-11	3.808E-11	2.419E-11	1.248E-11
WSW	94	3.184E-10	2.535E-10	2.075E-10	1.735E-10	1.477E-10	8.004E-11	5.099E-11	2.632E-11
W	45	1.921E-10	1.587E-10	1.336E-10	1.141E-10	9.876E-11	6.417E-11	4.049E-11	2.066E-11
WNW	59	2.362E-10	1.990E-10	1.700E-10	1.471E-10	1.286E-10	7.024E-11	5.128E-11	2.710E-11
NW	56	1.222E-10	1.125E-10	1.031E-10	9.468E-11	8.673E-11	7.210E-11	4.847E-11	2.808E-11
NNW	62	1.184E-10	1.094E-10	1.006E-10	9.255E-11	8.506E-11	5.744E-11	4.386E-11	3.136E-11
AVERAGE	1682	2.349E-10	2.008E-10	1.741E-10	1.530E-10	1.356E-10	8.409E-11	5.785E-11	3.299E-11

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	77	1.873E-11	1.330E-11	9.964E-12	7.753E-12	6.164E-12	4.984E-12	4.071E-12	
NNE	83	1.783E-11	1.291E-11	9.833E-12	7.773E-12	6.275E-12	5.194E-12	4.364E-12	
NE	96	1.965E-11	1.445E-11	1.118E-11	8.965E-12	7.341E-12	6.155E-12	5.233E-12	
ENE	129	2.662E-11	1.986E-11	1.599E-11	1.266E-11	1.024E-11	8.496E-12	7.156E-12	
E	275	5.163E-11	3.823E-11	3.304E-11	2.609E-11	2.103E-11	1.739E-11	1.459E-11	
ESE	210	4.152E-11	3.138E-11	2.365E-11	1.854E-11	1.487E-11	1.225E-11	1.027E-11	
SE	157	3.009E-11	2.274E-11	1.692E-11	1.315E-11	1.047E-11	8.585E-12	7.166E-12	
SSE	91	1.733E-11	1.211E-11	9.053E-12	7.072E-12	5.670E-12	4.681E-12	3.934E-12	
S	114	1.692E-11	1.201E-11	9.118E-12	7.234E-12	5.892E-12	4.936E-12	4.210E-12	
SSW	86	1.351E-11	9.338E-12	6.977E-12	5.487E-12	4.451E-12	3.723E-12	3.178E-12	
SW	48	7.875E-12	5.515E-12	4.135E-12	3.245E-12	2.601E-12	2.159E-12	1.826E-12	
WSW	94	1.662E-11	1.163E-11	8.578E-12	6.716E-12	5.402E-12	4.406E-12	3.720E-12	
W	45	1.280E-11	8.799E-12	6.478E-12	4.988E-12	3.723E-12	2.775E-12	2.292E-12	
WNW	59	1.709E-11	1.208E-11	9.059E-12	6.189E-12	4.658E-12	3.747E-12	3.074E-12	
NW	56	1.776E-11	1.246E-11	9.225E-12	5.525E-12	4.303E-12	3.459E-12	2.831E-12	
NNW	62	1.913E-11	1.296E-11	9.417E-12	7.173E-12	5.613E-12	4.534E-12	3.728E-12	
AVERAGE	1682	2.157E-11	1.561E-11	1.204E-11	9.285E-12	7.419E-12	6.092E-12	5.103E-12	

Table B-8

Deposition D/Q Factors for Main Stack

BE 2nd quarter 1993 general x/q's - elevated
 STACK RELEASE: AVERAGE DEPOSITION RATES (DEPLETED CH1/Q * DEP. VELOCITY MODEL - MET. AND ATOMIC ENERGY 1968) - (1/M2)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	136	1.727E-11	4.602E-10	2.170E-10	1.430E-10	1.547E-10	1.914E-10	1.958E-10	1.842E-10
NNE	299	2.078E-11	6.499E-10	4.189E-10	3.104E-10	3.173E-10	3.734E-10	3.828E-10	3.621E-10
NE	158	7.453E-12	2.424E-10	1.807E-10	1.330E-10	1.262E-10	1.416E-10	1.476E-10	1.426E-10
ENE	98	5.259E-12	1.625E-10	8.272E-11	6.107E-11	6.830E-11	9.174E-11	1.016E-10	1.012E-10
E	160	9.646E-12	3.588E-10	2.473E-10	1.790E-10	1.672E-10	1.854E-10	1.958E-10	1.909E-10
ESE	108	9.018E-12	3.004E-10	1.556E-10	9.915E-11	9.819E-11	1.227E-10	1.352E-10	1.341E-10
SE	121	1.216E-11	4.094E-10	4.412E-10	3.323E-10	2.724E-10	2.989E-10	2.125E-10	1.986E-10
SSE	201	6.698E-11	1.851E-09	1.404E-09	1.349E-09	1.430E-09	1.119E-09	8.615E-10	6.786E-10
S	138	4.453E-11	7.531E-10	1.364E-09	2.291E-09	1.873E-09	1.616E-09	1.225E-09	8.924E-10
SSW	52	2.343E-11	3.988E-10	7.344E-10	1.060E-09	1.596E-09	1.170E-09	7.246E-10	4.978E-10
SW	69	2.796E-11	2.874E-10	6.842E-10	1.053E-09	1.024E-09	8.897E-10	6.793E-10	5.291E-10
WSW	46	3.997E-11	3.331E-10	5.127E-10	5.070E-10	6.335E-10	5.586E-10	4.090E-10	3.103E-10
W	97	4.678E-11	6.153E-10	7.638E-10	7.142E-10	7.793E-10	7.280E-10	5.502E-10	4.510E-10
WNW	99	1.305E-11	1.816E-10	2.505E-10	3.228E-10	4.736E-10	5.806E-10	5.137E-10	4.594E-10
NW	109	9.184E-12	1.558E-10	1.072E-10	1.200E-10	1.659E-10	2.317E-10	2.409E-10	2.271E-10
NNW	56	1.007E-12	2.824E-11	1.021E-11	1.770E-11	4.148E-11	8.360E-11	9.827E-11	9.841E-11
AVERAGE	1947	2.216E-11	4.492E-10	4.734E-10	5.433E-10	5.763E-10	5.239E-10	4.171E-10	3.411E-10

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	136	1.674E-10	1.507E-10	1.356E-10	1.226E-10	1.111E-10	7.251E-11	5.167E-11	3.073E-11
NNE	299	3.302E-10	2.984E-10	2.697E-10	2.448E-10	2.224E-10	1.466E-10	1.052E-10	6.337E-11
NE	158	1.324E-10	1.219E-10	1.121E-10	1.035E-10	9.556E-11	6.659E-11	4.984E-11	3.208E-11
ENE	98	9.560E-11	8.914E-11	8.277E-11	7.698E-11	7.143E-11	5.035E-11	3.773E-11	2.416E-11
E	160	1.779E-10	1.641E-10	1.510E-10	1.393E-10	1.283E-10	8.798E-11	6.469E-11	4.025E-11
ESE	108	1.260E-10	1.170E-10	1.081E-10	1.001E-10	9.246E-11	6.369E-11	4.677E-11	2.893E-11
SE	121	1.802E-10	1.629E-10	1.474E-10	1.341E-10	1.223E-10	8.134E-11	5.868E-11	3.544E-11
SSE	201	5.489E-10	4.551E-10	3.849E-10	3.305E-10	2.875E-10	1.666E-10	1.113E-10	6.485E-11
S	138	6.722E-10	5.283E-10	4.284E-10	3.553E-10	3.004E-10	1.582E-10	9.867E-11	4.899E-11
SSW	52	3.658E-10	2.812E-10	2.234E-10	1.817E-10	1.510E-10	7.456E-11	4.466E-11	2.125E-11
SW	69	4.220E-10	3.449E-10	2.875E-10	2.433E-10	2.088E-10	1.134E-10	7.126E-11	3.514E-11
WSW	46	2.433E-10	1.964E-10	1.623E-10	1.365E-10	1.166E-10	6.303E-11	3.989E-11	2.022E-11
W	97	3.724E-10	3.127E-10	2.667E-10	2.303E-10	2.010E-10	1.316E-10	8.303E-11	4.214E-11
WNW	99	4.020E-10	3.530E-10	2.860E-10	2.544E-10	2.275E-10	1.495E-10	1.035E-10	5.643E-11
NW	109	2.059E-10	1.853E-10	1.669E-10	1.510E-10	1.370E-10	1.158E-10	7.875E-11	4.650E-11
NNW	56	9.222E-11	8.467E-11	7.725E-11	7.056E-11	6.443E-11	4.259E-11	3.190E-11	2.462E-11
AVERAGE	1947	2.834E-10	2.403E-10	2.056E-10	1.797E-10	1.586E-10	9.902E-11	6.734E-11	3.844E-11

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)						
		20.00	25.00	30.00	34.95	40.00	45.00	50.00
N	136	2.091E-11	1.532E-11	1.180E-11	9.424E-12	7.687E-12	6.920E-12	5.798E-12
NNE	299	4.368E-11	3.267E-11	2.539E-11	2.058E-11	1.703E-11	1.443E-11	1.241E-11
NE	158	2.313E-11	1.774E-11	1.415E-11	1.165E-11	9.767E-12	8.357E-12	7.238E-12
ENE	98	1.724E-11	1.357E-11	1.199E-11	9.678E-12	7.959E-12	6.688E-12	5.695E-12
E	160	2.813E-11	2.102E-11	1.870E-11	1.489E-11	1.211E-11	1.009E-11	8.533E-12
ESE	108	2.009E-11	1.666E-11	1.282E-11	1.023E-11	8.325E-12	6.940E-12	5.870E-12
SE	121	2.416E-11	2.096E-11	1.549E-11	1.191E-11	9.369E-12	7.575E-12	6.234E-12
SSE	201	4.177E-11	2.951E-11	2.215E-11	1.734E-11	1.389E-11	1.144E-11	9.576E-12
S	138	2.946E-11	1.973E-11	1.422E-11	1.076E-11	8.396E-12	6.771E-12	5.582E-12
SSW	52	1.260E-11	8.407E-12	6.063E-12	4.604E-12	3.606E-12	2.919E-12	2.413E-12
SW	69	2.075E-11	1.359E-11	9.567E-12	7.087E-12	5.319E-12	4.206E-12	3.402E-12
WSW	46	1.236E-11	8.346E-12	5.812E-12	4.393E-12	3.419E-12	2.648E-12	2.177E-12
W	97	2.574E-11	1.742E-11	1.264E-11	9.610E-12	6.982E-12	5.273E-12	4.310E-12
WNW	99	3.540E-11	2.441E-11	1.882E-11	1.032E-11	7.525E-12	5.942E-12	4.752E-12
NW	109	2.898E-11	1.984E-11	1.433E-11	7.882E-12	6.139E-12	4.930E-12	4.045E-12
NNW	56	1.527E-11	1.042E-11	7.587E-12	5.761E-12	4.470E-12	3.583E-12	2.916E-12
AVERAGE	1947	2.498E-11	1.809E-11	1.372E-11	1.038E-11	8.250E-12	6.794E-12	5.690E-12

Table B-8

Deposition D/Q Factors for Main Stack

BE 3rd quarter 1993 general x/q's - elevated

SECTOR AVER: . . . MOD

STACK RELEASE: AVERAGE DEPOSITION RATES (DEPLETED CH1/Q * DEP. VELOCITY MODEL - MET. AND ATOMIC ENERGY 1968) - (1/M2)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	139	6.448E-12	3.161E-10	2.558E-10	1.704E-10	1.784E-10	2.157E-10	2.230E-10	2.126E-10
NNE	374	1.493E-11	4.638E-10	3.560E-10	3.035E-10	3.411E-10	4.598E-10	4.990E-10	4.846E-10
NE	211	4.024E-12	1.523E-10	1.477E-10	1.226E-10	1.324E-10	1.815E-10	2.072E-10	2.097E-10
ENE	136	3.567E-12	1.434E-10	1.393E-10	1.037E-10	9.579E-11	1.131E-10	1.255E-10	1.267E-10
E	145	6.393E-12	2.241E-10	1.551E-10	1.006E-10	8.932E-11	1.023E-10	1.134E-10	1.147E-10
ESE	118	8.211E-12	3.415E-10	2.168E-10	1.448E-10	1.346E-10	1.534E-10	1.610E-10	1.555E-10
SE	92	1.086E-11	3.644E-10	1.816E-10	1.130E-10	1.084E-10	1.488E-10	1.095E-10	1.090E-10
SSE	101	3.963E-11	1.213E-09	1.104E-09	6.942E-10	7.490E-10	6.177E-10	5.131E-10	4.340E-10
S	127	8.937E-11	1.812E-09	1.229E-09	1.879E-09	1.559E-09	1.361E-09	1.072E-09	8.054E-10
SSW	88	4.995E-11	8.102E-10	1.051E-09	1.257E-09	1.930E-09	1.850E-09	1.175E-09	8.236E-10
SW	82	7.339E-11	5.856E-10	6.644E-10	1.059E-09	1.058E-09	9.328E-10	7.073E-10	5.467E-10
WSW	58	1.466E-10	1.366E-09	7.208E-10	4.832E-10	5.660E-10	5.150E-10	3.891E-10	3.027E-10
W	101	1.086E-11	1.357E-09	8.472E-10	6.146E-10	6.421E-10	6.274E-10	4.959E-10	4.198E-10
WNW	125	1.984E-11	2.978E-10	5.530E-10	5.955E-10	7.434E-10	7.688E-10	6.301E-10	5.401E-10
NW	106	8.546E-12	1.618E-10	1.801E-10	1.698E-10	2.053E-10	2.686E-10	2.728E-10	2.524E-10
NNW	73	4.983E-13	1.489E-11	5.717E-12	1.504E-11	3.926E-11	8.573E-11	1.056E-10	1.093E-10
AVERAGE	2076	3.693E-11	6.016E-10	4.879E-10	4.891E-10	5.358E-10	5.252E-10	4.250E-10	3.529E-10

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	139	1.951E-10	1.773E-10	1.610E-10	1.468E-10	1.338E-10	8.880E-11	6.374E-11	3.812E-11
NNE	374	4.479E-10	4.083E-10	3.712E-10	3.384E-10	3.087E-10	2.052E-10	1.474E-10	8.839E-11
NE	211	1.998E-10	1.875E-10	1.749E-10	1.633E-10	1.520E-10	1.078E-10	8.082E-11	5.150E-11
ENE	136	1.214E-10	1.149E-10	1.082E-10	1.019E-10	9.570E-11	7.026E-11	5.416E-11	3.603E-11
E	145	1.101E-10	1.043E-10	9.825E-11	9.262E-11	8.695E-11	6.382E-11	4.924E-11	3.289E-11
ESE	118	1.443E-10	1.325E-10	1.215E-10	1.117E-10	1.026E-10	7.005E-11	5.152E-11	3.218E-11
SE	92	1.034E-10	9.706E-11	9.084E-11	8.509E-11	7.951E-11	5.751E-11	4.387E-11	2.855E-11
SSE	101	3.709E-10	3.209E-10	2.801E-10	2.459E-10	2.170E-10	1.247E-10	7.762E-11	3.790E-11
S	127	6.176E-10	4.924E-10	4.043E-10	3.390E-10	2.892E-10	1.574E-10	1.012E-10	5.301E-11
SSW	88	6.156E-10	4.795E-10	3.849E-10	3.157E-10	2.638E-10	1.305E-10	7.708E-11	3.533E-11
SW	82	4.335E-10	3.526E-10	2.927E-10	2.469E-10	2.112E-10	1.136E-10	7.127E-11	3.554E-11
WSW	58	2.431E-10	2.005E-10	1.690E-10	1.447E-10	1.255E-10	7.207E-11	4.779E-11	2.606E-11
W	101	3.550E-10	3.037E-10	2.629E-10	2.299E-10	2.025E-10	1.612E-10	1.041E-10	5.435E-11
WNW	125	4.601E-10	3.959E-10	3.156E-10	2.773E-10	2.455E-10	1.559E-10	1.066E-10	5.783E-11
NW	106	2.255E-10	2.000E-10	1.777E-10	1.588E-10	1.425E-10	1.098E-10	7.343E-11	4.194E-11
NNW	73	1.051E-10	9.892E-11	9.242E-11	8.632E-11	8.041E-11	5.707E-11	4.679E-11	5.423E-11
AVERAGE	2076	2.968E-10	2.541E-10	2.191E-10	1.928E-10	1.710E-10	1.091E-10	7.478E-11	4.399E-11

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)						
		20.00	25.00	30.00	34.95	40.00	45.00	50.00
N	139	2.590E-11	1.892E-11	1.450E-11	1.152E-11	9.335E-12	8.204E-12	6.773E-12
NNE	374	6.040E-11	4.441E-11	3.431E-11	2.746E-11	2.242E-11	1.875E-11	1.591E-11
NE	211	3.651E-11	2.749E-11	2.154E-11	1.743E-11	1.437E-11	1.209E-11	1.031E-11
ENE	136	2.626E-11	2.106E-11	1.902E-11	1.526E-11	1.245E-11	1.037E-11	8.740E-12
E	145	2.413E-11	1.864E-11	2.036E-11	1.642E-11	1.348E-11	1.128E-11	9.568E-12
ESE	118	2.261E-11	1.947E-11	1.507E-11	1.207E-11	9.858E-12	8.230E-12	6.966E-12
SE	92	2.031E-11	2.053E-11	1.535E-11	1.191E-11	9.436E-12	7.659E-12	6.312E-12
SSE	101	2.285E-11	1.572E-11	1.164E-11	9.007E-12	7.153E-12	5.847E-12	4.868E-12
S	127	3.292E-11	2.253E-11	1.647E-11	1.260E-11	9.909E-12	8.040E-12	6.660E-12
SSW	88	2.027E-11	1.326E-11	9.462E-12	7.152E-12	5.597E-12	4.540E-12	3.769E-12
SW	82	2.138E-11	1.429E-11	1.026E-11	7.727E-12	5.918E-12	4.735E-12	3.869E-12
WSW	58	1.676E-11	1.189E-11	8.803E-12	6.644E-12	5.160E-12	3.828E-12	3.156E-12
W	101	3.360E-11	2.280E-11	1.647E-11	1.243E-11	7.894E-12	5.250E-12	4.338E-12
WNW	125	3.662E-11	2.561E-11	1.810E-11	1.159E-11	8.628E-12	6.904E-12	5.643E-12
NW	106	2.621E-11	1.800E-11	1.306E-11	7.496E-12	5.861E-12	4.735E-12	3.904E-12
NNW	73	3.232E-11	2.102E-11	1.454E-11	1.051E-11	7.795E-12	5.963E-12	4.659E-12
AVERAGE	2076	2.869E-11	2.098E-11	1.618E-11	1.233E-11	9.704E-12	7.902E-12	6.590E-12

Table B-8

Deposition D/Q Factors for Main Stack

BE 4th quarter 1993 general x/q's - elevated

SECTOR AVERAGE MOD

STACK RELEASE: AVERAGE DEPOSITION RATES (DEPLETED CH1/Q * DEP. VELOCITY MODEL - MET. AND ATOMIC ENERGY 1968) * (1/M2)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	113	5.053E-20	6.801E-13	2.079E-11	4.470E-11	7.772E-11	1.416E-10	1.701E-10	1.746E-10
NNE	228	9.117E-15	3.058E-11	1.473E-10	1.593E-10	1.862E-10	2.674E-10	3.053E-10	3.064E-10
NE	216	7.987E-13	2.813E-11	1.207E-10	1.650E-10	1.964E-10	2.526E-10	2.663E-10	2.563E-10
ENE	151	5.011E-13	4.057E-11	1.090E-10	9.876E-11	1.148E-10	1.724E-10	1.979E-10	1.981E-10
E	208	4.355E-12	1.386E-10	1.433E-10	1.409E-10	1.668E-10	2.265E-10	2.452E-10	2.388E-10
ESE	149	9.548E-12	2.922E-10	1.563E-10	1.404E-10	1.680E-10	2.117E-10	2.133E-10	1.985E-10
SE	137	7.527E-12	2.891E-10	2.775E-10	2.214E-10	2.329E-10	3.055E-10	2.426E-10	2.277E-10
SSE	106	1.778E-11	4.432E-10	2.882E-10	6.173E-10	6.977E-10	5.522E-10	4.232E-10	3.318E-10
S	116	2.513E-11	4.580E-10	1.091E-09	1.431E-09	1.105E-09	8.637E-10	6.778E-10	5.126E-10
SSW	87	1.611E-11	2.526E-10	8.296E-10	1.008E-09	1.251E-09	8.194E-10	5.092E-10	3.528E-10
SW	31	1.735E-11	2.109E-10	3.500E-10	3.627E-10	3.135E-10	2.509E-10	1.895E-10	1.478E-10
WSW	38	7.481E-12	1.466E-10	3.925E-10	3.232E-10	3.351E-10	2.640E-10	1.885E-10	1.419E-10
W	51	1.381E-11	1.940E-10	2.883E-10	2.820E-10	2.925E-10	2.577E-10	1.958E-10	1.648E-10
WNW	79	3.343E-12	7.590E-11	2.923E-10	3.328E-10	4.078E-10	4.067E-10	3.251E-10	2.757E-10
NW	100	3.942E-12	8.484E-11	7.099E-11	8.206E-11	1.153E-10	1.727E-10	1.887E-10	1.829E-10
NNW	109	2.444E-37	1.765E-18	1.068E-12	1.703E-11	4.926E-11	1.138E-10	1.436E-10	1.500E-10
AVERAGE	1919	7.980E-12	1.679E-10	2.862E-10	3.391E-10	3.569E-10	3.299E-10	2.801E-10	2.413E-10

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	113	1.665E-10	1.557E-10	1.443E-10	1.338E-10	1.236E-10	8.456E-11	6.111E-11	3.647E-11
NNE	228	2.886E-10	2.676E-10	2.467E-10	2.278E-10	2.100E-10	1.434E-10	1.044E-10	6.342E-11
NE	216	2.363E-10	2.159E-10	1.970E-10	1.805E-10	1.656E-10	1.127E-10	8.261E-11	5.133E-11
ENE	151	1.864E-10	1.725E-10	1.587E-10	1.463E-10	1.347E-10	9.209E-11	6.731E-11	4.138E-11
E	208	2.215E-10	2.032E-10	1.859E-10	1.707E-10	1.568E-10	1.069E-10	7.842E-11	4.869E-11
ESE	149	1.791E-10	1.608E-10	1.447E-10	1.310E-10	1.190E-10	7.880E-11	5.703E-11	3.489E-11
SE	137	2.055E-10	1.841E-10	1.651E-10	1.488E-10	1.345E-10	8.629E-11	6.033E-11	3.469E-11
SSE	106	2.674E-10	2.213E-10	1.869E-10	1.603E-10	1.394E-10	8.083E-11	5.404E-11	3.139E-11
S	116	3.917E-10	3.115E-10	2.552E-10	2.137E-10	1.823E-10	9.948E-11	6.430E-11	3.410E-11
SSW	87	2.618E-10	2.035E-10	1.636E-10	1.347E-10	1.133E-10	5.924E-11	3.721E-11	1.903E-11
SW	31	1.187E-10	9.777E-11	8.222E-11	7.020E-11	6.077E-11	3.440E-11	2.253E-11	1.198E-11
WSW	38	1.113E-10	9.010E-11	7.483E-11	6.332E-11	5.447E-11	3.062E-11	2.020E-11	1.106E-11
W	51	1.402E-10	1.211E-10	1.059E-10	9.356E-11	8.331E-11	6.667E-11	4.076E-11	1.903E-11
WNW	79	2.331E-10	1.994E-10	1.727E-10	1.511E-10	1.333E-10	7.627E-11	5.731E-11	3.138E-11
NW	100	1.683E-10	1.533E-10	1.393E-10	1.269E-10	1.158E-10	9.783E-11	6.668E-11	3.989E-11
NNW	109	1.442E-10	1.356E-10	1.264E-10	1.177E-10	1.092E-10	7.617E-11	6.044E-11	5.212E-11
AVERAGE	1919	2.075E-10	1.808E-10	1.593E-10	1.419E-10	1.272E-10	8.289E-11	5.841E-11	3.505E-11

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	113	2.457E-11	1.779E-11	1.354E-11	1.068E-11	8.606E-12	7.805E-12	6.405E-12	
NNE	228	4.347E-11	3.198E-11	2.467E-11	1.971E-11	1.606E-11	1.339E-11	1.133E-11	
NE	216	3.599E-11	2.699E-11	2.116E-11	1.716E-11	1.418E-11	1.198E-11	1.025E-11	
ENE	151	2.869E-11	2.184E-11	1.815E-11	1.444E-11	1.171E-11	9.731E-12	8.197E-12	
E	208	3.415E-11	2.562E-11	2.478E-11	1.983E-11	1.617E-11	1.349E-11	1.141E-11	
ESE	149	2.424E-11	1.985E-11	1.530E-11	1.222E-11	9.961E-12	8.316E-12	7.045E-12	
SE	137	2.303E-11	1.833E-11	1.380E-11	1.083E-11	8.704E-12	7.192E-12	6.042E-12	
SSE	106	2.026E-11	1.433E-11	1.077E-11	8.422E-12	6.742E-12	5.547E-12	4.637E-12	
S	116	2.140E-11	1.474E-11	1.081E-11	8.271E-12	6.493E-12	5.251E-12	4.333E-12	
SSW	87	1.190E-11	8.282E-12	6.177E-12	4.821E-12	3.866E-12	3.194E-12	2.689E-12	
SW	31	7.491E-12	5.146E-12	3.769E-12	2.889E-12	2.246E-12	1.825E-12	1.513E-12	
WSW	38	7.183E-12	5.126E-12	3.831E-12	3.003E-12	2.412E-12	1.962E-12	1.632E-12	
W	51	1.094E-11	7.207E-12	5.211E-12	4.001E-12	3.012E-12	2.362E-12	1.984E-12	
WNW	79	2.020E-11	1.456E-11	1.083E-11	7.310E-12	5.522E-12	4.453E-12	3.661E-12	
NW	100	2.555E-11	1.805E-11	1.340E-11	8.044E-12	6.272E-12	5.045E-12	4.133E-12	
NNW	109	3.243E-11	2.221E-11	1.623E-11	1.237E-11	9.649E-12	7.750E-12	6.331E-12	
AVERAGE	1919	2.322E-11	1.700E-11	1.328E-11	1.025E-11	8.225E-12	6.830E-12	5.724E-12	

Table B-8

Deposition D/Q Factors for Main Stack

BE 1993 ENTIRE YEAR General x/q's for elevated locations

SECTOR AVERAGE MODE

STACK RELEASE: AVERAGE DEPOSITION RATES (DEPLETED CH₁/Q * DEP. VELOCITY MODEL - MET. AND ATOMIC ENERGY 1968) - (1/M²)

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		.12	.25	.50	.75	1.00	1.50	2.00	2.50
N	465	6.168E-12	2.058E-10	1.411E-10	1.088E-10	1.293E-10	1.779E-10	1.921E-10	1.867E-10
NNE	984	9.374E-12	2.999E-10	2.413E-10	2.061E-10	2.318E-10	3.112E-10	3.389E-10	3.307E-10
NE	681	3.200E-12	1.121E-10	1.269E-10	1.232E-10	1.377E-10	1.796E-10	1.950E-10	1.914E-10
ENE	514	2.706E-12	1.054E-10	1.154E-10	9.469E-11	1.030E-10	1.415E-10	1.583E-10	1.575E-10
E	788	7.697E-12	2.685E-10	2.255E-10	1.760E-10	1.776E-10	2.159E-10	2.314E-10	2.259E-10
ESE	585	1.133E-11	3.696E-10	2.321E-10	1.807E-10	1.870E-10	2.206E-10	2.258E-10	2.135E-10
SE	507	9.023E-12	3.044E-10	2.895E-10	2.297E-10	2.277E-10	2.883E-10	2.280E-10	2.166E-10
SSE	499	2.476E-11	7.055E-10	6.164E-10	8.710E-10	9.388E-10	7.398E-10	5.753E-10	4.584E-10
S	495	4.372E-11	8.388E-10	1.266E-09	1.843E-09	1.472E-09	1.207E-09	9.166E-10	6.763E-10
SSW	313	2.890E-11	4.876E-10	9.525E-10	1.136E-09	1.560E-09	1.235E-09	7.746E-10	5.385E-10
SW	230	3.473E-11	3.045E-10	5.310E-10	7.974E-10	7.526E-10	6.316E-10	4.743E-10	3.656E-10
WSW	236	5.158E-11	5.141E-10	6.058E-10	5.493E-10	6.312E-10	5.270E-10	3.818E-10	2.888E-10
W	294	4.500E-11	5.844E-10	5.617E-10	5.165E-10	5.515E-10	5.119E-10	3.903E-10	3.233E-10
WNW	362	1.002E-11	1.578E-10	3.199E-10	3.786E-10	4.951E-10	5.281E-10	4.346E-10	3.744E-10
NW	371	5.989E-12	1.111E-10	1.051E-10	1.118E-10	1.450E-10	2.014E-10	2.123E-10	2.016E-10
NNW	300	3.930E-13	1.135E-11	8.441E-12	2.138E-11	4.749E-11	9.702E-11	1.176E-10	1.204E-10
AVERAGE	7624	1.841E-11	3.363E-10	3.962E-10	4.590E-10	4.867E-10	4.508E-10	3.654E-10	3.042E-10

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		3.00	3.50	4.00	4.50	5.00	7.50	10.00	15.00
N	465	1.728E-10	1.578E-10	1.437E-10	1.312E-10	1.198E-10	7.957E-11	5.689E-11	3.370E-11
NNE	984	3.067E-10	2.806E-10	2.559E-10	2.340E-10	2.140E-10	1.431E-10	1.031E-10	6.207E-11
NE	681	1.788E-10	1.651E-10	1.520E-10	1.403E-10	1.294E-10	8.946E-11	6.614E-11	4.149E-11
ENE	514	1.482E-10	1.374E-10	1.269E-10	1.174E-10	1.085E-10	7.535E-11	5.580E-11	3.503E-11
E	788	2.104E-10	1.938E-10	1.781E-10	1.642E-10	1.512E-10	1.040E-10	7.673E-11	4.799E-11
ESE	585	1.948E-10	1.764E-10	1.598E-10	1.455E-10	1.326E-10	8.820E-11	6.366E-11	3.860E-11
SE	507	1.947E-10	1.754E-10	1.580E-10	1.430E-10	1.298E-10	8.485E-11	6.037E-11	3.574E-11
SSE	499	3.742E-10	3.126E-10	2.658E-10	2.291E-10	1.996E-10	1.144E-10	7.457E-11	4.034E-11
S	495	5.132E-10	4.058E-10	3.309E-10	2.759E-10	2.343E-10	1.258E-10	8.008E-11	4.137E-11
SSW	313	3.999E-10	3.102E-10	2.485E-10	2.037E-10	1.703E-10	8.561E-11	5.165E-11	2.470E-11
SW	230	2.897E-10	2.357E-10	1.959E-10	1.655E-10	1.418E-10	7.697E-11	4.861E-11	2.442E-11
WSW	236	2.266E-10	1.833E-10	1.521E-10	1.285E-10	1.102E-10	6.109E-11	3.953E-11	2.085E-11
W	294	2.694E-10	2.280E-10	1.958E-10	1.701E-10	1.492E-10	1.084E-10	6.873E-11	3.491E-11
WNW	362	3.197E-10	2.756E-10	2.400E-10	2.109E-10	1.869E-10	1.080E-10	3.121E-11	4.404E-11
NW	371	1.833E-10	1.652E-10	1.488E-10	1.346E-10	1.221E-10	1.000E-10	6.758E-11	3.953E-11
NNW	300	1.146E-10	1.068E-10	9.889E-11	9.156E-11	8.460E-11	5.826E-11	4.578E-11	4.109E-11
AVERAGE	7624	2.561E-10	2.194E-10	1.907E-10	1.678E-10	1.490E-10	9.395E-11	6.503E-11	3.790E-11

DOWNWIND SECTOR	NO. OBS	DISTANCE FROM RELEASE POINT (MILES)							
		20.00	25.00	30.00	34.95	40.00	45.00	50.00	
N	465	2.271E-11	1.648E-11	1.257E-11	9.943E-12	8.031E-12	7.065E-12	5.835E-12	
NNE	984	4.248E-11	3.128E-11	2.420E-11	1.941E-11	1.588E-11	1.331E-11	1.131E-11	
NE	681	2.924E-11	2.200E-11	1.727E-11	1.403E-11	1.160E-11	9.801E-12	8.392E-12	
ENE	514	2.465E-11	1.908E-11	1.634E-11	1.305E-11	1.063E-11	8.854E-12	7.476E-12	
E	788	3.374E-11	2.533E-11	2.385E-11	1.902E-11	1.547E-11	1.288E-11	1.087E-11	
ESE	585	2.655E-11	2.148E-11	1.645E-11	1.306E-11	1.060E-11	8.010E-12	7.435E-12	
SE	507	2.413E-11	2.057E-11	1.534E-11	1.191E-11	9.463E-12	7.724E-12	6.413E-12	
SSE	499	2.581E-11	1.810E-11	1.353E-11	1.056E-11	8.444E-12	6.942E-12	5.806E-12	
S	495	2.561E-11	1.753E-11	1.285E-11	9.857E-12	7.776E-12	6.329E-12	5.258E-12	
SSW	313	1.471E-11	9.903E-12	7.219E-12	5.547E-12	4.400E-12	3.607E-12	3.020E-12	
SW	230	1.474E-11	9.875E-12	7.098E-12	5.357E-12	4.109E-12	3.299E-12	2.706E-12	
WSW	236	1.319E-11	9.224E-12	6.738E-12	5.169E-12	4.077E-12	3.179E-12	2.647E-12	
W	294	2.130E-11	1.441E-11	1.045E-11	7.947E-12	5.512E-12	3.983E-12	3.300E-12	
WNW	362	2.786E-11	1.954E-11	1.395E-11	8.996E-12	6.689E-12	5.345E-12	4.360E-12	
NW	371	2.489E-11	1.726E-11	1.262E-11	7.298E-12	5.690E-12	4.581E-12	3.761E-12	
NNW	300	2.508E-11	1.683E-11	1.206E-11	9.029E-12	6.933E-12	5.490E-12	4.429E-12	
AVERAGE	7624	2.479E-11	1.806E-11	1.391E-11	1.064E-11	8.456E-12	6.950E-12	5.814E-12	