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Occupational Radiation Exposure at Commercial Nuclear Power Reactors and Other Facilities 1992

Twenty-Fifth Annual Report

U.S. Nuclear Regulatory Commission

Office of Nuclear Regulatory Research

C. T. Raddatz, D. Hagemeyer

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PREVIOUS REPORTS IN SERIES

WASH-1311 A Compilation of Occupational Radiation Exposure from Light Water Cooled Nuclear Power Plants, 1969-1973, U.S. Atomic Energy Commission, May 1974.

NUREG-75/032 Occupational Radiation Exposure at Light Water Cooled Power Reactors, 1969-1974, U.S. Nuclear Regulatory Commission, June 1975.

NUREG-0109 Occupational Radiation Exposure at Light Water Cooled Power Reactors, 1969-1975, U.S. Nuclear Regulatory Commission, August 1976.

NUREG-0323 Occupational Radiation Exposure at Light Water Cooled Power Reactors, 1969-1976, U.S. Nuclear Regulatory Commission, March 1978.

NUREG-0482 Occupational Radiation Exposure at Light Water Cooled Power Reactors, 1977, U.S. Nuclear Regulatory Commission, May 1979.

NUREG-0594 Occupational Radiation Exposure at Commercial Nuclear Power Reactors, 1978, U.S. Nuclear Regulatory Commission, November 1979.

NUREG-0713 Occupational Radiation Exposure at Commercial Nuclear Power Reactors 1979, Vol. 1, U.S. Nuclear Regulatory Commission, March 1981.

NUREG-0713 Occupational Radiation Exposure at Commercial Nuclear Power Reactors 1980, Vol. 2, U.S. Nuclear Regulatory Commission, December 1981.

NUREG-0713 Occupational Radiation Exposure at Commercial Nuclear Power Reactors 1981, Vol. 3, U.S. Nuclear Regulatory Commission, November 1982.

NUREG-0713 Occupational Radiation Exposure at Commercial Nuclear Power Reactors 1982, Vol. 4, U.S. Nuclear Regulatory Commission, December 1983.

NUREG-0713 Occupational Radiation Exposure at Commercial Nuclear Power Reactors 1983, Vol. 5, U.S. Nuclear Regulatory Commission, March 1985.

NUREG-0713 Occupational Radiation Exposure At Commercial Nuclear Power Reactors and Other Facilities 1984, Vol. 6, U.S. Nuclear Regulatory Commission, October 1986.

NUREG-0713 Occupational Radiation Exposure At Commercial Nuclear Power Reactors and Other Facilities 1985, Vol. 7, U.S. Nuclear Regulatory Commission, April 1988.

NUREG-0713 Occupational Radiation Exposure At Commercial Nuclear Power Reactors and Other Facilities 1986, Vol. 8, U.S. Nuclear Regulatory Commission, August 1989.

NUREG-0713 Occupational Radiation Exposure At Commercial Nuclear Power Reactors and Other Facilities 1987, Vol. 9, U.S. Nuclear Regulatory Commission, November 1990.

NUREG-0713 Occupational Radiation Exposure At Commercial Nuclear Power Reactors and Other Facilities 1988, Vol. 10, U.S. Nuclear Regulatory Commission, July 1991.

NUREG-0713 Occupational Radiation Exposure At Commercial Nuclear Power Reactors and Other Facilities 1989, Vol. 11, U.S. Nuclear Regulatory Commission, April 1992.

NUREG-0713 Occupational Radiation Exposure At Commercial Nuclear Power Reactors and Other Facilities 1990, Vol. 12, U.S. Nuclear Regulatory Commission, January 1993.

NUREG-0713 Occupational Radiation Exposure At Commercial Nuclear Power Reactors and Other Facilities 1991, Vol. 13, U.S. Nuclear Regulatory Commission, July 1993.

Previous reports in the NUREG-0714 series, which are now combined with NUREG-0713, are as follows:

WASH-1350-R1 through WASH-1350-R6 First through Sixth Annual Reports of the Operation of the U.S. AEC's Centralized Ionizing Radiation Exposure Records and Reporting System, U.S. Atomic Energy Commission.

NUREG-75/108 Seventh Annual Occupational Radiation Exposure Report for Certain NRC Licensees - 1974, U.S. Nuclear Regulatory Commission, October 1975.

NUREG-0119 Eighth Annual Occupational Radiation Exposure Report for 1975, U.S. Nuclear Regulatory Commission, October 1976.

NUREG-0322 Ninth Annual Occupational Radiation Exposure Report for 1976, U.S. Nuclear Regulatory Commission, October 1977.

NUREG-0463 Tenth Annual Occupational Radiation Exposure Report for 1977, U.S. Nuclear Regulatory Commission, October 1978.

NUREG-0593 Eleventh Annual Occupational Radiation Exposure Report for 1978, U.S. Nuclear Regulatory Commission, January 1981.

NUREG-0714 Twelfth Annual Occupational Radiation Exposure Report for 1979, Vol. 1, U.S. Nuclear Regulatory Commission, August 1982.

NUREG-0714 Occupational Radiation Exposure, Thirteenth and Fourteenth Annual Reports, 1980 and 1981, Vols. 2 and 3, U.S. Nuclear Regulatory Commission, October 1983.

NUREG-0714 Occupational Radiation Exposure, Fifteenth and Sixteenth Annual Reports, 1982 and 1983, Vols. 4 and 5, U.S. Nuclear Regulatory Commission, October 1985.

ABSTRACT

This report summarizes the occupational exposure data that are maintained in the U.S. Nuclear Regulatory Commission's (NRC) Radiation Exposure Information and Reporting System (REIRS). The bulk of the information contained in the report was extracted from the 1992 annual statistical reports submitted by six of the seven categories[1] of NRC licensees subject to the reporting requirements of 10 CFR § 20.407. Since there are no geologic repositories for high level waste currently licensed, only six categories will be considered in this report. These licensees also submit exposure information for terminating employees pursuant to 10 CFR § 20.408. Analysis of this "termination" data is also presented in this report.

Annual reports for 1992 were received from a total of **364** NRC licensees, **114** LWRS reported of which were operators of nuclear power reactors. Compilations of the 364 reports indicated that **204,365** individuals were monitored, **105,731** of whom received a measurable dose (Table 3.1). The collective dose incurred by these individuals was calculated to be **31,965** person-cSv (person-rem)[2] which represents a **0.4% increase** from the 1991 value. The number of workers receiving a measurable dose also increased, resulting in the average measurable dose dropping to **0.30** cSv (rem) for 1992. The average measurable dose is defined to be the total collective dose divided by the number of workers receiving a measurable dose. These figures have been adjusted to account for transient reactor workers.

In 1992, the annual collective dose per reactor for light water reactor licensees (LWRs) was **266** person-cSv (person-rem). This represents a **4%** increase over the 1991 value of 257 person-cSv (person-rem). The annual collective dose per reactor for boiling water reactors (BWRs) was **360** person-cSv (person-rem) and, for pressurized water reactors (PWRs), it was **219** person-cSv (person-rem).

A total of **105,328** termination reports (Table 5.1) were submitted to the NRC which contained personal identification and exposure information for **74,566** individuals who had completed their work assignment or employment with a covered category of NRC licensees during 1992. Analyses of these termination data indicate that **9,724** individuals completed work assignments at two or more nuclear reactor facilities during calendar year. The dose distributions reported by reactor licensees under 10 CFR § 20.407 are adjusted each year from termination data to account for the duplicate reporting of transient workers by multiple licensees. In 1992, the average measurable dose calculated from reported data was **0.28** cSv (rem). The corrected dose distribution resulted in an average measurable dose of **0.30** cSv (rem).

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1 Commercial nuclear power reactors; industrial radiographers; fuel processors, fabricators, and reprocessors; manufacturers and distributors of byproduct material; independent spent fuel storage installations; facilities for land disposal of low-level waste; and geologic repositories for high-level waste.

2 In the International System of Units the sievert (Sv) is the name given to the units for dose equivalent. One centisievert (cSv) equals one rem; therefore, person-rem becomes person-cSv.

EDITOR'S NOTE

The NRC currently has a three-year contract with Science Applications International Corporation (SAIC) to assist the NRC Staff in the preparation of the NUREG-0713 series. SAIC will be suggesting changes in the presentation of certain data in these reports. Readers should be alert to these changes, and the NRC welcomes responses, especially where these changes can be improved upon.

Comments should be directed to:

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PREFACE

A number of NRC licensees have inquired as to how the occupational radiation exposure data that are extracted from the annual statistical summary reports required by § 20.407, the termination reports required by § 20.408, and the annual dose data reported by work function in accordance with Subsection 6.9.1.5 of the standard technical specifications for nuclear power plants are used by the NRC staff. This is a very appropriate inquiry that may be of importance to many affected licensees. In combination with other sources of information, the principal uses of the data are to provide facts regarding routine occupational exposures to radiation and radioactive material that occur in connection with certain NRC-licensed activities. These facts are used by the NRC staff as indicated below:

1. The data permit evaluation, from the viewpoint of trends, of the effectiveness of the overall NRC/licensee radiation protection and ALARA efforts by certain licensees. They also provide for the identification (and subsequent correction) of unfavorable trends.

2. The external dose data assist in the evaluation of the radiological risk associated with certain categories of NRC-licensed activities and are used for comparative analyses of radiation protection performance: US/foreign, BWRs/PWRs, civilian/military, plant/plant, nuclear industry/other industries, etc.

3. The data provide for the monitoring of transient workers who may affect dose distribution statistics through multiple counting, or who may exceed regulatory limits on radiation exposure due to the accumulation of exposure at multiple sites per calendar quarter or calendar year.

4. The data help provide facts for evaluating the adequacy of the current risk limitation system (e.g., are individual lifetime dose limits, worker population collective dose limits, and requirements for optimization needed?).

5. The data permit comparisons of occupational radiation risks with potential public risks when action for additional protection of the public involves worker exposures.

6. The data are used in the establishment of priorities for the utilization of NRC health physics resources: research, standards development, and regulatory program development.

7. The data provide facts for answering Congressional and Administration inquiries and for responding to questions raised by public interest groups, special interest groups, labor unions, etc.

8. The data provide information that may be used in the planning of epidemiological studies.

FOREWORD

NUREG-0713, Volume 14, summarizes the occupational exposure data for 1992 that are maintained in the U.S. Nuclear Regulatory Commission's Radiation Exposure Information Reporting System (REIRS). It does not present staff positions or requirements. However, NRC staff believes that it can be a useful tool in evaluating the effectiveness of an ALARA program.

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Occupational Radiation Exposure
at Commercial Nuclear Power Reactors and Other Facilities
Twenty-fifth Annual Report, 1992

1 INTRODUCTION

One of the basic purposes of the Atomic Energy Act and the implementing regulations in Title 10, Code of Federal Regulations, Chapter I, Part 20, is to protect the health and safety of the public, including the employees of the licensees conducting operations under those regulations. Among the regulations designed to ensure that the standards for protection against radiation set out in 10 CFR Part 20 are met is a requirement that licensees provide individuals likely to be exposed to radiation with devices to monitor their exposure. Each licensee is also required to maintain indefinitely records of the results of such monitoring. However, there was no initial provision that these records or any summary of them be transmitted to a central location where the data could be retrieved and analyzed.

On November 4, 1968, the U.S. Atomic Energy Commission (AEC) published an amendment to Part 20 requiring the reporting of certain occupational radiation exposure information to a central repository at AEC Headquarters. This information was required of the four categories[3] of AEC licensees that were considered to involve the greatest potential for significant occupational doses and of AEC facilities and contractors exempt from licensing. A procedure was established whereby the appropriate occupational exposure data were extracted from these reports and entered into the Commission's Radiation Exposure Information Reporting System (REIRS), a computer system that was maintained at the Oak Ridge National Laboratory Computer Technology Center in Oak Ridge, Tennessee, until May 1990. At that time the data were transferred to a database management system at Science Applications International Corporation (SAIC) at Oak Ridge, Tennessee. The computerization of these data ensure that they are kept indefinitely and facilitate their retrieval and analysis. The data maintained in REIRS have been summarized and published in a report every year since 1969. Annual reports for each of the years 1969 through 1973 presented the data reported by both AEC licensees and contractors and were published in six documents designated as WASH-1350-R1 through WASH-1350-R6.

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3 Commercial nuclear power reactors; industrial radiographers; fuel processors, fabricators, and reprocessors; manufacturers and distributors of specified quantities of byproduct material.

In January 1975, with the separation of the AEC into the Energy Research and Development Administration (ERDA) and the U.S. Nuclear Regulatory Commission (NRC), each agency assumed responsibility for collecting and maintaining occupational radiation exposure information reported by the facilities under its jurisdiction. The annual reports published by the NRC on occupational exposure for calendar year 1974 and subsequent years do not contain information pertaining to ERDA facilities or contractors. Comparable information for facilities and contractors under ERDA, now the Department of Energy (DOE), is collected and published by DOE's Division of Operational Safety at Germantown, Maryland.

In 1982 and 1983, paragraph 20.408(a) of Title 10 of the Code of Federal Regulations was amended to require three additional categories of NRC licensees to submit annual statistical exposure reports and individual termination exposure reports. The new categories are (1) geologic repositories for high-level radioactive waste, (2) independent spent fuel storage installations, and (3) facilities for the land disposal of low-level radioactive waste. Therefore, this document presents the exposure information that was reported by NRC licensees representing two of these new categories. (There are no geologic repositories for high-level waste currently licensed.)

This report and each of the predecessors summarizes information reported during previous years. However, more licensee-specific data, such as the annual reports submitted by each commercial power reactor pursuant to 10 CFR § 20.407 and their technical specifications, may be found in those documents listed on the inside of the front cover of this report. Additional operating data and statistics for each power reactor for the years 1973 through 1982 may be found in a series of reports, "Nuclear Power Plant Operating Experience" [Refs. 1-9]. These documents are available for viewing at all NRC public document rooms, or they may be purchased from the National Technical Information Service, as shown in the Reference section.

2 LIMITATIONS OF THE DATA

All of the figures compiled in this report relating to exposures and doses are based on the results and interpretations of the readings of various types of personnel monitoring devices employed by each licensee. This information, obtained from routine personnel monitoring programs, is sufficient to characterize the radiation environment in which individuals work and is used in evaluating the radiation protection program.

Monitoring requirements are based, in general, on 10 CFR § 20.202, which requires licensees to monitor individuals who receive or are likely to receive a dose in any calendar quarter in excess of 25% of the applicable quarterly limits. For most adults the quarterly limit for the whole body is 1.25 cSv (rem), so 0.312 cSv (cSv) per quarter is the level above which monitoring is required. Depending on the administrative policy of each licensee, persons such as visitors and clerical workers may also be provided with monitoring devices for identification or convenience, although the probability of their being exposed to measurable levels of radiation is extremely small. Licensees are given the option of reporting the dose distribution of only those individuals for whom monitoring is required, or the dose distribution of all those for whom monitoring is provided. Many licensees elect to report the latter; however, this may increase the number of individuals that one could consider to be radiation workers. In an effort to account for this, the number of individuals reported as having "no measurable exposure" has been subtracted from the total number of individuals monitored in order to calculate an average dose per individual receiving a measurable dose, as well as the average dose per monitored individual (for example, see Table 3.1).

One source of error that is present in the calculation of the annual collective dose (i.e., the summation of each monitored person's whole body dose) incurred by workers is the assumption that the midpoint of the dose range is the mean dose of the individuals reported in each dose range (dose ranges are shown in Table 3.2). This allows the collective dose to be calculated without knowing each person's actual annual dose. Comparison of calculated collective dose with actual reported TLD dose totals shows that the actual mean dose of the individuals reported in each range is usually less than the midpoint. Thus, the calculated collective doses presented for categories of licensees shown in this report may be as much as 10% higher than the sum of the actual individual doses. However, 81% of the nuclear power reactors reported the actual collective dose in 1992 so the total collective dose used in this report is more accurate than if the collective dose would have been calculated for each site.

The average dose per individual, as well as the dose distributions shown for groups of licensees, also could have been affected by the multiple reporting of individuals who were monitored by two or more licensees during the year. Since individuals are not identified in the annual reports, an individual who was monitored by five different licensees would have been counted once on each report. Therefore, when the data were summed to determine the total number of individuals monitored by a group of licensees, this person would be counted as five individuals rather than as one. This could also affect the distribution of doses because the individual has been counted five times in the lower dose ranges rather than one time in the higher range corresponding to the actual accumulated dose (the sum of the doses incurred at each facility). This source of error has the greatest potential impact on the data reported by power reactor facilities since they employ many short-term workers. Further discussion of this point is provided in Section 5.

Another fact that should be kept in mind when examining the annual statistical data is that all of the personnel included in the report may not have been monitored throughout the entire year. Many licensees, such as radiography firms and nuclear power facilities, may monitor numerous individuals for periods much less than a year. The average doses calculated from these data, therefore, are less than the average dose that an individual would receive if involved in that activity for the full year.

Considerable attention should also be given when referencing the collective totals presented in this report. The differences between the totals presented for all licensees that reported versus only those licensees that are required to report should be noted. Likewise, one should pay close attention to the differences between all power reactors [including the high temperature gas reactor (HTGR), all pressurized water reactors (PWRs), all boiling water reactors (BWRs), and all light water reactors (LWRs)]. The totals may be inclusive or exclusive of those licensees that were in commercial operation for less than one full year. These parameters vary throughout the tables and appendices of this report in order to provide the most comprehensive analysis of all the data available. The apparent discrepancies among the various tables are a necessary side-effect of this endeavor.

Also, it should again be pointed out that this report contains information reported by NRC licensees only. Since the NRC licenses all commercial nuclear power reactors, fuel processors, fabricators and reprocessors, and independent spent fuel storage facilities, information shown for these categories reflects the U.S. experience. This is not the case, however, for the remaining categories of industrial radiography, manufacturing and distribution of specified quantities of by-product material, and low-level waste disposal.

Companies that conduct these types of activities in Agreement States[4] are licensed by the state and are not required to submit occupational exposure reports to the NRC. Approximately twice as many facilities are licensed to Agreement States than the number licensed by the NRC. This report also does not include non-occupational exposure such as medical x-rays, fluoroscopy, and accelerators. Information shown for these categories does not reflect the total U.S. experience.

4 States that have entered into an agreement with the NRC that allows each state to license organizations using radioactive materials for certain purposes. As of 01/31/93, there are 29 Agreement States.

3 ANNUAL PERSONNEL MONITORING REPORTS - 10 CFR § 20.407

3.1 Definition of Terms and Sources of Data

3.1.1 Statistical Summary Reports

On February 4, 1974, 10 CFR § 20.407 was amended to require certain categories[5] of licensees to submit an annual statistical report indicating the distribution of the whole body doses incurred by individuals whom they monitored for exposure to radiation. Since the regulations do not require these licensees to report the collective dose incurred by the individuals shown on the statistical reports, the dose distributions are used as the basis for the staff's calculation of the collective dose (see Section 3.1.4).

3.1.2 Number of Monitored Individuals

This is the total number of individuals that the NRC licensees covered by 10 CFR § 20.407 reported as being monitored for exposure to external radiation during the year. This number must include all individuals for whom monitoring is required, and may include visitors, service representatives, contract workers, clerical workers, and any other individuals for whom the licensee feels that monitoring devices should be provided. Most licensees submit the dose distribution of the total number of persons for whom monitoring was provided in their annual § 20.407 reports, but a few report only those for whom monitoring was required.

3.1.3 Number of Workers with Measurable Doses

The number of workers with measurable doses is obtained from the annual dose distribution reports submitted by NRC licensees pursuant to 10 CFR § 20.407 by subtracting the number of individuals having less than measurable doses from the total number of monitored individuals. This figure is used to calculate the average measurable dose per worker because it deletes those individuals who received exposures too small to be detected by personnel monitoring devices, many of whom probably did not routinely work in radiation areas (and were monitored for convenience or for identification purposes).

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5 Commercial nuclear power reactors; industrial radiographers; fuel processors, fabricators and reprocessors; manufacturers and distributors of by-product material; independent spent fuel storage installations; and facilities for land disposal of low-level radioactive waste.

3.1.4 Collective Dose

The concept of collective dose is used in this report to denote the summation of the whole body external doses received by all monitored individuals and has the units person-cSv[6] (person-rem). Since 10 CFR § 20.407 does not require licensees to list their collective dose on the required annual dose distribution report, the staff must calculate this collective dose (when it is not provided) from the reports by summing the products obtained by multiplying the number of individuals reported in each of the dose ranges by the midpoint of the corresponding dose range. This assumes that the midpoint of the range is equal to the arithmetic mean of the individual doses in the range. Past experience has shown that the actual mean dose of individuals reported in each dose range is less than the midpoint of the range, and therefore the resultant calculated collective doses shown in this report for these licensees may be about 10% higher than the sum of the actual individual doses. In 1981, a few power reactor licensees began reporting the actual collective dose (as determined from official personnel dosimetry results) on the § 20.407 annual reports. By 1992, approximately three-fourths of the power reactor licensees were including the actual collective dose on the § 20.407 annual reports. **The staff would prefer to use the actual collective dose instead of the calculated dose in this report and encourages more licensees to make it available by including the total dose on the § 20.407 annual submittal.**

3.1.5 Average Individual Dose

The average individual dose is obtained by dividing the collective dose by the total number of individuals reported as being monitored. This figure is usually less than the average measurable dose because it includes the number of those individuals who received zero or less than measurable doses.

3.1.6 Average Measurable Dose

The average measurable dose is obtained by dividing the collective dose by the number of workers that received a measurable dose. This is the average most commonly used in this and other reports when examining trends and comparing doses received by workers in various segments of the nuclear industry because it reflects the deletion of those individuals receiving zero or minimal doses, many of whom were monitored for convenience.

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6 In the International System of Units, the sievert (Sv) is the name given to the units for dose equivalent. One centisievert (cSv) equals one rem; therefore person-rem becomes person-cSv.

3.1.7 Number of Licensees Reporting

This is the number of NRC licenses issued to companies to use radioactive material for certain activities that would place them in one of the six categories that are required to report pursuant to 10 CFR § 20.407. The third column in Table 3.1 shows the number of licensees that have filed such reports during the last several years. Agreement State licensees do not submit such reports to the NRC.

3.1.8 CR

One of the parameters that the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) recommends be calculated for occupational dose distributions to aid in the comparison of exposure data is a ratio "CR." CR is defined to be the ratio of the annual collective dose incurred by individuals whose annual doses exceed 1.5[7] cSv to the total annual collective dose. One UNSCEAR report [Ref. 10] states that normal values of CR should be between 0.05 and 0.50. This means that, usually, no more than 50% of the collective dose should be due to individual doses that exceed 1.5 cSv (rem). The last column in Table 3.1 shows the values of CR for the different types of licensees; one can see that all categories now have a CR that is less than or equal to 0.50 and that 1992 is the eighth year in a row the CR for commercial LWRs, and the grand total for all licensees, has dropped below 0.50.

3.2 Annual Whole Body Dose Distributions

Table 3.2 is a compilation of the statistical summary reports currently being submitted by six categories of licensees (see Section 3.3 for a description of each licensee category). In nearly every category a large number of individuals receive doses which are less than measurable, and very few doses exceed 4 or 5 cSv (rem). About 90% of the reported individuals continue to be monitored by nuclear power facilities where they receive about 90% of the total collective dose.

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7 The collective dose of workers with doses exceeding 1.5 cSv (rem) was calculated by assuming that half of the collective dose incurred by workers with doses between 1 and 2 cSv (rem) was due to doses greater than 1.5 cSv (rem). This value was then added to the collective dose incurred by workers in the higher ranges.

TABLE 3.1
ANNUAL EXPOSURE DATA FOR CERTAIN CATEGORIES OF LICENSEES
1983 - 1992

License Category +	Calendar Year	Number of Licensees Reporting	Number of Monitored Individuals	Number of Workers with Measurable Doses	Collective Dose (person-rems or person-cSv)	Average Individual Dose (rems or cSv)	Average Measurable Dose per Worker (rems or cSv)	CR*
Industrial Radiography	1992	178	4,974	3,248	1,586	0.32	0.49	0.37
	1991	248	6,820	4,649	2,160	0.31	0.46	0.40
	1990	258	6,523	4,458	2,120	0.33	0.48	0.42
	1989	276	6,745	4,352	2,067	0.31	0.47	0.42
	1988	286	6,878	4,223	1,981	0.29	0.47	0.43
	1987	312	7,236	4,454	1,835	0.25	0.41	0.36
	1986	335	7,952	5,130	2,108	0.26	0.41	.039
	1985	340	8,476	5,550	2,374	0.28	0.43	0.45
	1984	361	8,458	5,446	2,490	0.30	0.46	0.46
	1983	340	8,624	5,131	2,384	0.28	0.46	0.45
Manufacturing and Distribution	1992	59	4,431	1,884	489	0.11	0.26	0.48
	1991	59	4,930	1,952	722	0.15	0.37	0.59
	1990	58	4,203	2,279	693	0.16	0.30	0.55
	1989	48	4,554	2,345	770	0.17	0.33	0.53
	1988	16	2,177	868	343	0.16	0.40	0.62
	1987	24	3,589	2,317	716	0.20	0.31	0.54
	1986	33	4,042	2,065	745	0.18	0.36	0.49
	1985	33	3,958	2,250	755	0.19	0.34	0.50
	1984	40	5,076	1,977	671	0.13	0.34	0.46
	1983	33	5,051	2,003	824	0.16	0.41	0.54
Low-Level Waste Disposal	1992	2	467	82	37	0.08	0.45	0.34
	1991	2	905	147	39	0.04	0.27	0.24
	1990	2	784	115	26	0.03	0.23	0.17
	1989	2	925	119	35	0.04	0.29	0.17
	1988	2	864	171	27	0.03	0.16	0.06
	1987	2	778	173	24	0.03	0.14	0.00
	1986	2	996	175	31	0.03	0.18	0.05
	1985	2	1,240	252	70	0.06	0.28	0.24
	1984	2	925	297	72	0.08	0.24	0.16
	1983	1	612	358	71	0.12	0.20	0.14
Independent Spent Fuel Storage	1992	2	279	84	11	0.04	0.13	0.00
	1991	2	41	24	4	0.10	0.17	0.00
	1990	2	56	22	6	0.11	0.27	0.00
	1989	2	190	102	33	0.17	0.33	0.09
	1988	2	217	57	25	0.12	0.44	0.27
	1987	2	129	64	41	0.32	0.64	0.60
	1986	1	32	32	34	1.06	1.06	0.46
	1985	1	32	32	34	1.06	1.06	0.51
	1984	1	32	32	13	0.41	0.41	0.06
	1983	1	33	27	8	0.24	0.30	0.00
Fuel Fabrication and Processing	1992	9	8,264	4,944	529	0.06	0.11	0.03
	1991	11	11,702	3,929	378	0.03	0.10	0.01
	1990	11	14,505	3,871	422	0.03	0.11	0.01
	1989	8	11,583	2,992	243	0.02	0.08	0.00
	1988	10	11,994	3,869	455	0.04	0.12	0.01
	1987	10	10,370	3,994	514	0.05	0.13	0.01
	1986	10	8,017	3,790	466	0.06	0.12	0.01
	1985	11	8,596	5,032	643	0.07	0.13	0.05
	1984	14	9,488	5,772	818	0.09	0.14	0.04
	1983	15	9,023	5,013	835	0.09	0.17	0.19
Commercial Light Water Reactors **	1992	114	185,950	95,489	29,313	0.16	0.31	0.23
	1991	115	179,043	91,085	28,528	0.16	0.31	0.26
	1990	116	187,081	98,802	36,607	0.20	0.37	0.33
	1989	113	188,477	100,080	35,930	0.19	0.36	0.33
	1988	111	193,532	96,653	40,055	0.21	0.41	0.38
	1987	105	205,895	97,992	39,708	0.19	0.41	0.37
	1986	101	191,978	96,535	41,932	0.22	0.43	0.44
	1985	93	180,254	94,873	43,624	0.24	0.46	0.47
	1984	88	165,803	95,224	55,353	0.33	0.58	0.57
	1983	80	139,885	83,546	56,758	0.41	0.68	0.60
Grand Totals and Averages	1992	364	204,365	105,731	31,965	0.16	0.30	0.23
	1991	437	203,441	101,786	31,830	0.16	0.31	0.27
	1990	446	213,152	109,547	39,874	0.19	0.36	0.34
	1989	449	212,474	109,990	39,078	0.18	0.36	0.34
	1988	427	215,662	105,841	42,886	0.20	0.41	0.38
	1987	455	227,997	108,994	42,838	0.19	0.39	0.37
	1986	482	213,017	107,727	45,316	0.21	0.42	0.43
	1985	480	202,556	107,989	47,474	0.23	0.44	0.46
	1984	506	189,782	108,748	59,421	0.31	0.55	0.56
	1983	470	163,238	96,878	60,880	0.37	0.63	0.59

+ These categories consist only of NRC licensees. Agreement State licensed organizations do not report occupational exposure data to the NRC. (see Section 2 for categories)

* CR is the ratio of the annual collective dose delivered at annual doses exceeding 1.5 rems to the total annual collective dose. (see Section 3.1.8)

** Includes all LWRs in commercial operation, although some of them may not have been in operation for a full year. All reactor data are adjusted to account for the multiple counting of transient reactor workers. (see Section 5)

TABLE 3.2
DISTRIBUTION OF ANNUAL WHOLE BODY DOSES BY LICENSE CATEGORY
1992

LICENSE CATEGORY (# reporting)	*Number of Individuals with Whole Body Doses in the Ranges (cSv or rem)																TOTAL NUMBER MONI-TORED	NUMBER WITH MEAS. EXPOSURE	TOTAL COLLECTIVE DOSE (Person-cSv)
	No Mea-surable	Meas. <0.10	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.00	1.00-2.00	2.00-3.00	3.00-4.00	4.00-5.00	5.00-6.00	6.00-7.00	7.00-8.00	8.00-9.00	9.00-12.00	>12.0			
INDUSTRIAL RADIOGRAPHY																			
Single Location (45)	564	113	32	21	3	6	3	1	1								744	180	36
Multiple Locations (133)	1,162	971	566	533	346	223	312	81	26	9	1						4,230	3,068	1,550
Total (178)	1,726	1,084	598	554	349	229	315	82	27	9	1						4,974	3,248	1,586
MANUFACTURING AND DISTRIBUTION																			
"A"-Broad (8)	1,729	988	102	56	31	26	94	47	9	1							3,083	1,354	425
Limited (51)	818	418	66	26	10	2	6	2									1,348	530	64
Total (59)	2,547	1,406	168	82	41	28	100	49	9	1							4,431	1,884	489
LOW-LEVEL WASTE DISPOSAL																			
Total (2)	385	29	15	16	7	3	10	2									467	82	37
INDEPENDENT SPENT FUEL STORAGE																			
Total (2)	195	64	7	8	4	1											279	84	11
FUEL FABRICATION																			
Total (9)	3,320	3,434	1,212	229	47	6	15	1									8,264	4,944	529
**COMMERCIAL POWER REACTORS																			
Boiling Water (38)	41,162	17,853	8,094	6,883	3,955	2,339	2,866	204	11	3							83,370	42,208	13,311
Pressurized Water (76)	57,157	28,260	12,507	10,259	4,926	2,287	2,602	245	6								118,249	61,092	16,002
GRAND TOTALS	106,492	52,130	22,601	18,031	9,329	4,893	5,908	583	53	13	1						220,034	113,542	31,965

*Dose values exactly equal to the values separating ranges are reported in the next higher range.

**Includes all reactors in commercial operation during 1992, although some of them may not have been in operation for a full year. These values have not been adjusted for the multiple counting of transient reactor workers (see Section 5).

It should be pointed out that annual exposures that exceed 5 cSv (rem) are not necessarily classified as personnel overexposures. Although 1.25 cSv (rem) is the quarterly limit set forth in paragraph (a) of 10 CFR § 20.101, paragraph (b) permits licensees, under certain conditions, to allow a worker to receive a whole body dose of 3 cSv (rem) per calendar quarter [up to 12 cSv (rem) annually]. The conditions are that the licensee must have determined and recorded the worker's prior accumulated occupational dose to the whole body and that the worker's whole body dose when added to his accumulated occupational dose does not exceed 5(N - 18) cSv (rem), where N equals the individual's age in years. Although there is currently no annual limit, annual exposures that exceed 12 cSv (rem) indicate that an exposure in excess of regulatory limits has occurred.

A summary of the annual whole body exposures reported to the Commission by certain categories of NRC licensees required to submit reports pursuant to 10 CFR § 20.407 is presented in Table 3.3, which shows that about 95% of the exposures have consistently remained less than 2 cSv (rem) between 1968 and 1984. For the past 7 years the percentage of workers with less than 2 cSv (rem) has been greater than or equal to 98%. The number of individuals receiving an annual exposure in excess of 5 cSv (rem) has been less than 0.01% since 1985.

3.2.1 Log Probability Plots

Since personnel monitoring data have been found to have log-normal distributions [Ref. 11], trends in the data reported by licensees may be observed from log probability plots[8] of data. Figure 3.1 displays such a plot of the doses incurred by workers monitored by certain NRC licensees (see Section 3.1.1) for the year 1992. There are a few characteristics of these distributions readers should keep in mind. First, each single plotted point represents the total cumulative percent of all workers with measurable doses up to the plotted value. All measurable doses up to 0.1 cSv (rem) are included in the value plotted at 0.1 cSv (rem), and the values shown on the "Annual Dose" axis are derived from the dose ranges specified in 10 CFR § 20.407(b). Second, because it is not possible to plot 100% on these figures, the data for the highest dose group are plotted at 99.99% and can be said to account for all of the workers.

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8 If the data have a log-normal distribution, the data points will form a straight line when plotted on log probability paper on which cumulative probabilities are laid off on the vertical axis at distances proportional to the corresponding number of standard deviations above or below the median and the dose is plotted on the horizontal axis with a logarithmic scale.

TABLE 3.3
SUMMARY OF ANNUAL DOSE DISTRIBUTIONS FOR CERTAIN NRC LICENSEES

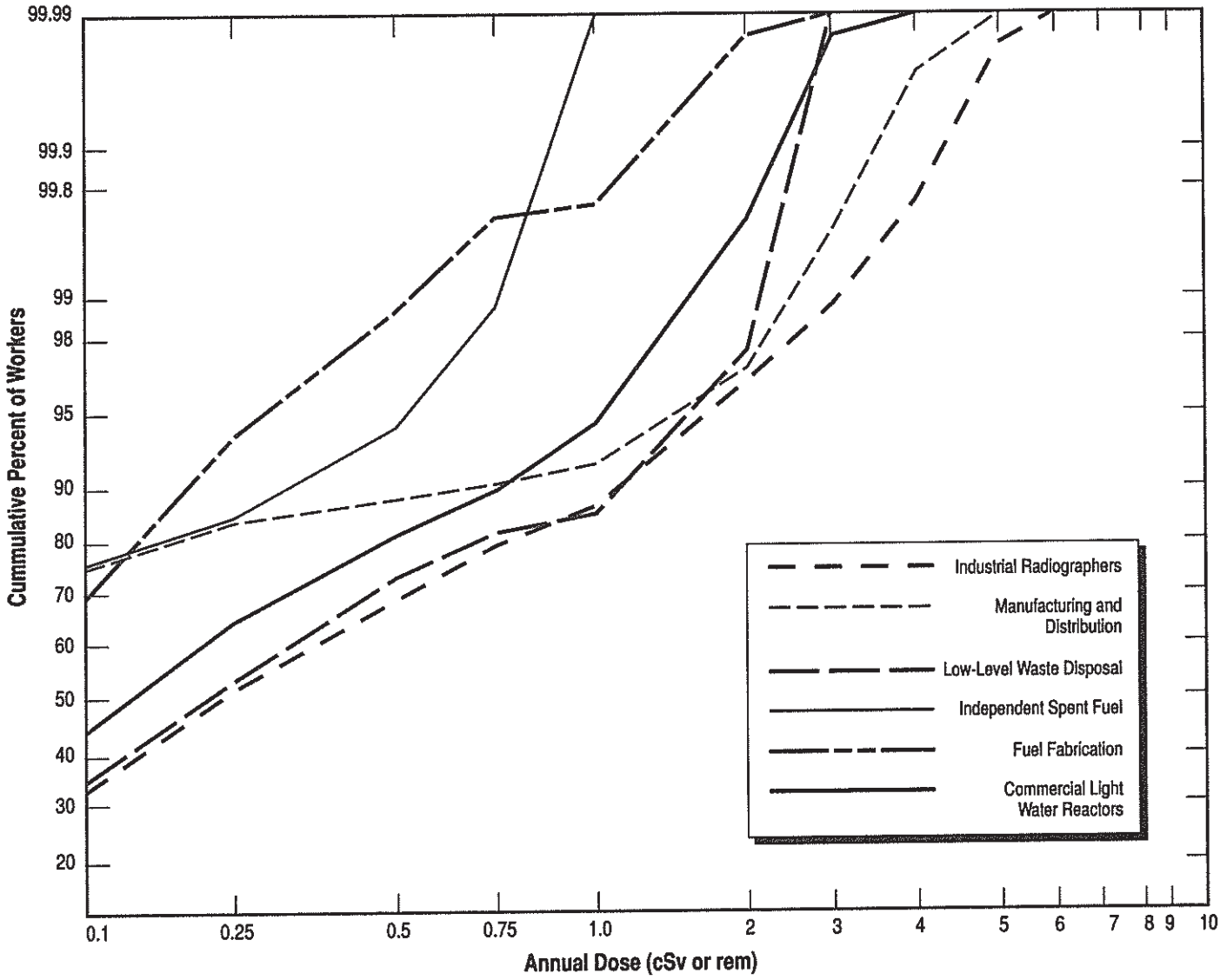
1968-1992

Year	Total Number of Monitored Persons: Reported Number	Total Number of Monitored Persons: Corrected Number*	Percent of Individuals With Doses <2 cSv*	Percent of Individuals With Doses <5 cSv*	Number of Individuals With Doses >12 cSv*
1968	36,836		97.2%	99.5%	3
1969	31,176		96.5%	99.5%	7
1970	36,164		96.1%	99.4%	0
1971	36,311		96.3%	99.3%	1
1972	44,690		95.7%	99.5%	8
1973	67,862		95.0%	99.5%	1
1974	85,097		96.4%	99.7%	1
1975	78,713		94.8%	99.5%	1
1976	92,773		95.0%	99.6%	3
1977	98,212	93,438	93.8%	99.6%	1
1978	105,893	100,818	94.6%	99.8%	3
1979	131,027	125,316	95.2%	99.8%	1
1980	159,177	150,675	94.6%	99.7%	0
1981	157,874	149,314	94.6%	99.8%	1
1982	162,456	154,117	94.9%	99.9%	0
1983	172,927	164,239	94.6%	99.9%	0
1984	181,627	168,899	95.1%	99.9%	0
1985	212,217	201,339	97.5%	>99.99% (15)	2
1986	225,582	213,017	98.0%	>99.99% (8)	0
1987	243,562	227,997	98.7%	>99.99% (4)	1
1988	231,234	215,662	98.6%	>99.99% (8)	0
1989	229,353	212,474	98.9%	>99.99% (7)	1
1990	234,045	214,781	98.9%	>99.99% (3)	0
1991	219,229	206,732	99.4%	>99.99% (2)	0
1992	219,418	212,492	99.6%	>99.99% (1)	0

* Data for 1977-1992 are based on the distribution of individual doses after adjusting for the multiple counting of transient reactor workers (see Section 5). The number of people exceeding 5 cSv is shown in parentheses from 1985-1992.

Another feature of these types of graphs is that several comparisons of various dose distributions can be made quickly. For example, one can easily see in Figure 3.1 that in 1992 about 75% of the workers monitored by firms licensed for independent spent fuel storage received doses that were less than 0.1 cSv (rem), while all of the workers monitored at fuel-fabrication

Figure 3.1
Annual Dose Distribution of Workers at Certain NRC Licensees 1992



License Category	Average Meas. Dose (cSv or rem)	CR*
Industrial Radiographers	0.49	0.37
Manufacturing and Distribution	0.26	0.48
Low-Level Waste Disposal	0.45	0.34
Independent Spent Fuel	0.13	0.00
Fuel Fabrication	0.11	0.03
Commercial Light Water Reactors	0.28	0.18

*CR is the ratio of the dose delivered at individual doses exceeding 1.5 cSv to the annual collective dose.

Note: Each point on the curves represents the cumulative percentage of workers with measurable doses who received doses less than the indicated annual dose.

facilities received doses less than 2.00 cSv (rem). One should also note that the doses at which the 50 percentile line crosses the plot corresponds to the median dose, i.e. the dose below which half of the dose fell and above which half fell.

The relative positions and curvature of the graphs are indicative of certain characteristics of the dose distributions. The positions of the 1992 plots of the dose distribution of workers at fuel fabrication facilities and independent fuel storage facilities above that of the other plots indicate smaller values of the average doses and CR (as shown in the chart at the bottom of the graph). This is due to the lower number of workers with doses that exceeded 1.5 cSv (rem) in 1992 as compared to other licensed activities. The tendency of the plots to curve upward for doses greater than one cSv (rem) is typical of distributions having several workers with doses in the higher dose ranges [Refs. 10, 11], and indicates that the entire distribution is not a log-normal one. Another theoretical analysis of occupational dose distributions [Ref. 12] has found that these data may be fitted by a hybrid log-normal distribution. At low doses, this distribution is log-normal, but at higher doses, where radiation control programs very closely monitor each worker's total dose so that the frequency of doses approaching the dose limits is reduced, the distribution is normal.

An example of this "feedback" mechanism which reduces exposures reported at higher doses can be seen in the plot for independent spent fuel storage facilities. The relatively low points on the curve between 0.10 and 0.25 cSv (rem) indicate a large percentage of individuals receiving dose in this range, while the curve takes a steep upwards turn at 0.50 cSv (rem) indicating tighter controls limiting exposure above this level. This distribution characteristic is further demonstrated for the independent spent fuel facilities where the average measurable dose is 0.13 cSv (rem), but the CR value is zero.

3.3 Summary of Occupational Exposure Data by License Category

3.3.1 Industrial Radiography Licenses, Single and Multiple Locations

These licenses are issued to allow the use of sealed radioactive materials, usually in exposure devices or "cameras," that primarily emit gamma rays for nondestructive testing of pipeline weld joints, steel structures, boilers, air craft and ship parts, and other high-stress alloy parts. Some firms are licensed to conduct such activities in one location, usually in a permanent facility which was designed and shielded for radiography, and others perform radiography at multiple, temporary sites in the field. The radioisotopes most

commonly used are cobalt-60 and iridium-192. As shown in Table 3.1, annual reports were received for 178 radiography licensees in 1992, which is 70 less than those reporting in 1991. Table 3.4 summarizes the reported data for the two types of radiography licenses for 1992 and for the previous two years for comparison purposes.

TABLE 3.4
ANNUAL EXPOSURE INFORMATION FOR INDUSTRIAL RADIOGRAPHERS

1990-1992

Year	Type of License	Number of Licenses	Number of Monitored Individuals	Workers with Measurable Doses	Collective Dose (person-cSv or person-rem)	Average Measurable Dose (cSv or rem)
1992	Single location	45	744	180	36	0.20
	Multiple locations	133	4,230	3,068	1,550	0.51
	Total	178	4,974	3,248	1,586	0.49
1991	Single location	56	822	338	44	0.13
	Multiple locations	192	5,998	4,311	2,116	0.49
	Total	248	6,820	4,649	2,160	0.46
1990	Single location	66	832	304	41	0.13
	Multiple locations	192	5,691	4,154	2,079	0.50
	Total	258	6,523	4,458	2,120	0.48

For each of the years shown, the average measurable dose for workers performing radiography at a single location ranged from 25 to 40 percent of the average measurable dose of workers at multiple location facilities. This is probably due to the fact that it is more difficult for workers to avoid exposure to radiation in the field, where conditions are not the best and may change every day. In order to see the contribution that each radiography licensee made to the total collective dose, a summary of the information reported by each of these licensees in 1992 is presented in Appendix A in descending order of average measurable dose.

In 1992, several of the multiple location radiographers reported particularly high average measurable doses. Ten licensees had an average measurable dose over 1.0 rem, and two licensees reported average measurable doses in excess of 2.0 rem. The Radiation Safety Officers (RSO) that were contacted attributed the relatively high exposures to the type and location of the radiography field work. For example, locations such as oil drilling platforms and aerial

tanks offer the radiographer little available shielding. In these situations there may not be an opportunity to use distance as a means of minimizing exposure and achieving ALARA. While these licensed activities tend to result in average measurable doses that are higher than other licensees, they involve a relatively small number of exposed workers.

Figure 3.2 shows the number of personnel with measurable dose per licensee, the total collective dose per licensee, and the average measurable dose per worker for both types of industrial radiography facilities from 1973 through 1992.

3.3.2 Manufacturer and Distributor Licenses, Type "A" Broad and Limited

Manufacturer and distributor licenses are issued to allow the manufacture and distribution of radionuclides in various forms for a number of diverse purposes. The products are usually distributed to persons specifically licensed by the NRC or an Agreement State. Type "A" Broad licenses are issued to larger organizations who may use many different radionuclides in many different ways and who have a comprehensive radiation protection program. The Limited licenses are usually issued to smaller firms requiring a more restrictive license. Some firms are medical suppliers that process, package, or distribute such products as diagnostic test kits, radioactive surgical implants, and tagged radiochemicals for use in medical research, diagnosis, and therapy. Limited firms are suppliers of industrial radionuclides and are involved in the processing, encapsulation, packaging, and distribution of the radionuclides that they have purchased in bulk quantities from production reactors and cyclotrons. Major products include gamma radiography sources, cobalt irradiation sources, well-logging sources, sealed sources for gauges and smoke detectors, and radiochemicals for non-medical research. However, only those NRC licensees that possess or use at any one time specified quantities of the nuclides listed in paragraph 20.408(a)(6) are required to submit annual (10 CFR § 20.407) and termination (10 CFR § 20.408) reports.

Table 3.5 presents the annual data that were reported by the two types of licensees for 1992 and the previous two years. Looking at the information shown separately for the Type "A" Broad and Limited licensees, one can see

Figure 3.2
Average Annual Values at Industrial Radiography Facilities 1973 – 1992

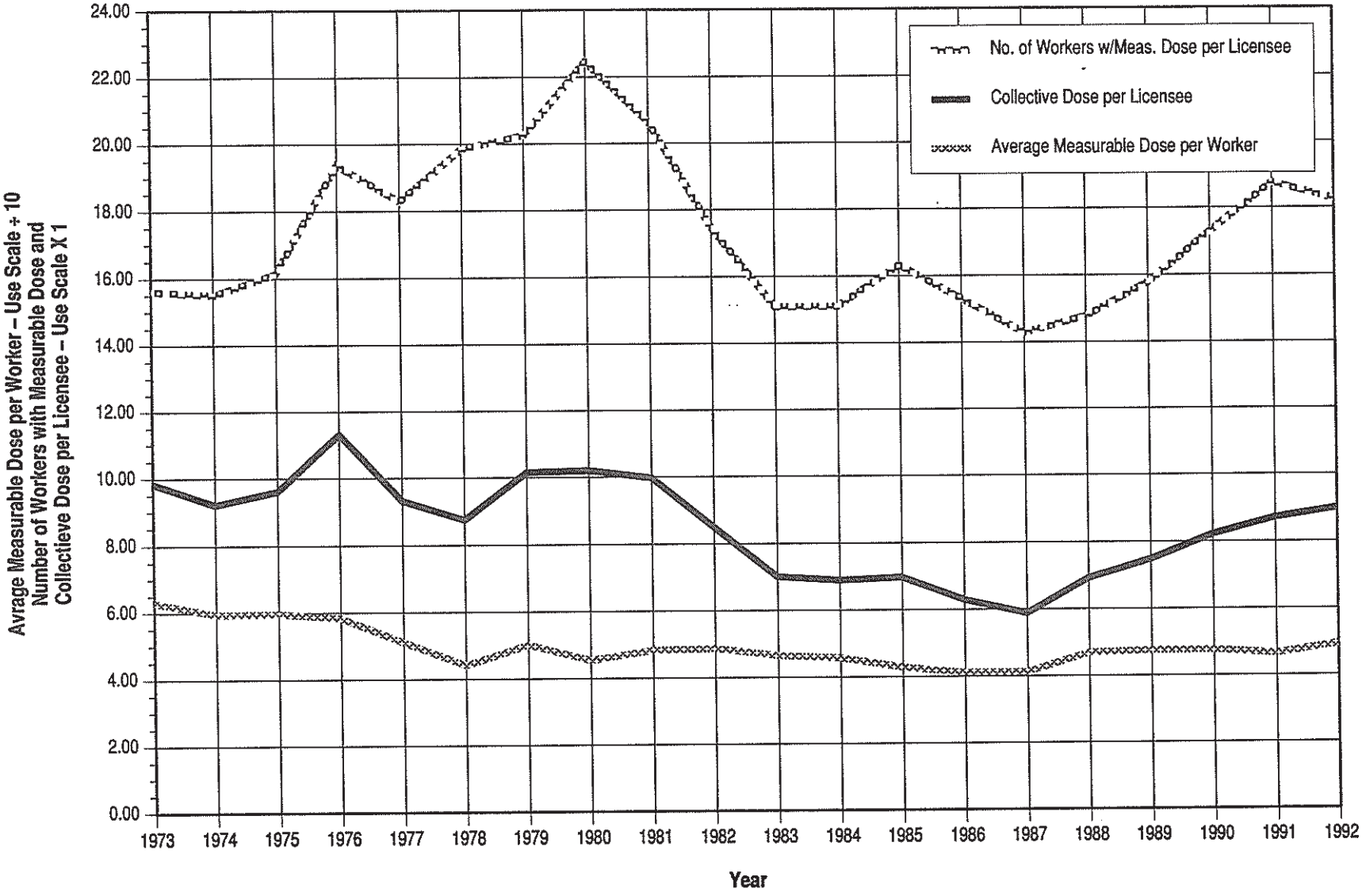


TABLE 3.5
ANNUAL EXPOSURE INFORMATION FOR MANUFACTURERS AND DISTRIBUTORS

1990-1992

Year	Type of License	Number of Licenses	Number of Monitored Individuals	Workers with Measurable Doses	Collective Dose (person-cSv or person-rem)	Average Measurable Dose (cSv or rem)
1992	M & D-"A"-Broad	8	3,083	1,354	425	0.31
	M & D-Limited	51	1,348	530	64	0.12
	Total	59	4,431	1,884	489	0.26
1991	M & D-"A"-Broad	12	3,732	1,443	674	0.47
	M & D-Limited	46	1,198	513	47	0.09
	Total	58	4,930	1,956	721	0.37
1990	M & D-"A"-Broad	10	3,091	1,862	655	0.35
	M & D-Limited	47	1,112	417	38	0.09
	Total	57	4,203	2,279	693	0.30

that the values of all of the parameters remain higher for the Broad licensees. However, when attempting to examine trends in the data presented for this category of licensees, one should note that the types and quantities of radionuclides may fluctuate from year to year, and even during the year, so that some licensees may report dose data one year and not the next and may be included as a Broad licensee one year and a Limited licensee at other times. Since the number of reporting licensees is quite small, these fluctuations may have a significant impact on the values of the parameters.

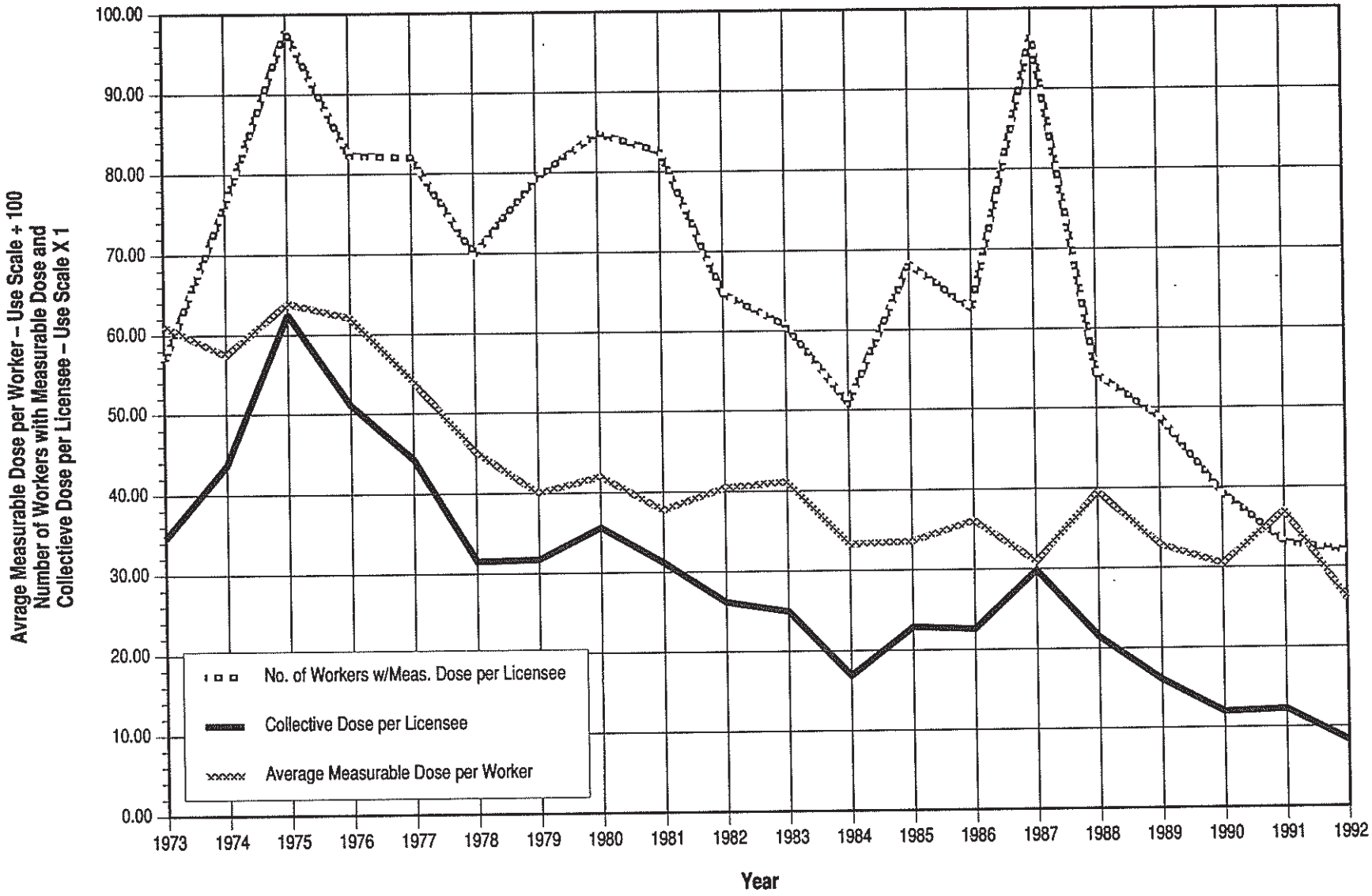
Figure 3.3 shows the number of personnel with measurable dose per licensee, the total collective dose per licensee, and the average measurable dose per worker for both Type "A" Broad and Limited manufacturing and distribution facilities.

In order to see the contribution that each of these licensees made toward the total values of the number of persons monitored, number of workers, and collective dose, Appendix A lists the values of these parameters for each licensee in descending order of average measurable dose for 1992.

3.3.3 Low-Level Waste Disposal Licenses

These licenses are issued to allow the receipt, possession, and disposal of low-level radioactive wastes at a land disposal facility. The licensee has

Figure 3.3
Average Annual Values at Manufacturing and Distribution Facilities 1973 – 1992



the appropriate facilities to receive wastes from such places as hospitals and laboratories, store them for a short time, and dispose of them in a properly prepared burial ground. The licensees in this category are located in and licensed by Agreement States that have primary regulatory authority over its activity. However, they also have an NRC license that covers certain special nuclear material they might receive. The annual dose reports submitted by these licensees include all doses received during the year regardless of whether they were due to NRC or Agreement State licensed material.

The requirement for this category of NRC licensee to file annual reports became effective in January 1983. While in 1982 and 1983 there was only one licensee in this category, there have been two licensees in this category since 1984. Table 3.1 summarizes the data reported for 1982 through 1992. Appendix A summarizes the exposure information reported by these two licensees in 1992.

Figure 3.4 shows the number of personnel with measurable dose per licensee, the total collective dose per licensee, and the average measurable dose per worker for low-level waste disposal facilities from 1982 through 1992. As one would expect, since only two licensees have been involved in this activity over the past nine years, the numbers have remained fairly stable from 1984 through 1992.

3.3.4 Independent Spent Fuel Storage Installation Licenses

These licenses are issued to allow the possession of power reactor spent fuel and other associated radioactive materials for the purpose of storage of such fuel in an independent spent fuel storage installation (ISFSI). Here, the spent fuel, which has undergone at least one year of decay since being used as a source of energy in a power reactor, is provided interim storage, protection, and safeguarding for a limited time pending its ultimate disposal. There have been three licenses issued for these activities, two at nuclear power plants and one at an independent facility. In 1987, one reactor licensee began reporting the dose distribution information for the spent fuel storage activities separately, while the other reactor licensee combined the data with the report for all activities at the site. Only those two licensees (one reactor and one independent) that reported dose distribution information separately are included in this analysis of independent spent fuel storage installation facilities for 1992.

For 1982 through 1986, Table 3.1 summarizes the data submitted by the only ISFSI that is separate from a nuclear power plant. For 1987 through 1992 this

Figure 3.4
Average Annual Values at Low-Level Waste Disposal Facilities 1982 – 1992

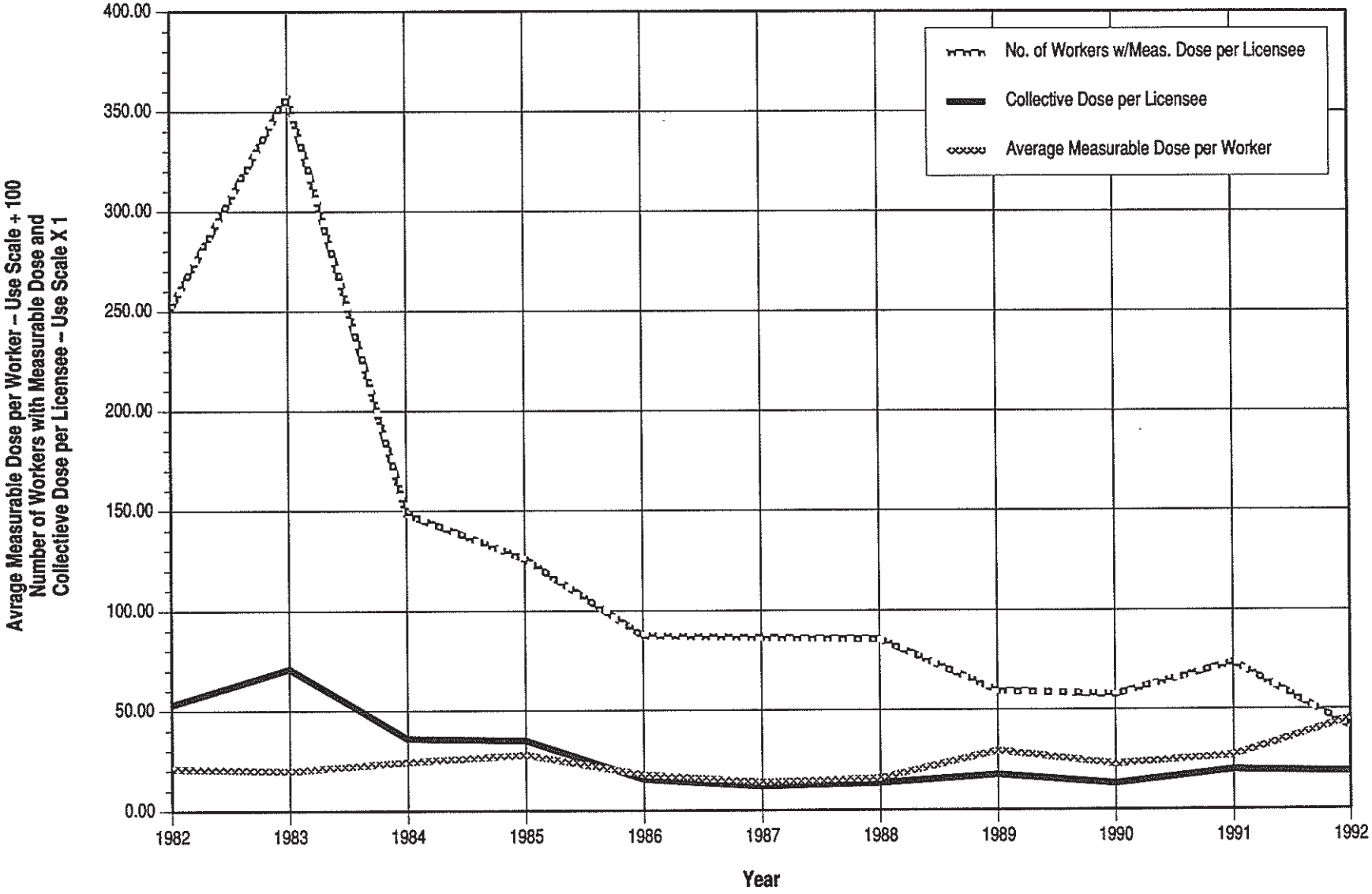


table also includes data from the ISFSI located at the Surry power plant. A contributing factor to the relatively high average dose reported for the years prior to 1987 was that the licensees reported the doses of only those workers required to be monitored for exposure to radiation, unlike most other licensees which report the doses of all individuals for whom monitoring was provided. This had a tendency to result in the calculation of a higher average dose.

Figure 3.5 shows the number of personnel with measurable dose per licensee, the total collective dose per licensee, and the average measurable dose per worker for independent spent fuel storage facilities. Appendix A summarizes the exposure information reported by the two installations that reported in 1992.

3.3.5 Fuel Fabrication and Reprocessing Licenses

The fuel fabrication licenses are issued to allow the processing and fabrication of reactor fuels. In most uranium facilities where light water reactor fuels are processed, uranium hexafluoride enriched in the isotope U-235 is converted to solid uranium dioxide pellets and inserted into zirconium alloy tubes. The tubes are fabricated into fuel assemblies which are shipped to nuclear power plants. Some facilities also perform chemical operations to recover the uranium from scrap and other off-specification materials. On a much smaller scale, fuel assemblies containing plutonium oxide pellets can be similarly fabricated and used in reactors for experimental purposes. However, there are no NRC licensees engaged in this activity at this time.

Table 3.6 shows that there were 9 fuel fabrication facilities in 1992. A number of licensees were involved in decontamination and decommissioning of their plutonium facilities, and for several years the data for these licensees were shown in the "Decommissioning" category in Table 3.1. Since these facilities have ceased to fabricate plutonium fuel, they are not required to file annual reports and are no longer shown in the tables.

Figure 3.6 shows the number of personnel with measurable dose per licensee, the total collective dose per licensee, and the average measurable dose per worker for fuel fabrication licensees. Appendix A lists each of the licensees reporting in 1992, with the number of persons monitored, the number of workers receiving measurable external doses, and the collective dose for each licensee in descending order of average measurable dose.

Figure 3.5
Average Annual Values at Independent Spent Fuel Storage Facilities 1982 – 1992

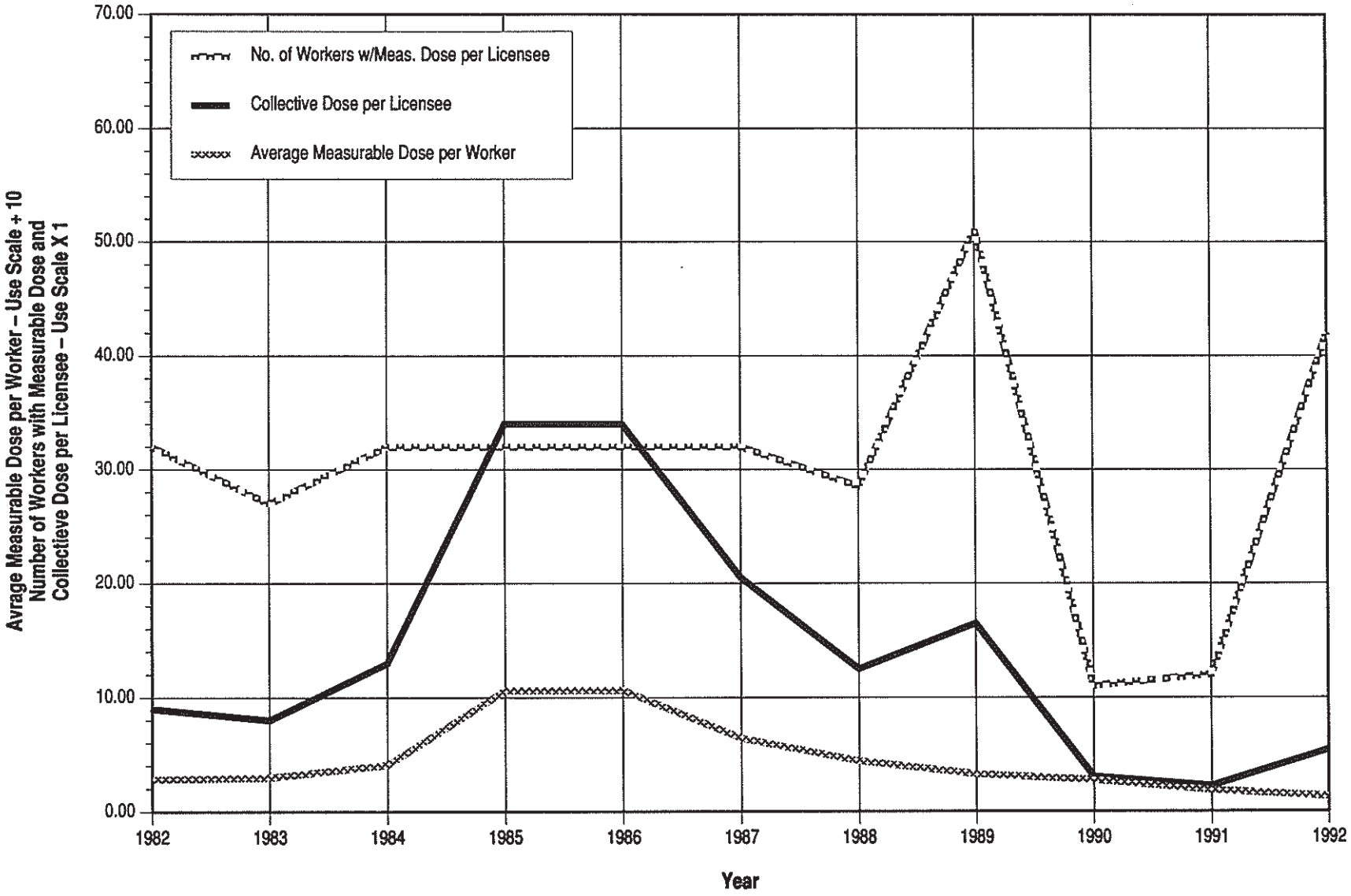


Figure 3.6
Average Annual Values at Fuel Fabrication and Processing Facilities 1973 – 1992

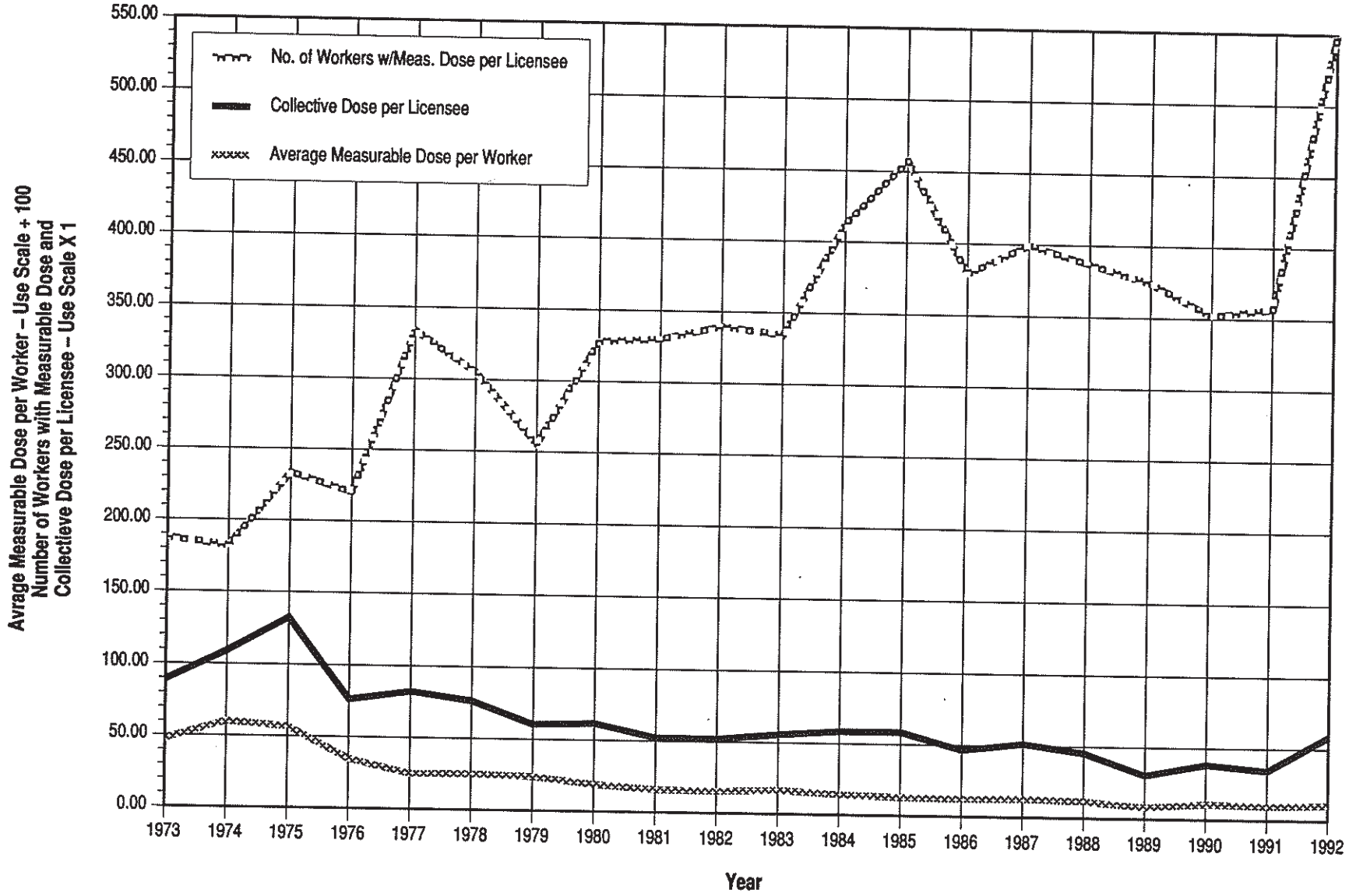


TABLE 3.6
ANNUAL EXPOSURE INFORMATION FOR FUEL FABRICATORS

1990-1992

Year	Type of License	Collective Number of Licenses	Number of Monitored Individuals	Workers with Measurable Doses	Dose (person-rems or person-cSv)	Average Measurable Dose (rems or cSv)
1992	Uranium Fuel Fab	9	8,264	4,944	529	0.11
1991	Uranium Fuel Fab	11	11,702	3,929	378	0.10
1990	Uranium Fuel Fab	11	14,505	3,871	422	0.11

Fuel reprocessing licenses are issued to allow the separation of usable uranium and plutonium from spent nuclear fuel. There was only one commercial facility that was ever licensed to reprocess fuel, and it has been shut down since 1972. However, the licensee did some decontamination work and stored radioactive waste at the facility for several years, and the annual report that was submitted each year was usually grouped with those of the fuel fabricators. In February 1982, the Department of Energy assumed possession and control of the reprocessing facility to conduct waste solidification activities necessary for final decommissioning. During this period, the NRC license will, in effect, be suspended, and no reports will be filed with the NRC.

3.3.6 Light Water-Cooled Power Reactor (LWR) Licenses

These licenses are issued to utilities to allow them to use special nuclear material in a reactor which produces heat to generate electricity to be sold to consumers. There are two major types of commercial LWRs in the United States - pressurized water reactors (PWRs) and boiling water reactors (BWRs) - each of which uses water as the primary coolant.

Table 3.1 shows the number of licensees, total number of monitored individuals, the number of workers with measurable dose, the total collective dose, and average dose per worker for all reports received from reactor

facilities that were in commercial operation for the years 1983 through 1992. This includes reactors that may not have been in commercial operation for a full year. Data for 1983 through 1988 included all reactors that reported, even though some of them were shut down. Data for 1989 through 1992 do not include reactors that have been shut down. It is important to note that these figures have been adjusted for the multiple counting of transient reactors workers (see Section 5). The reported dose distribution of workers monitored at each plant site is presented in alphabetical order by site name in Appendix B.

More detailed presentations and analyses of the annual exposure information reported by nuclear power facilities can be found in Sections 4 and 5.

3.3.7 High-Temperature Gas-Cooled Power Reactor (HTGR) Licenses

A license to operate a power reactor is issued to utilities to allow them to use special nuclear material in a reactor to produce heat to generate electricity to be sold to consumers. In the HTGR, a gas, usually helium, is used as the primary coolant. Fort St. Vrain near Greeley, Colorado, was the only such reactor in operation in the U.S. but has not been in commercial operation since 1989. As shown in Table 3.7, annual whole body doses incurred by workers at the plant have been minimal.

TABLE 3.7
ANNUAL EXPOSURE INFORMATION FOR FORT ST. VRAIN

1974-1992

Year	No. of Individuals with Annual Doses in Ranges (cSv or rem)				Total No. of Individuals Monitored	Annual Collective Dose (person-cSv or person-rem)	Gross Electricity Generated (MW-yr)	Average Measurable Dose per Worker (cSv or rem)
	No Meas'ble Dose	Meas'ble Dose <0.10	0.10-0.25	0.25-2.00				
1974	1,597	63	1	0	1,661	3.3	0.0	0.05
1975	1,263	0	0	0	1,263	0.0	0.0	0.00
1976	1,362	25	0	0	1,387	1.3	2.8	0.05
1977	946	55	1	0	1,002	2.9	29.8	0.05
1978	896	34	0	0	930	1.7	75.7	0.05
1979	1,149	120	2	0	1,271	6.4	28.6	0.05
1980	902	57	1	0	960	3.0	83.2	0.05
1981	1,096	31	0	0	1,127	1.0	93.6	0.03
1982	978	22	0	0	1,000	0.4	72.6	0.02
1983	965	48	0	0	1,013	1.0	94.4	0.02
1984	1,616	62	8	0	1,686	3.0	10.9	0.04
1985	1,929	370	40	33	2,372	35.0	3.8	0.08
1986	221	66	4	0	291	1.8	9.7	0.03
1987	155	52	2	0	209	1.2	23.8	0.02
1988	238	24	0	0	262	0.7	81.8	0.03
1989	316	47	6	2	371	2.7	0.0	0.05
1990	226	30	0	0	256	0.6	0.0	0.02
1991	525	63	9	4	601	5.4	0.0	0.07
1992	520	144	36	34	734	25.4	0.0	0.12

4 COMMERCIAL LIGHT WATER REACTORS - FURTHER ANALYSIS

4.1 Introduction

General trends in occupational radiation exposures at nuclear power reactors are best evaluated within the context of other pertinent information. In this chapter, some of the tables and appendices that summarize exposure data also show the type, capacity, and age of the reactor; the amount of electricity generated; the types of workers being exposed; and the sort of tasks being performed. Exposure data is then presented as a function of these data.

4.2 Definition of Terms and Sources of Data

4.2.1 Number of Reactors

The *number of reactors* shown in Tables 4.1, 4.2, and 4.3 is the number of BWRs, PWRs, and LWRs, respectively, that had been in commercial operation for at least one full year as of December 31 of each of the indicated years. This is the number of reactors on which the *average number of workers with measurable dose* and *average collective dose per reactor* is based. Excluded are those reactors that had been in commercial operation for less than twelve months during the first year and reactors that have been permanently defueled. This yields conservative values for many of the averages shown in the tables. The date that each reactor was declared to be in commercial operation was found in Reference 14.

Three Mile Island 2 had been included in the compilation of data for commercially operating reactors through 1988 even though the reactor has been shut down since the 1979 accident and has been in the process of defueling and decommissioning since that time. Three Mile Island 2 has not been included in the data analysis since 1988. Data for this reactor, however, will be listed in Appendices B, C, D and E for reference purposes.

4.2.2 Electric Energy Generated

The electric energy generated in gross megawatt-years (MW-yr) each year by each facility is shown in Appendix C and graphically represented in Appendix E. This number was obtained by dividing the gross megawatt-hours of electricity annually produced by each facility by 8,760, the number of hours in the year, except for leap years when the number is 8,784 hours. The gross electricity generated (in megawatt-years) that is presented in Tables 4.1, 4.2, and 4.3 is the summation of electricity generated by the number of reactors included in each year. These sums are divided by the number of

TABLE 4.1

SUMMARY OF ANNUAL INFORMATION REPORTED BY COMMERCIAL BOILING WATER REACTORS*

1973-1992

Year	Number of Reactors Included	Annual Collective Doses (person-cSv or person-rem)	No. of Workers With Measurable Doses	Gross Electricity Generated (MW-yr)	Average Dose Per Worker (cSv or rem)	Average Collective Dose Per Reactor (person-cSv or person-rem)	Average No. Personnel With Measurable Doses Per Reactor	Average Collective Dose per MW-yr (person-cSv /MW-yr)	Average Electricity Generated Per Reactor (MW-yr)	Average Maximum Dependable Capacity Net (MWe)
1973	12	4,564	5,340	3,393.9	0.85	380	445	1.34	283	438
1974	14	7,095	8,769	4,060.2	0.81	507	626	1.75	290	485
1975	18	12,611	14,607	5,786.4	0.86	701	812	2.18	321	595
1976	22	12,300	16,604	8,137.9	0.74	559	755	1.51	370	630
1977	23	19,041	21,388	9,102.5	0.89	828	930	2.09	396	637
1978	25	15,273	20,278	11,856.0	0.75	611	811	1.29	474	660
1979	25	18,325	25,245	11,671.0	0.73	733	1,010	1.57	467	660
1980	26	29,530	34,094	10,868.2	0.87	1,136	1,311	2.72	418	663
1981	26	25,471	34,755	10,899.2	0.73	980	1,337	2.34	419	663
1982	26	24,437	32,235	10,614.6	0.76	940	1,240	2.30	408	663
1983	26	27,455	33,473	9,730.1	0.82	1,056	1,287	2.82	374	663
1984	27	27,097	41,105	10,019.2	0.66	1,004	1,522	2.70	371	754
1985	29	20,573	38,237	12,284.0	0.54	709	1,319	1.67	424	775
1986	30	19,349	37,928	12,102.1	0.51	645	1,264	1.60	403	786
1987	32	16,717	41,737	15,109.0	0.40	522	1,304	1.11	472	832
1988	34	17,983	40,305	16,665.4	0.45	529	1,185	1.08	490	845
1989	36	15,549	44,360	17,543.5	0.35	432	1,232	0.89	487	857
1990	37	15,780	41,577	21,336.1	0.38	426	1,124	0.74	577	862
1991	37	12,005	38,492	21,505.8	0.31	324	1,040	0.56	581	860
1992	37	13,309	42,095	20,592.2	0.32	360	1,138	0.65	557	859

*Includes only those reactors that had been in commercial operation for at lease one full year as of December 31 of each of the indicated years, and all figures are uncorrected for multiple reporting of transient individuals.

TABLE 4.2

SUMMARY OF ANNUAL INFORMATION REPORTED BY COMMERCIAL PRESSURIZED WATER REACTORS*

1973-1992

Year	Number of Reactors Included	Annual Collective Doses (person-cSv or person-rem)	No. of Workers With Measurable Doses	Gross Electricity Generated (MW-yr)	Average Dose Per Worker (cSv or rem)	Average Collective Dose Per Reactor (person-cSv or person-rem)	Average No. Personnel With Measurable Doses Per Reactor	Average Collective Dose per MW-yr (person-cSv /MW-yr)	Average Electricity Generated Per Reactor (MW-yr)	Average Maximum Dependable Capacity Net (MWe)
1973	12	9,398	9,440	3,770.2	1.00	783	787	2.49	314	544
1974	19	6,555	9,370	6,530.7	0.70	345	493	1.00	344	591
1975	26	8,268	10,884	11,982.5	0.76	318	419	0.69	461	647
1976	30	13,807	17,588	13,325.0	0.79	460	586	1.04	444	701
1977	34	13,467	20,878	17,345.8	0.65	396	614	0.78	510	688
1978	39	16,528	25,700	19,840.5	0.64	424	659	0.83	509	706
1979	42	21,657	38,828	18,255.0	0.56	516	924	1.19	435	746
1980	42	24,265	46,237	18,289.3	0.52	578	1,101	1.33	435	746
1981	44	28,673	47,351	20,553.7	0.61	652	1,076	1.40	467	752
1982	48	27,753	52,146	22,140.6	0.53	578	1,086	1.25	461	777
1983	49	29,017	52,173	23,195.5	0.56	592	1,065	1.25	473	785
1984	51	28,138	56,994	26,478.4	0.49	552	1,118	1.06	519	809
1985	53	22,469	54,633	29,470.7	0.41	424	1,031	0.76	556	820
1986	60	23,032	62,995	33,593.0	0.37	384	1,050	0.69	560	878
1987	64	23,684	62,597	37,007.3	0.38	370	978	0.64	578	900
1988	68	22,786	62,921	42,929.7	0.36	335	925	0.53	631	885
1989	71	20,381	63,894	44,679.5	0.32	287	900	0.46	629	897
1990	73	20,812	67,081	46,955.6	0.31	285	919	0.44	643	907
1991	74	16,510	60,269	51,942.6	0.27	223	814	0.32	702	913
1992	73	16,000	61,048	53,419.8	0.26	219	836	0.30	732	923

*Includes only those reactors that had been in commercial operation for at least one full year as of December 31 of each of the indicated years, and all figures are uncorrected for multiple reporting of transient individuals.

TABLE 4.3

SUMMARY OF ANNUAL INFORMATION REPORTED BY COMMERCIAL LIGHT WATER COOLED REACTORS*

1973-1992

Year	Number of Reactors Included	Annual Collective Doses (person-cSv or person-rem)	No. of Workers With Measurable Doses	Gross Electricity Generated (MW-yr)	Average Dose Per Worker (cSv or rem)	Average Collective Dose Per Reactor (person-cSv or person-rem)	Average No. Personnel With Measurable Doses Per Reactor	Average Collective Dose per MW-yr (person-cSv /MW-yr)	Average Electricity Generated Per Reactor (MW-yr)	Average Maximum Dependable Capacity Net (MWe)	Percent of Maximum Dependable Capacity Achieved
1973	24	13,962	14,780	7,164.1	0.94	582	616	1.95	299	491	61%
1974	33	13,650	18,139	10,590.9	0.75	414	550	1.29	321	546	59%
1975	44	20,879	25,491	17,768.9	0.82	475	579	1.18	404	626	65%
1976	52	26,107	34,192	21,462.9	0.76	502	658	1.22	413	671	62%
1977	57	32,508	42,266	26,448.3	0.77	570	742	1.23	464	667	70%
1978	64	31,801	45,978	31,696.5	0.69	497	718	1.00	495	688	72%
1979	67	39,982	64,073	29,926.0	0.62	597	956	1.34	447	714	63%
1980	68	53,795	80,331	29,157.5	0.67	791	1,181	1.84	429	714	60%
1981	70	54,144	82,106	31,452.9	0.66	773	1,173	1.72	449	719	62%
1982	74	52,190	84,381	32,755.2	0.62	705	1,140	1.59	443	737	60%
1983	75	56,472	85,646	32,925.6	0.66	753	1,142	1.72	439	743	59%
1984	78	55,235	98,099	36,497.6	0.56	708	1,258	1.51	468	790	59%
1985	82	43,042	92,870	41,754.7	0.46	525	1,133	1.03	509	804	63%
1986	90	42,381	100,923	45,695.1	0.42	471	1,121	0.93	508	847	60%
1987	96	40,401	104,334	52,116.3	0.39	421	1,087	0.78	543	877	62%
1988	102	40,769	103,226	59,595.1	0.39	400	1,012	0.68	584	871	67%
1989	107	35,930	108,254	62,223.0	0.33	336	1,012	0.58	582	883	66%
1990	110	36,592	108,658	68,291.7	0.34	333	988	0.54	621	892	70%
1991	111	28,515	98,761	73,448.4	0.29	257	890	0.39	662	895	74%
1992	110	29,309	103,143	74,012.0	0.28	266	938	0.40	673	901	75%

*Includes only those reactors that had been in commercial operation for at least one full year as of December 31 of each of the indicated years, and all figures are uncorrected for multiple reporting of transient individuals.

reactors included in each year to yield the average amount of electric energy generated (MW-yr) per reactor, which is also shown in Tables 4.1, 4.2, and 4.3. The number of gross megawatt-hours of electricity produced each year was found in Reference 14.

4.2.3 Collective Dose per Megawatt-Year

The number of megawatt-years of electricity generated was used in determining the ratio of the average value of the annual collective dose to the number of megawatt-years of electricity generated. The ratio was calculated by dividing the total collective dose in person-cSv (person-rem) by the gross electric energy generated in megawatt-years and is a measure of the dose incurred by workers at power plants in relation to the gross electric energy produced. This ratio was also calculated for each reactor site and is presented in Tables 4.1, 4.2, and 4.3 and Appendix C.

4.2.4 Average Maximum Dependable Capacity

Average maximum dependable capacity, shown in Tables 4.1, 4.2, and 4.3, was found by dividing the sum of the net maximum dependable capacities of the reactors in megawatts (net MWe) by the number of reactors included each year. The net maximum dependable capacity is defined as the gross electrical output as measured at the output terminals of the turbine generator during the most restrictive seasonal conditions, less the normal station service loads. This "capacity" of each plant was found in Reference 14, and it is shown for each site in Appendix C.

4.2.5 Percent of Maximum Dependable Capacity Achieved

The *percent of maximum dependable capacity achieved* is shown for all LWRs in Table 4.3. This parameter gives an indication of the overall power generation performance of LWRs as compared to the maximum capacity that could be obtained in a given year. The average electricity generated per reactor is divided by the average maximum dependable capacity for each year.

From 1973 to 1978 this indicator exhibited an increasing trend as a number of new reactors began producing power at higher efficiencies. Following the accident at Three Mile Island, reactor operations personnel concentrated on improving safety systems and complying with the new regulations for these systems. During this time period, from 1979 to 1987, the percent of maximum dependable capacity remained around 60%. Following the completion of most of these mandated repairs, reactors have increased the percent of maximum dependable capacity from 62% in 1987 to 75% in 1992, a gain of 13% in 5 years.

4.3 Annual Whole Body Dose Distributions

Table 4.4 summarizes the distribution of the annual whole body doses received by workers at all commercial LWRs during each of the years 1977 through 1992. This distribution is the sum of the annual dose distributions reported by each licensed LWR each year. As previously mentioned, the distribution reported by each LWR site for 1992 is shown in Appendix B. Table 4.4 shows the reported dose distributions corrected for the number of transient workers that were reported by more than one site (see Section 5). The table shows that the total number of individuals monitored increased almost every year since 1981 to a value of 183,927 in 1992. The number of individuals with measurable dose was 95,332 in 1992. The total collective dose increased by 3% to a value of 29,309 person-cSv (person-rem) in 1992. The value of CR (see Section 3.1.8) decreased to a value of 0.23. This is the eighth year in a row that the value of CR has been less than 0.50.

4.4 Average Annual Whole Body Doses

Some of the data presented in Tables 4.1, 4.2, and 4.3 are graphically displayed in Figure 4.1, where it can be seen that the average collective dose and average number of workers per BWR have been higher than those for PWRs since 1974 and that the values of both parameters, in general, continued to rise at both types of facilities until 1983. Between 1983 and 1992, the average collective dose per reactor dropped by 65%. In 1992, the collective dose per reactor for PWRs decreased slightly from 223 person-cSv (person-rem) in 1991 to 219 person-cSv (person-rem) in 1992. The collective dose per reactor for BWRs increased by 11%, from 324 person-cSv (person-rem) in 1991, to 360 person-cSv (person-rem) in 1992. The overall collective dose per reactor for LWRs increased from 257 person-cSv (person-rem) in 1991 to 266 person-cSv (person-rem) in 1992. The number of workers with measurable dose per reactor has increased to 1,138 for BWRs and increased to 836 for PWRs in 1992.

In addition to the power generation data presented in these tables and figures, REIRS also tracks the outage hours and the reported reasons for outages for BWRs and PWRs. Analysis of this data indicates that the increase in collective dose at BWRs for 1992 was primarily due to refueling and maintenance outages. BWRs experienced a 28% increase in the number of outage hours reported for refueling and a 127% increase in the number of hours needed for maintenance and testing outages [Ref. 14]. Refueling outages tend to contribute considerably to the collective dose since plants often take

TABLE 4.4

SUMMARY DISTRIBUTION OF ANNUAL WHOLE BODY DOSES AT COMMERCIAL LIGHT WATER REACTORS*

1977 - 1992

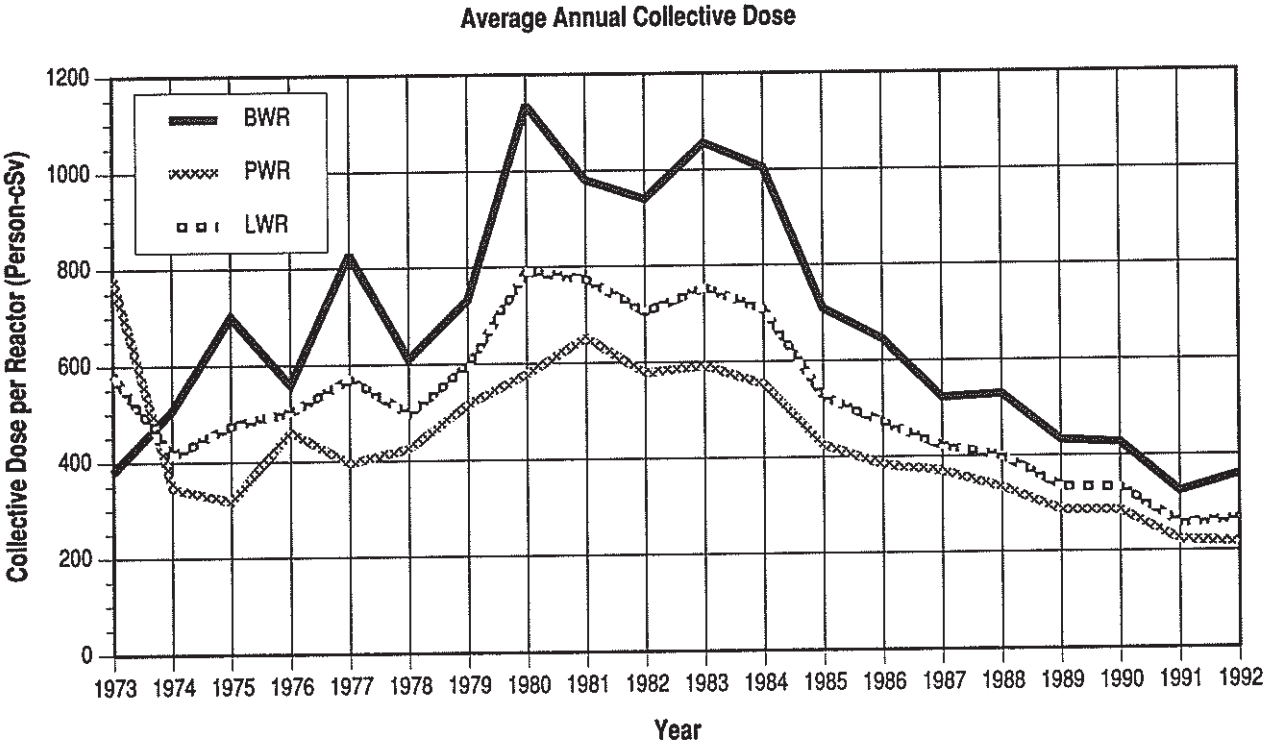
Year	No Meas'ble Exposure	Number of Individuals with Whole Body Doses in the Ranges (cSv or rem)																Total Number Monitored	Number with Measurable Exposure	Collective Dose** (person-cSv or rem)	CR***
		Meas'ble <0.10	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.0	1.0-2.0	2.0-3.0	3.0-4.0	4.0-5.0	5.0-6.0	6.0-7.0	7.0-8.0	8.0-9.0	9.0-10.0	10.0-12.0	>12.0				
1977	23,562	12,395	6,030	4,518	2,890	2,220	5,649	2,856	1,288	661	186	89	47	23	6			62,420	38,858	32,508	0.65
1978	28,372	15,101	6,342	4,998	3,088	2,247	5,995	3,034	1,197	514	109	37	9	0	1	0	2	71,046	42,674	31,801	0.61
1979	43,330	22,508	8,985	7,469	4,797	3,259	7,572	3,404	1,400	545	117	42	17	3	1			103,449	60,119	39,982	0.57
1980	50,873	26,903	10,676	8,904	5,570	4,134	10,671	4,607	1,816	831	235	119	29	7	1			125,376	74,503	53,795	0.59
1981	39,265	26,836	11,226	9,330	6,042	4,497	11,170	4,811	1,999	533	103	93	9	3	1	0	1	115,919	76,654	54,144	0.57
1982	41,713	29,225	11,713	9,903	6,229	4,420	10,220	4,716	2,066	596	97	31	5	0	1	1		120,936	79,223	52,190	0.58
1983	47,048	29,107	11,195	9,344	5,851	4,276	11,345	5,332	2,269	716	121	38	8	2				126,652	79,604	56,472	0.60
1984	54,670	36,296	13,427	10,275	6,336	4,804	11,283	5,206	2,122	487	52	22						144,980	90,310	55,235	0.57
1985	59,634	36,831	13,008	11,041	6,627	4,547	10,040	3,575	1,001	157	1							146,462	86,828	43,042	0.48
1986	67,701	41,467	14,570	11,842	7,016	4,693	10,241	3,062	868	146								161,606	93,905	42,381	0.45
1987	85,181	41,222	15,834	12,839	7,586	5,332	10,611	2,192	477	69								181,343	96,162	40,401	0.38
1988	87,254	40,225	15,913	13,153	7,903	5,461	10,310	2,442	511	26		1						183,199	95,945	40,769	0.39
1989	83,947	45,282	17,267	13,777	7,945	5,137	8,634	1,614	370	34								184,007	100,060	35,930	0.33
1990	83,873	42,607	17,529	14,192	8,226	5,260	8,594	1,794	335	21								182,431	98,558	36,592	0.33
1991	87,250	42,587	16,764	13,184	7,187	4,194	5,975	938	219	17								178,315	91,065	28,527	0.27
1992	88,595	42,387	18,115	15,172	8,286	4,568	5,981	749	70	4								183,927	95,332	29,309	0.23

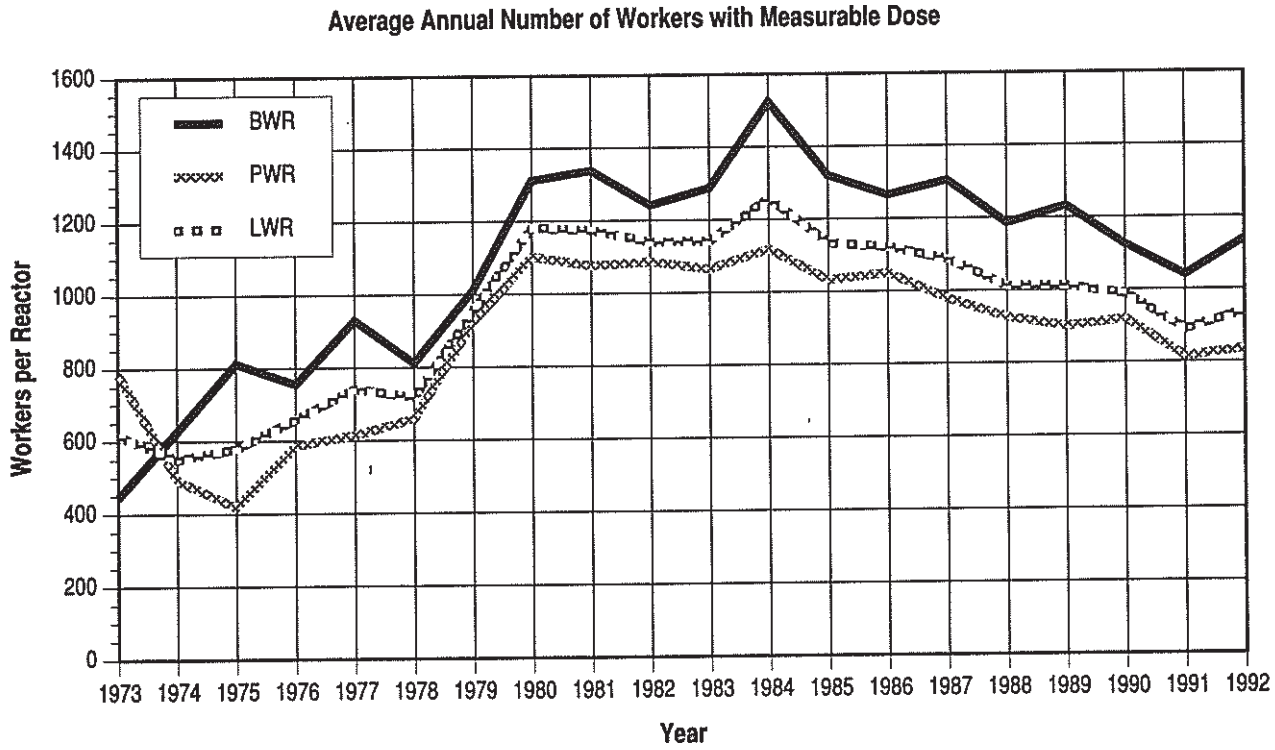
*Summary of reports submitted in accordance with 10 CFR 20.407 by only those plants that had been in commercial operation for at least one full year as of December 31 of each of the indicated years. Figures shown have been adjusted for the muliple reporting of transient individuals (see Section 5).

**The collective dose, when not reported by the utilities, was calculated by the NRC staff using methods described in this document.

***CR is the ratio of annual collective dose delivered at individual doses exceeding 1.5 cSv (rem) to the total annual collective dose.

Figure 4.1
Average Collective Dose and Number of Workers per Reactor 1973 – 1992





advantage of the outage to perform maintenance and repairs to primary systems. The increase in refueling outages at BWRs contributed to the slight increase in collective dose for LWRs in 1992.

Figures 4.2 and 4.3 are plots of most of the other information that is given in Tables 4.1, 4.2, and 4.3. The value for the total collective dose for all LWRs increased by 3% from a value of 28,527 person-cSv (person-rem) in 1991 to 29,309 person-cSv (person-rem) in 1992. Together with the increase in the number of workers with measurable dose, this resulted in the average measurable dose per worker decreasing to 0.28 cSv (rem) in 1992. Power generation indicators such as gross electricity and average maximum dependable capacity net continued to increase for the twelfth straight year, while the average collective dose per megawatt-year dropped to nearly one fifth of the 1980 value during the same time period.

The fluctuations in the parameters for the years following the accident at the Three Mile Island plant in 1979 may reflect some of the impact that this incident had on the nuclear power industry. The decrease seen in dose trends since 1983 may be attributable to several factors. Utilities have completed most of the tasks initiated as a result of the lessons learned from the Three Mile Island accident, and they are increasing efforts to avoid and reduce exposure. The importance of exposure control and the concept of keeping exposures as low as reasonably achievable (ALARA) is continually being stressed, and most utilities have established programs to collect and share information relative to tasks, techniques, and exposures.

To further assist in the identification of any trends that might exist, Figure 4.4 displays the average and median[9] values of the collective dose per reactor for BWRs and for PWRs for the years 1973 through 1992. The ranges of the values reported each year are shown by the vertical lines with a small bar at each end marking the two extreme values. The rectangles indicate the range of values of the collective dose exhibited by those plants ranked in the twenty-fifth through the seventy-fifth percentiles. Since the median values usually are not as greatly affected by the extreme values of the collective doses, they do not normally fluctuate as much from year to year as do the average values. The median collective dose for PWRs experienced an increase from 198 person-cSv (person-rem) in 1991 to 204 person-cSv (person-rem) in 1992. At BWRs, the median fluctuates more from year to year, and in 1992 the median collective dose increased to 310 person-cSv (person-rem). Figure 4.4

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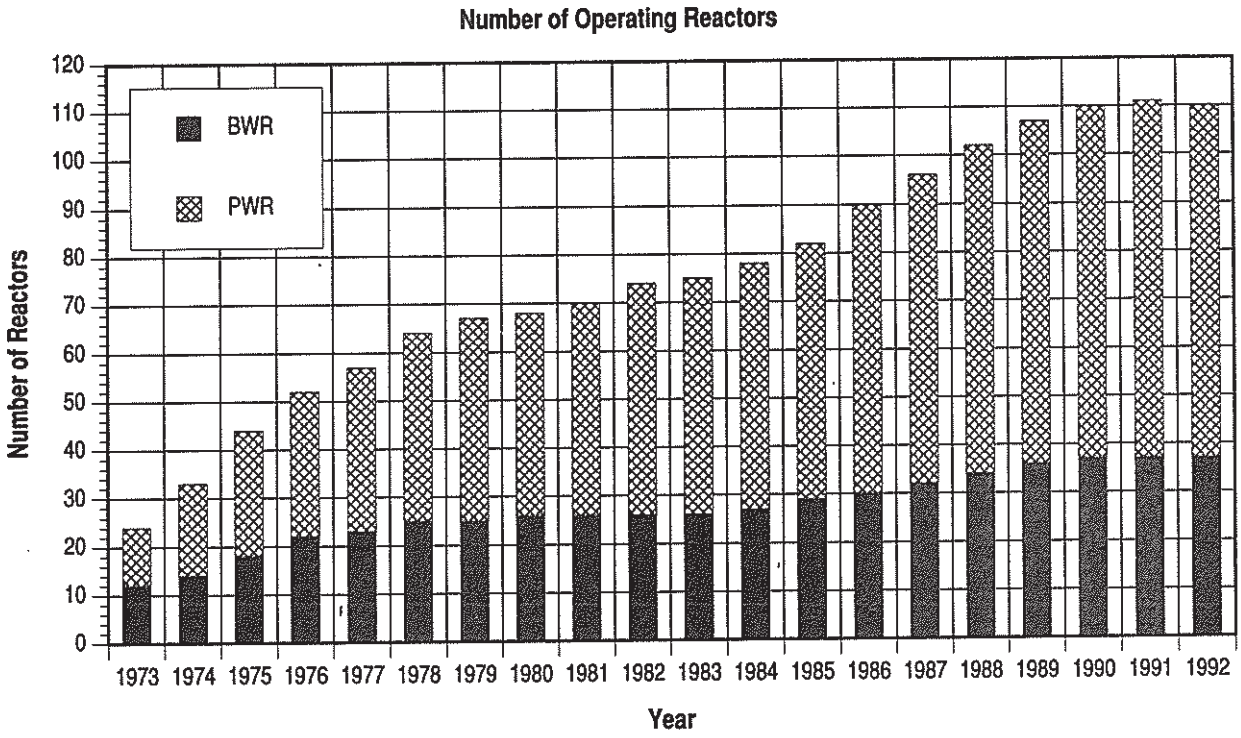
9 The value at which 50% of the reactors reported greater collective doses and the other 50% reported smaller collective doses.

Figure 4.2
Number of Operating Reactors and Gross Electricity Generated 1973 – 1992



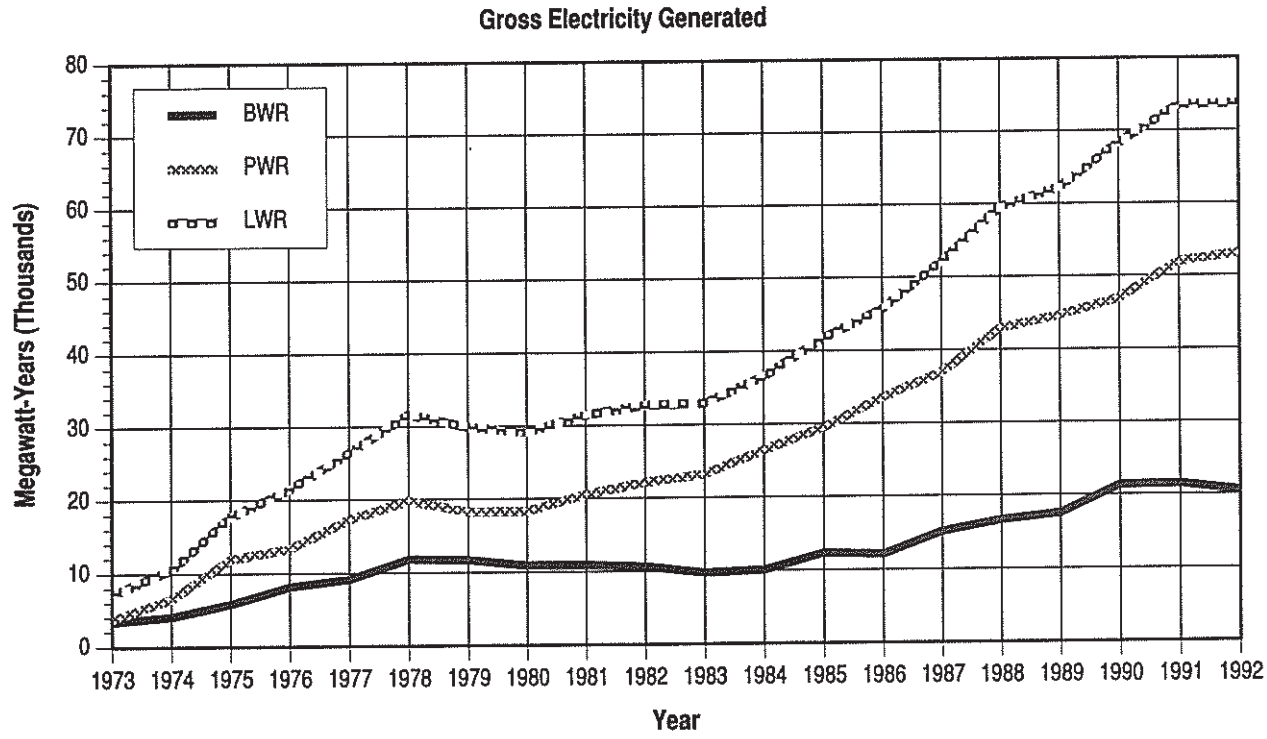
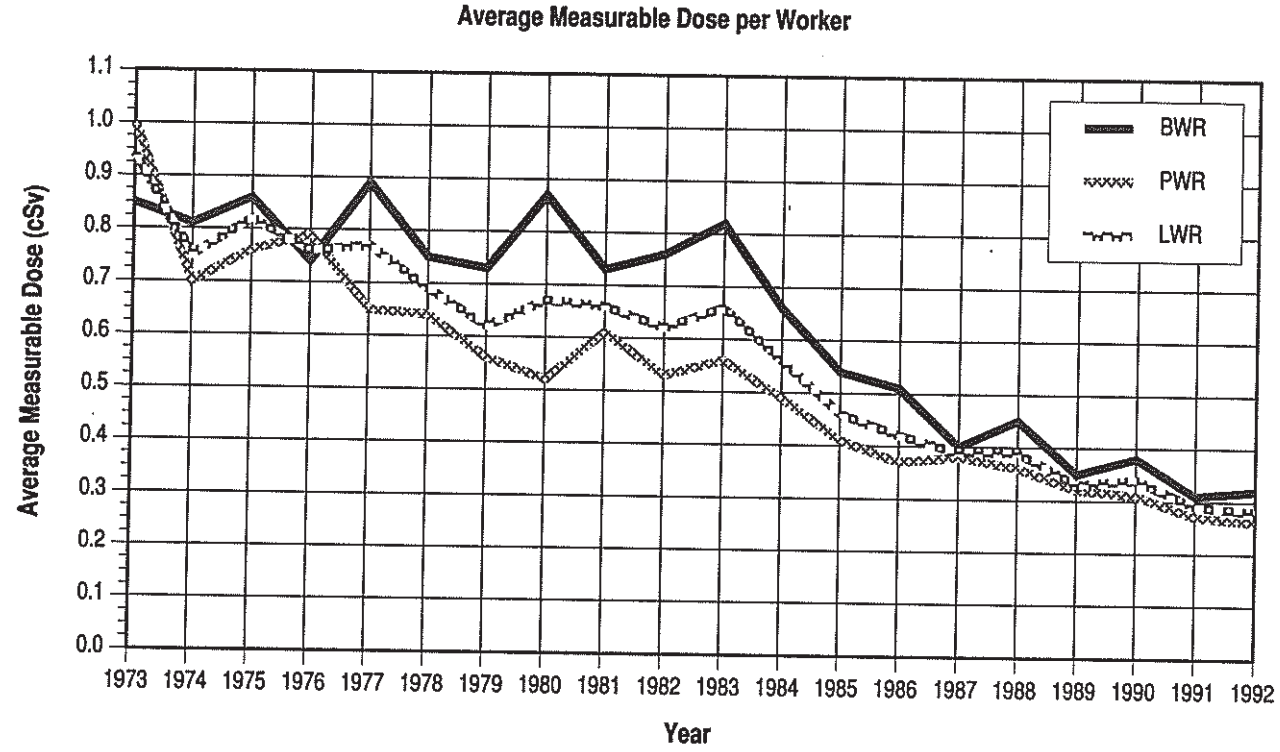


Figure 4.3
Average Measurable Dose per Worker and Collective Dose per Megawatt-Year 1973 – 1992



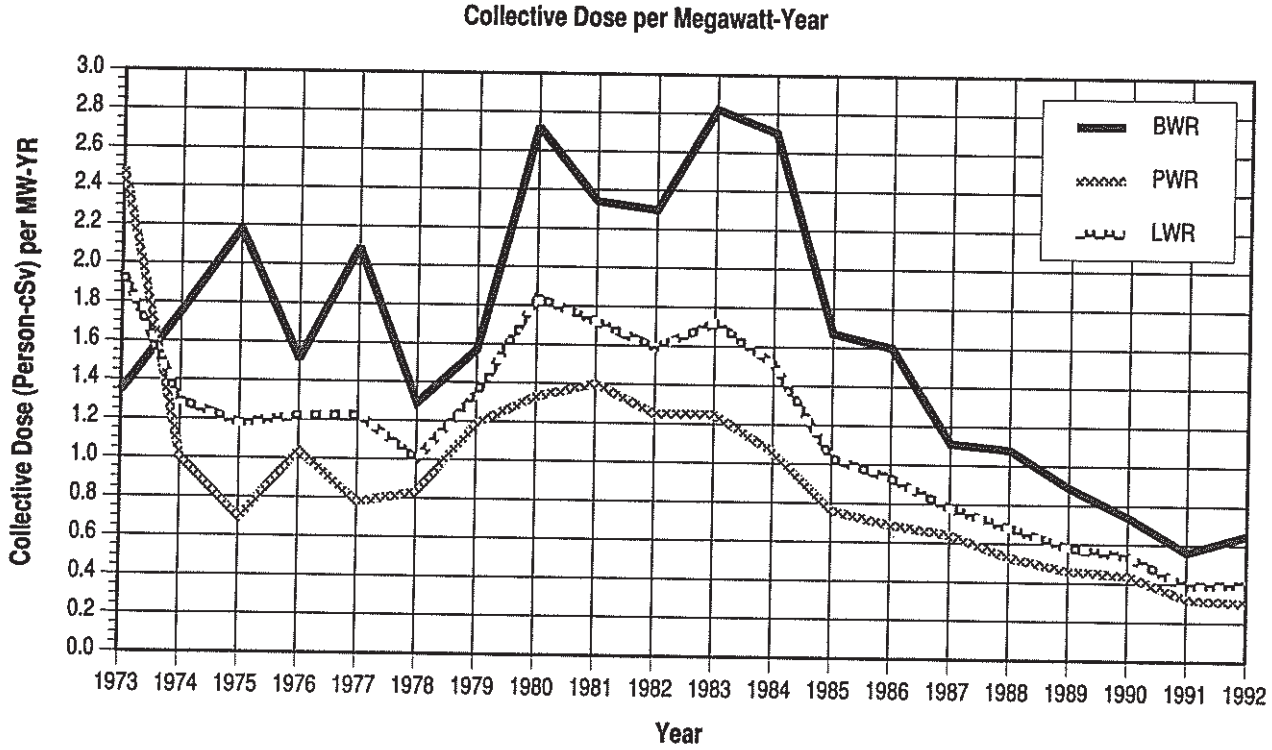
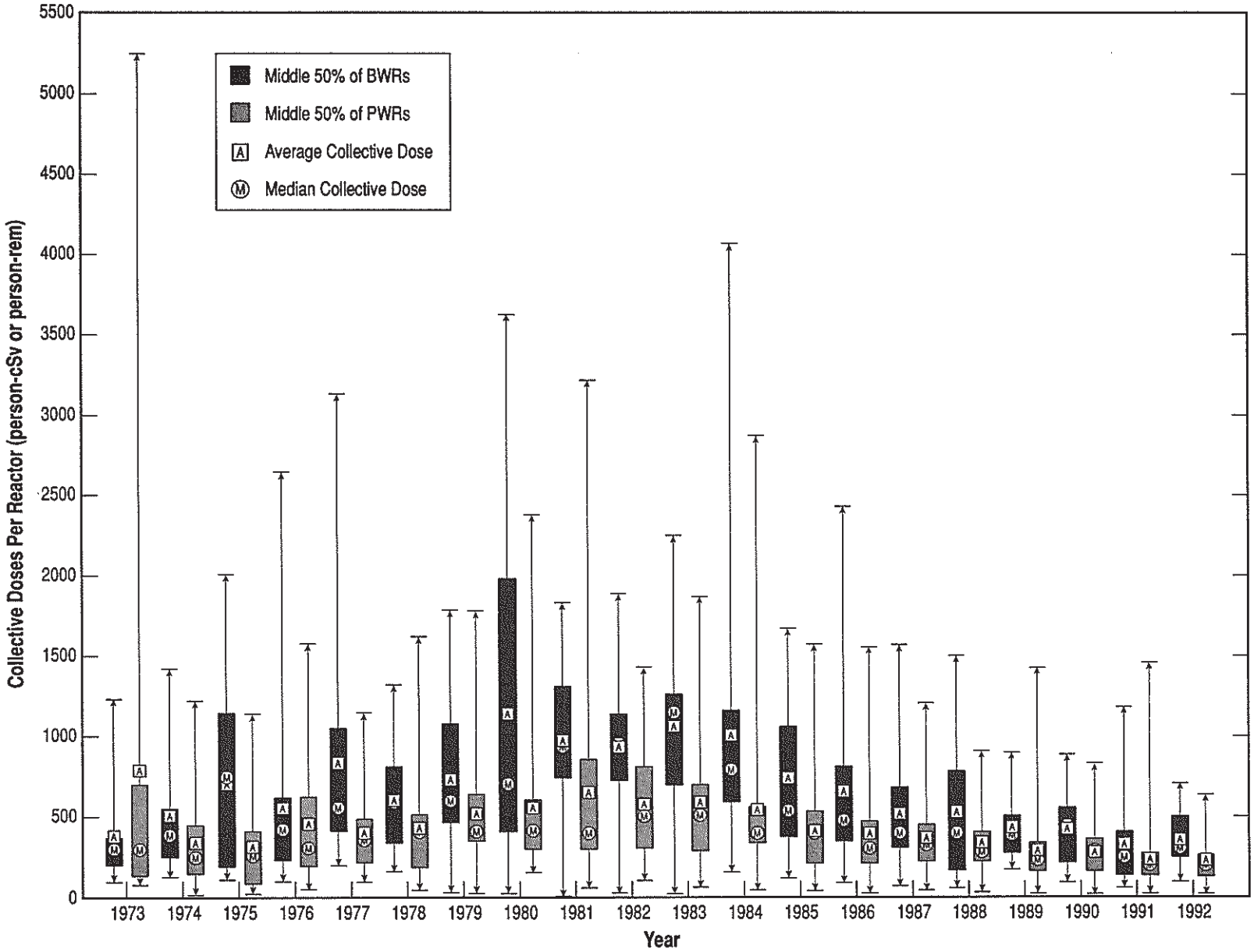


Figure 4.4
Average, Median, and Extreme Values of the Collective Dose Per Reactor 1973 – 1992



also shows that, in 1992, 50% of the PWRs reported collective doses between 128 and 261 person-cSv (person-rem) while 50% of the BWRs reported collective doses between 251 and 502 person-cSv (person-rem). Nearly every year, the median collective dose is less than the average, which indicates that the collective dose for most plants is less than the average collective dose per reactor (the value that is widely quoted).

4.5 Plant Rankings by Collective Dose per Reactor

Since the number of reactors from which data have been collected is still statistically rather small, the information reported by a few reactors where unusual conditions or problems may have occurred could have a large impact on some of the statistics presented in this report. In an effort to identify those plants, Tables 4.5 and 4.6 list the BWRs and PWRs in ascending order of collective dose per reactor for each of the five years from 1988 through 1992. The total collective dose per site is listed in the tables even though the dose per reactor was used for all ranking. Two other parameters, average measurable dose per worker and collective dose per megawatt-year, are also given for each plant. Also shown is a parameter CR, which is defined as the ratio of the annual collective dose delivered at individual doses exceeding 1.5 cSv (rem) to the total annual collective dose. The value of CR has continued to decline for most plants, and in 1992, the CR for all but one of the U.S. LWRs, a BWR, fell between 0.05 and 0.50, the range recommended by the UNSCEAR [Ref. 10].

In 1992, the five BWR sites with the highest collective doses all exceeded 583 person-cSv (person-rem) per reactor (Table 4.5). These reactors were River Bend 1, Fitzpatrick, Oyster Creek, Washington Nuclear 2, and LaSalle 1 and 2. Although the six reactors at these five sites represented only 16% of the 37 BWRs, they contributed 29% of the total collective dose incurred at BWRs in 1992. Some of the activities which contributed to the collective dose accumulated at the BWR site with the highest collective dose per reactor [710 person-cSv (person-rem)] were in-service inspection, valve maintenance and testing, replacement of reactor water cleanup (RWCU) ring header, decontamination and cleaning, feedwater nozzle safe end replacement, refueling, and control rod drive (CRD) work.

At PWRs, the five sites with the highest collective doses all exceeded 424 person-cSv (person-rem) per reactor (Table 4.6). These reactors were Millstone Point 2, Zion 1 and 2, Maine Yankee, Arkansas 1 and 2, and Crystal River 3. Although representing 11% of the 73 PWRs included in 1992, they contributed 26% of the total collective dose at PWRs. Much of the collective

TABLE 4.5

BOILING WATER REACTORS LISTED IN ASCENDING ORDER OF COLLECTIVE DOSE PER REACTOR

1988-1992

1988

Site Name	Coll. Dose per Site*	Dose per Worker (cSv or rem)	Col. Dose per MW-Yr	CR**
Limerick 1	52	0.05	0.1	0.00
Perry	105	0.13	0.1	0.02
River Bend 1	107	0.21	0.1	0.08
Monticello	110	0.29	0.2	0.27
Vermont Yankee	124	0.33	0.3	0.15
Clinton	130	0.17	0.2	0.14
Millstone Point 1	144	0.44	0.2	0.36
Grand Gulf	147	0.21	0.1	0.28
Big Rock Point	170	0.56	3.7	0.45
Cooper Station	251	0.27	0.5	0.17
Susquehanna 1,2	516	0.27	0.2	0.06
Hope Creek	287	0.17	0.3	0.08
Washington Nuclear 2	353	0.34	0.5	0.29
Browns Ferry 1,2,3	1,155	0.35	–	0.26
Pilgrim	392	0.19	–	0.16
Quad Cities 1,2	827	0.56	0.4	0.34
Duane Arnold	614	0.54	1.6	0.29
Hatch 1,2	1,401	0.56	0.7	0.41
Dresden 2,3	1,409	0.58	0.7	0.40
Fitzpatrick	786	0.51	1.5	0.44
Nine Mile Point	854	0.33	–	0.48
Brunswick 1,2	1,747	0.66	0.9	0.51
Peach Bottom 2,3	2,327	0.55	–	0.44
Lasalle 1,2	2,471	0.90	0.9	0.58
Oyster Creek	1,504	0.52	3.6	0.49

1989

Site Name	Coll. Dose per Site*	Dose per Worker (cSv or rem)	Col. Dose per MW-Yr	CR**
Big Rock Point	177	0.42	3.5	0.41
Duane Arnold	194	0.46	0.5	0.25
Pilgrim	207	0.12	1.0	0.05
Browns Ferry 1,2,3	656	0.24	–	0.15
Fermi 2	255	0.20	0.4	0.04
Limerick 1	266	0.15	0.4	0.04
Hatch 1,2	556	0.41	0.4	0.23
Nine Mile Point 1,2	564	0.21	1.1	0.27
Vermont Yankee	288	0.35	0.7	0.10
Cooper Station	343	0.29	0.6	0.19
Susquehanna 1,2	704	0.34	0.4	0.17
Peach Bottom 2, 3	728	0.32	1.5	0.18
Clinton	372	0.31	1.1	0.18
Fitzpatrick	377	0.37	0.5	0.28
Quad Cities 1, 2	900	0.52	0.8	0.34
Millstone Point 1	462	0.54	0.8	0.39
Hope Creek 1	465	0.25	0.6	0.21
Washington Nuclear 2	492	0.38	0.7	0.27
Grand Gulf	498	0.25	0.5	0.17
Monticello	507	0.46	1.6	0.31
River Bend 1	558	0.36	1.0	0.15
Dresden 2,3	1,131	0.50	1.0	0.34
Lasalle 1,2	1,386	0.56	0.9	0.41
Perry	767	0.41	1.2	0.18
Brunswick 1,2	1,786	0.46	1.8	0.45
Oyster Creek	910	0.38	3.2	0.43

1990

Site Name	Coll. Dose per Site*	Dose per Worker (cSv or rem)	Col. Dose per MW-Yr	CR**
Fermi 2	83	0.18	0.1	0.01
Limerick 1, 2	175	0.12	0.1	0.01
Monticello	94	0.28	0.2	0.19
Millstone Point 1	131	0.36	0.2	0.24
Peach Bottom 2, 3	377	0.24	0.2	0.11
Hope Creek 1	196	0.14	0.2	0.10
Susquehanna 1, 2	440	0.26	0.3	0.08
Pilgrim	225	0.12	0.4	0.07
Big Rock Point	232	0.66	4.5	0.62
Vermont Yankee	307	0.36	0.7	0.13
Oyster Creek	310	0.16	0.6	0.17
Nine Mile Point 1, 2	699	0.29	1.1	0.22
Cooper Station	379	0.32	0.6	0.20
Browns Ferry 1, 2, 3	1,310	0.48	—	0.40
Lasalle 1, 2	948	0.52	0.5	0.36
Grand Gulf	482	0.27	0.5	0.15
River Bend 1	489	0.30	0.7	0.11
Quad Cities 1, 2	1,028	0.47	0.9	0.29
Washington Nuclear 2	536	0.40	0.8	0.30
Clinton	553	0.40	1.3	0.22
Perry	638	0.42	0.8	0.18
Dresden 2, 3	1,400	0.63	1.3	0.46
Hatch 1,2	1,455	0.50	1.1	0.30
Brunswick 1, 2	1,548	0.49	1.6	0.49
Duane Arnold	861	0.59	2.3	0.31
Fitzpatrick	884	0.58	1.6	0.47

1991

Site Name	Coll. Dose per Site*	Dose per Worker (cSv or rem)	Col. Dose per MW-Yr	CR**
Limerick 1, 2	106	0.09	0.1	0.04
Grand Gulf	94	0.13	0.1	0.11
Browns Ferry 1, 2, 3	354	0.20	0.8	0.01
Vermont Yankee	118	0.38	0.2	0.13
River Bend 1	144	0.18	0.2	0.02
Perry	146	0.24	0.1	0.10
Nine Mile Point 1, 2	292	0.19	0.2	0.10
Duane Arnold	202	0.60	0.4	0.56
Big Rock Point	226	0.52	3.8	0.48
Fermi 2	228	0.19	0.3	0.00
Clinton	233	0.23	0.3	0.01
Susquehanna 1, 2	507	0.27	0.3	0.07
Quad Cities 1, 2	509	0.30	0.5	0.18
Fitzpatrick	333	0.26	0.8	0.23
Hope Creek 1	373	0.22	0.4	0.16
Washington Nuclear 2	387	0.36	0.8	0.21
Brunswick 1, 2	778	0.30	0.8	0.23
Lasalle 1, 2	806	0.41	0.4	0.25
Cooper Station	405	0.37	0.7	0.20
Millstone Point 1	409	0.35	1.9	0.18
Monticello	465	0.48	1.1	0.29
Peach Bottom 2, 3	934	0.35	0.8	0.20
Dresden 2, 3	1,005	0.49	1.5	0.40
Hatch 1, 2	1,161	0.46	1.0	0.30
Pilgrim	605	0.21	1.5	0.14
Oyster Creek	1,185	0.38	3.4	0.34

1992

Site Name	Coll. Dose per Site*	Dose per Worker (cSv or rem)	Col. Dose per MW-Yr	CR**
Cooper Station	84	0.18	0.1	0.07
Millstone Point 1	99	0.28	0.2	0.47
Monticello	114	0.25	0.2	0.19
Limerick 1,2	330	0.21	0.2	0.06
Browns Ferry 1,2,3	516	0.19	0.5	0.04
Fermi 2	245	0.20	0.3	0.01
Peach Bottom 2,3	502	0.26	0.3	0.16
Hatch 1,2	550	0.34	0.4	0.16
Big Rock Point	277	0.56	8.5	0.52
Pilgrim	281	0.21	0.5	0.02
Nine Mile Point 1,2	563	0.31	0.6	0.17
Dresden 2,3	619	0.34	0.7	0.22
Brunswick 1,2	623	0.23	1.7	0.16
Susquehanna 1,2	724	0.38	0.5	0.23
Vermont Yankee	381	0.41	0.9	0.19
Clinton	431	0.36	0.7	0.12
Hope Creek 1	436	0.26	0.5	0.18
Grand Gulf	484	0.24	0.5	0.14
Duane Arnold	502	0.48	1.2	0.28
Perry	571	0.38	0.7	0.15
Quad Cities 1,2	1,157	0.48	1.2	0.31
Lasalle 1,2	1,167	0.48	0.8	0.32
Washington Nuclear 2	612	0.41	0.9	0.24
Oyster Creek	657	0.24	1.2	0.16
Fitzpatrick	674	0.28	—	0.24
River Bend 1	710	0.35	2.1	0.21

* For sites with more than one operating reactor, the collective dose per reactor is obtained by dividing the collective dose for the site by the number of reactors.

** CR is the ratio of the annual collective dose delivered at individual doses exceeding 1.5 (cSv) rems to the total collective dose.

TABLE 4.6
PRESSURIZED WATER REACTORS LISTED IN ASCENDING ORDER OF COLLECTIVE DOSE PER REACTOR
1988-1992

1988

Site Name	Coll. Dose per Site*	Dose per Worker (cSv or rem)	Col. Dose per MW-Yr	CR**
Callaway 1	27	0.08	0.0	0.00
North Anna 1,2	112	0.11	0.1	0.05
Crystal River 3	64	0.11	0.1	0.00
Rancho Seco	78	0.11	0.2	0.03
Indian Point 3	93	0.21	0.1	0.10
Prairie Island 1,2	199	0.27	0.2	0.16
Vogtle 1	138	0.12	0.2	0.01
Calvert Cliffs 1,2	291	0.22	0.2	0.14
Harris	169	0.23	0.3	0.08
Point Beach 1,2	410	0.56	0.5	0.31
Kewaunee	210	0.30	0.4	0.17
Three Mile Island 1	210	0.21	0.3	0.11
Yankee-Rowe	227	0.31	1.7	0.20
Byron 1,2	459	0.38	0.3	0.17
Indian Point 2	235	0.26	0.3	0.19
Haddam Neck	237	0.32	0.6	0.28
Salem 1,2	503	0.31	0.3	0.02
Waterford 3	259	0.21	0.3	0.06
San Onofre 1,2,3	781	0.34	0.4	0.28
Beaver Valley 1,2	530	0.30	0.4	0.21
Fort Calhoun	272	0.17	0.9	0.12
Farley 1,2	552	0.30	0.4	0.24
Catawba 1,2	556	0.28	0.3	0.15
Oconee 1,2,3	871	0.33	0.4	0.16
Ginna	295	0.33	0.7	0.18
Wolf Creek 1	297	0.29	0.4	0.19
St. Lucie 1,2	611	0.42	0.4	0.20
Davis-Besse	307	0.26	2.1	0.14
Sequoyah 1,2	678	0.28	1.4	0.14
Palo Verde 1,2	688	0.32	0.4	0.29
Turkey Point 3,4	738	0.40	0.9	0.17
Trojan	401	0.28	0.5	0.14
Millstone Point 2,3	804	0.44	0.5	0.36
Cook 1,2	867	0.38	0.7	0.33
Diablo Canyon 1,2	877	0.48	0.6	0.33
Summer 1	511	0.45	0.8	0.26
Mcguire 1,2	1,104	0.39	0.6	0.28
Robinson 2	564	0.42	1.5	0.25
Zion 1,2	1,260	0.65	0.8	0.40
Arkansas 1,2	1,387	0.57	1.3	0.46
Maine Yankee	725	0.69	1.2	0.40
Palisades	730	0.50	1.8	0.44
Surry 1,2	1,542	0.48	2.1	0.50
Three Mile Island 2	917	0.74	--	0.66

1989

Site Name	Coll. Dose per Site*	Dose per Worker (cSv or rem)	Col. Dose per MW-Yr	CR**
Wolf Creek 1	18	0.10	0.0	0.00
Vogtle 1	32	0.07	0.0	0.00
Davis-Besse	38	0.09	0.0	0.04
Prarie Island 1,2	99	0.21	0.1	0.04
Summer 1	52	0.14	0.1	0.01
Three Mile Island 1	54	0.08	0.1	0.10
Yankee-Rowe	62	0.13	0.4	0.11
Rancho Seco	81	0.13	0.5	0.06
Byron 1,2	172	0.16	0.1	0.03
Fort Calhoun	93	0.08	0.2	0.02
Maine Yankee	99	0.26	0.1	0.13
Braidwood 1,2	296	0.20	0.2	0.04
Harris	156	0.17	0.2	0.10
South Texas 1	161	0.16	0.2	0.02
Catawba 1,2	334	0.20	0.2	0.04
Salem 1,2	338	0.11	0.2	0.17
Calvert Cliffs 1,2	346	0.19	1.0	0.13
San Onofre 1,2,3	567	0.25	0.3	0.20
Robinson 2	195	0.18	0.6	0.10
Turkey Point 3,4	433	0.27	0.6	0.14
Oconee 1,2,3	684	0.31	0.3	0.19
Diablo Canyon 1,2	465	0.28	0.2	0.07
Crystal River 3	234	0.27	0.7	0.15
Kewaunee	239	0.42	0.5	0.21
Palo Verde 1,2,3	720	0.28	0.7	0.14
Cook 1,2	493	0.31	0.3	0.18
St. Lucie 1,2	495	0.35	0.3	0.19
Point Beach 1,2	504	0.68	0.6	0.47
Waterford 3	265	0.20	0.3	0.05
Callaway 1	283	0.27	0.3	0.09
McGuire 1,2	620	0.31	0.3	0.22
Zion 1,2	624	0.53	0.5	0.33
Palisades	314	0.31	0.7	0.15
Sequoyah 1,2	657	0.33	0.4	0.23
Arkansas 1,2	711	0.34	0.7	0.17
Farley 1,2	749	0.34	0.5	0.25
Surry 1,2	836	0.27	1.7	0.37
Trojan	421	0.31	0.6	0.23
Millstone Point 2,3	1,079	0.54	0.8	0.39
Haddam Neck	596	0.41	1.7	0.32
Ginna	605	0.48	1.6	0.33
Beaver Valley 1,2	1,378	0.59	1.4	0.47
North Anna 1,2	1,471	0.51	1.2	0.47
Indian Point 3	876	0.49	1.5	0.31
Indian Point 2	1,436	0.69	2.7	0.44

1990

Site Name	Coll. Dose per Site*	Dose per Worker (cSv or rem)	Col. Dose per MW-Yr	CR**
Rancho Seco	13	0.12	---	0.00
Waterford 3	47	0.11	0.0	0.00
Harris	85	0.19	0.1	0.09
Braidwood 1,2	186	0.17	0.1	0.01
Prairie Island 1,2	188	0.26	0.2	0.07
South Texas 1,2	206	0.18	0.1	0.02
Oconee 1,2,3	404	0.21	0.2	0.07
Salem 1,2	272	0.07	0.2	0.22
Kewaunee	145	0.30	0.3	0.12
Calvert Cliffs 1,2	304	0.15	1.9	0.12
Diablo Canyon 1,2	323	0.22	0.2	0.04
Palo Verde 1,2,3	499	0.22	0.2	0.15
Beaver Valley 1,2	348	0.21	0.3	0.07
Point Beach 1,2	378	0.61	0.4	0.43
Wolf Creek 1	195	0.24	0.2	0.05
Byron 1,2	434	0.31	0.3	0.21
Farley 1,2	457	0.27	0.3	0.25
Vogtle 1,2	466	0.29	0.3	0.12
Yankee-Rowe	246	0.35	2.4	0.19
Trojan	258	0.22	0.4	0.09
Three Mile Island 1	264	0.20	0.4	0.12
Surry 1,2	575	0.30	0.5	0.21
Cook 1,2	580	0.31	0.4	0.15
Fort Calhoun	290	0.38	1.0	0.21
North Anna 1,2	590	0.27	0.4	0.37
San Onofre 1,2,3	885	0.40	0.4	0.28
Millstone Point 2,3	593	0.36	0.4	0.24
Ginna	347	0.35	0.8	0.17
Zion 1,2	696	0.50	0.8	0.31
Indian Point 3	358	0.34	0.6	0.16
McGuire 1,2	727	0.32	0.5	0.20
Turkey Point 3,4	730	0.35	0.8	0.19
Summer 1	376	0.34	0.5	0.13
Arkansas 1,2	762	0.31	0.6	0.16
St. Lucie 1,2	777	0.41	0.7	0.27
Catawba 1,2	809	0.37	0.5	0.24
Haddam Neck	421	0.43	3.0	0.36
Robinson 2	437	0.27	1.1	0.14
Callaway 1	442	0.39	0.5	0.23
Crystal River 3	476	0.33	1.0	0.20
Davis-Besse	489	0.36	1.0	0.23
Indian Point 2	608	0.57	1.0	0.51
Maine Yankee	682	0.50	1.2	0.29
Palisades	766	0.32	2.1	0.28
Sequoyah 1,2	1,678	0.57	1.0	0.44

1991

Site Name	Coll. Dose per Site*	Dose per Worker (cSv or rem)	Col. Dose per MW-Yr	CR**
Callaway 1	21	0.07	0.0	0.00
Cook 1, 2	69	0.08	0.0	0.00
Indian Point 3	40	0.13	0.0	0.00
Yankee-Rowe	40	0.25	0.3	0.07
Prairie Island 1, 2	98	0.17	0.1	0.03
Fort Calhoun	57	0.20	0.1	0.07
Calvert Cliffs 1, 2	132	0.07	0.1	0.02
Zion 1, 2	173	0.19	0.2	0.03
Seabrook	92	0.13	0.1	0.00
Crystal River 3	104	0.13	0.2	0.01
Maine Yankee	105	0.25	0.1	0.09
South Texas 1, 2	257	0.22	0.1	0.06
Point Beach 1, 2	265	0.37	0.3	0.22
Byron 1, 2	268	0.25	0.1	0.07
San Onofre 1, 2, 3	412	0.23	0.2	0.07
Comanche Peak	148	0.15	0.2	0.02
Arkansas 1, 2	351	0.17	0.2	0.06
McGuire 1, 2	361	0.21	0.2	0.06
Vogtle 1, 2	362	0.27	0.2	0.07
Oconee 1, 2, 3	551	0.28	0.2	0.16
Millstone Point 2, 3	381	0.35	0.5	0.18
Robinson 2	193	0.22	0.3	0.10
Three Mile Island 1	198	0.13	0.3	0.02
Palo Verde 1, 2, 3	605	0.27	0.2	0.15
Palisades	211	0.16	0.4	0.01
Davis-Besse	216	0.22	0.3	0.11
Kewaunee	221	0.45	0.5	0.46
Harris	226	0.26	0.3	0.09
Salem 1, 2	458	0.11	0.3	0.23
Catawba 1, 2	462	0.25	0.3	0.10
St. Lucie 1, 2	479	0.37	0.3	0.18
Beaver Valley 1, 2	495	0.29	0.4	0.19
Surry 1, 2	510	0.33	0.4	0.18
Diablo Canyon 1, 2	546	0.27	0.3	0.10
Braidwood 1, 2	550	0.34	0.4	0.15
Summer 1	291	0.30	0.5	0.14
North Anna 1, 2	629	0.30	0.4	0.35
Farley 1, 2	648	0.39	0.4	0.35
Ginna	328	0.35	0.8	0.14
Wolf Creek 1	331	0.33	0.5	0.10
Sequoyah 1, 2	698	0.36	0.4	0.25
Waterford 3	364	0.28	0.4	0.11
Turkey Point 3, 4	939	0.45	3.6	0.30
Trojan	567	0.38	3.1	0.31
Haddam Neck	590	0.51	1.3	0.36
Indian Point 2	1,468	0.81	3.2	0.41

1992

Site Name	Coll. Dose per Site*	Dose per Worker (cSv or rem)	Col. Dose per MW-Yr	CR**
Davis-Besse	19	0.07	0.0	0.00
Summer 1	27	0.11	0.0	0.00
Three Mile Island 1	34	0.06	0.0	0.00
South Texas 1,2	147	0.16	0.1	0.01
Wolf Creek 1	78	0.17	0.1	0.12
Trojan	84	0.15	0.2	0.03
Indian Point 2	97	0.20	0.1	0.13
Byron 1,2	199	0.19	0.1	0.02
Prairie Island 1,2	211	0.25	0.3	0.10
San Onofre 1,2,3	324	0.20	0.1	0.02
Braidwood 1,2	228	0.22	0.1	0.05
Kewaunee	122	0.27	0.3	0.07
Point Beach 1,2	256	0.41	0.3	0.24
St. Lucie 1,2	264	0.21	0.2	0.04
Beaver Valley 1,2	289	0.20	0.2	0.06
Seabrook	147	0.18	0.2	0.01
Turkey Point 3,4	325	0.24	0.3	0.11
Calvert Cliffs 1,2	330	0.17	0.3	0.16
Palo Verde 1,2,3	541	0.27	0.2	0.19
Comanche Peak	188	0.17	0.2	0.02
Haddam Neck	202	0.25	0.4	0.08
Oconee 1,2,3	612	0.31	0.3	0.10
Catawba 1,2	414	0.27	0.2	0.05
McGuire 1,2	418	0.26	0.2	0.12
Indian Point 3	212	0.21	0.4	0.04
Harris	213	0.23	0.3	0.07
Vogtle 1,2	426	0.34	0.2	0.10
Salem 1,2	431	0.10	0.4	0.06
Waterford 3	226	0.19	0.2	0.05
Diablo Canyon 1,2	459	0.25	0.2	0.09
Sequoyah 1,2	465	0.27	0.3	0.09
Cook 1,2	492	0.25	0.6	0.12
Ginna	261	0.31	0.6	0.09
Surry 1,2	539	0.32	0.4	0.15
Fort Calhoun	272	0.34	0.9	0.10
North Anna 1,2	576	0.27	0.4	0.27
Palisades	295	0.23	0.5	0.18
Callaway	336	0.30	0.3	0.12
Robinson 2	352	0.28	0.7	0.09
Farley 1,2	805	0.40	0.6	0.28
Crystal River 3	424	0.30	0.7	0.16
Arkansas 1,2	876	0.28	0.6	0.18
Maine Yankee	461	0.39	0.7	0.17
Zion 1,2	1,043	0.60	0.9	0.44
Millstone 2,3	1,280	0.40	1.1	0.33

* For sites with more than one operating reactor, the collective dose per reactor is obtained by dividing the collective dose for the site by the number of reactors.

** CR is the ratio of the annual collective dose delivered at individual doses exceeding 1.5 (cSv) rems to the total collective dose.

dose accumulated at the plant with the highest dose per reactor [640 person-cSv (person-rem)] in 1992 was attributed to steam generator(S/G) related work (including replacement), reactor coolant pump work, refueling, and preventive/corrective maintenance. (Note: Although the average dose per reactor Millstone 2 and 3 was 690 person-cSv [person-rem], Millstone 2 actually accrued 1,264 of the site total of 1,280 person-cSv [person-rem].)

Tables 4.7a&b list the sites that had been in commercial operation for at least five years as of December 31, 1992, and show the values of several parameters for each of the sites. They also give averages for the two types of reactors. Based on the 181 reactor-years of operation accumulated by the 36 BWRs listed, the average annual collective dose per reactor was found to be 412 person-cSv (person-rem), the average measurable dose per worker was 0.36 cSv (rem), and the average collective dose per megawatt-year was 0.8.

Based on the 359 reactor-years of operation at the 67 PWRs listed, the average annual collective dose per reactor, average measurable dose per worker, and average collective dose per megawatt-year were found to be 269 person-cSv (person-rem), 0.31 cSv (rem), and 0.4 person-cSv/megawatt-year, respectively. All of these values, at both types of facilities, are lower than those found for the five year period ending in 1991.

In some cases, the plants having the lower values for most of the parameters shown in Tables 4.7a&b are the newer plants. Some of the older, smaller plants, such as Big Rock Point, also appear near the top of the listings since they report small collective doses. However, the ratio of collective dose to megawatt-years is generally higher for these plants due to their limited power generation capability.

TABLE 4.7a
FIVE-YEAR TOTALS AND AVERAGES LISTED IN ASCENDING ORDER OF COLLECTIVE DOSE PER BWR

1988 - 1992

*Site Name	Annual Collective Dose per Reactor	Total Coll. Dose per Site	Workers with Meas. Doses	Avg. Meas. Dose (cSv)	Total Mega-watt-years	Average Collective Dose per MW-Yr
LIMERICK 1,2	116	929	6,900	0.13	6,503.2	0.1
BIG ROCK POINT	216	1,082	2,003	0.54	239.4	4.5
VERMONT YANKEE	244	1,218	3,291	0.37	2,297.1	0.5
MILLSTONE POINT 1	249	1,245	3,046	0.41	2,466.6	0.5
MONTICELLO	258	1,290	3,231	0.40	2,354.4	0.5
BROWNS FERRY 1,2,3	266	3,991	13,197	0.30	1,424.9	2.8
SUSQUEHANNA 1,2	289	2,891	9,387	0.31	8,492.6	0.3
COOPER STATION	292	1,462	4,880	0.30	2,957.0	0.5
NINE MILE POINT 1,2	330	2,972	11,111	0.27	3,400.4	0.9
GRAND GULF	341	1,705	7,160	0.24	5,006.9	0.3
PILGRIM	342	1,710	9,936	0.17	1,675.4	1.0
CLINTON	344	1,719	5,560	0.31	2,797.8	0.6
HOPE CREEK 1	351	1,757	8,395	0.21	4,314.6	0.4
RIVER BEND 1	402	2,008	6,497	0.31	3,298.2	0.6
QUAD CITIES 1,2	442	4,421	9,528	0.46	5,524.2	0.8
PERRY	445	2,227	6,289	0.35	4,234.6	0.5
DUANE ARNOLD	475	2,373	4,400	0.54	2,062.6	1.2
WASHINGTON NUCLEAR 2	476	2,380	6,274	0.38	3,310.4	0.7
PEACH BOTTOM 2,3	487	4,868	12,703	0.38	4,902.5	1.0
HATCH 1,2	512	5,123	10,884	0.47	5,986.7	0.9
DRESDEN 2,3	556	5,564	10,764	0.52	4,854.3	1.1
FITZPATRICK	611	3,054	7,759	0.39	2,185.0	1.4
BRUNSWICK 1,2	648	6,482	14,950	0.43	4,302.0	1.5
LASALLE 1,2	678	6,778	11,445	0.59	7,859.8	0.9
OYSTER CREEK	913	4,566	13,071	0.35	2,106.8	2.2
Grand Totals and Averages		74,626	206,829	0.36	97,642.9	0.8
Averages Per Reactor-Year		412	1,143		539.5	

*Sites where not all reactors had completed five full years of commercial operation as of 12/31/92 are not included.

TABLE 4.7b
FIVE-YEAR TOTALS AND AVERAGES LISTED IN ASCENDING ORDER OF COLLECTIVE DOSE PER PWR

1988 - 1992

*Site Name	Annual Collective Dose per Reactor	Total Coll. Dose per Site	Workers with Meas. Doses	Avg. Meas. Dose (cSv)	Total Mega-watt-years	Average Collective Dose per MW-Yr
PRAIRIE ISLAND 1,2	80	795	3,376	0.24	4,694.1	0.2
CALVERT CLIFFS 1,2	140	1,403	9,054	0.15	4,248.6	0.3
THREE MILE ISLAND 1	152	760	5,101	0.15	3,703.3	0.2
BYRON 1,2	153	1,532	5,825	0.26	8,619.3	0.2
HARRIS	170	849	3,905	0.22	3,506.5	0.2
VOGTLE 1,2	178	1,424	5,756	0.25	7,591.5	0.2
POINT BEACH 1,2	181	1,813	3,428	0.53	4,364.1	0.4
WOLF CREEK 1	184	919	3,450	0.27	4,561.7	0.2
KEWAUNEE	187	937	2,710	0.35	2,298.6	0.4
FORT CALHOUN	197	984	4,650	0.21	1,695.7	0.6
SAN ONOFRE 1,2,3	198	2,969	10,250	0.29	10,019.8	0.3
SALEM 1,2	200	2,002	16,766	0.12	7,556.9	0.3
OCONEE 1,2,3	208	3,122	10,745	0.29	11,208.4	0.3
DAVIS-BESSE	214	1,069	4,251	0.25	3,142.9	0.3
PALO VERDE 1,2,3	218	3,053	11,247	0.27	11,313.3	0.3
CALLAWAY 1	222	1,109	3,955	0.28	5,190.8	0.2
WATERFORD 3	232	1,161	5,498	0.21	4,502.2	0.3
COOK 1,2	250	2,501	8,461	0.30	6,510.3	0.4
SUMMER 1	251	1,257	3,824	0.33	3,522.8	0.4
CATAWBA 1,2	258	2,575	9,229	0.28	8,679.4	0.3
CRYSTAL RIVER 3	260	1,302	5,114	0.25	2,827.5	0.5
ST. LUCIE 1,2	263	2,626	7,271	0.36	7,425.9	0.4
DIABLO CANYON 1,2	267	2,670	8,803	0.30	9,043.0	0.3
BEAVER VALLEY 1,2	304	3,040	8,891	0.34	6,383.9	0.5
INDIAN POINT 3	316	1,579	4,619	0.34	3,400.1	0.5
TURKEY POINT 3,4	317	3,165	9,026	0.35	3,659.9	0.9
FARLEY 1,2	321	3,211	9,409	0.34	7,230.3	0.4
MCGUIRE 1,2	323	3,230	10,433	0.31	8,623.1	0.4
NORTH ANNA 1,2	338	3,378	10,258	0.33	7,590.6	0.4
TROJAN	346	1,731	6,000	0.29	2,893.3	0.6
ROBINSON 2	348	1,741	6,227	0.28	2,184.2	0.8
GINNA	367	1,836	4,921	0.37	2,042.8	0.9
ZION 1,2	380	3,796	7,227	0.53	6,178.1	0.6
SURRY 1,2	400	4,002	11,438	0.35	5,184.3	0.8
ARKANSAS 1,2	409	4,087	12,155	0.34	6,356.4	0.6
HADDAM NECK	409	2,046	5,134	0.40	1,806.1	1.1
MILLSTONE POINT 2,3	414	4,137	9,737	0.42	6,572.6	0.6
MAINE YANKEE	414	2,072	4,407	0.47	3,353.9	0.6
SEQUOYAH 1,2	418	4,176	11,022	0.38	7,819.5	0.5
PALISADES	463	2,316	7,494	0.31	2,391.8	1.0
INDIAN POINT 2	769	3,844	6,343	0.61	3,261.9	1.2
Grand Totals and Averages		96,489	315,213	0.31	239,927.2	0.4
Averages Per Reactor-Year		269	878		668.3	

*Sites where not all reactors had completed five full years of commercial operation as of 12/31/92 are not included.

Usually, the combination of a large annual collective dose and a large collective dose to megawatt-year ratio for a plant indicates that extensive maintenance or modifications were undertaken during the year. For example, maintenance jobs that were large contributors to BWR doses in 1992 included valve maintenance and replacement, in-service inspection work, health physics support, drywell work, CRD replacement and repair, and refueling activities. At PWR facilities, the major contributors to the collective dose were steam generator(S/G) related work, refueling, valve maintenance and repair, health physics surveys and inspections, in-service inspection, and reactor coolant pump maintenance. A complete breakdown of the activities contributing to the collective dose at the ten sites with the highest dose per reactor ranking in 1992 (from Tables 4.5 and 4.6) is given in Tables 4.8a and 4.8b for BWRs and PWRs respectively. The outage dose and duration is shown as well as the collective dose for each activity.

Even with the use of better techniques and robotics, these tasks continue to be responsible for a major percentage of the collective dose. It should be noted that the differences in nuclear plant designs and the ages of the plants, even between plants of a given type, affect the nature of these parameters [Ref. 15]. Therefore, care should be exercised when attempting to draw conclusions from these data.

4.6 Collective Dose by Work Function and Employee Type

Each plant is required by its Technical Specifications to submit an annual statistical report which provides the collective dose of workers monitored at each plant site by employee type (plant, utility, or contractor) and by work and job functions. A copy of the report submitted for each reactor site is provided in Appendix D, and much of the data are graphically represented for each site in Appendix E. Tables 4.9 through 4.14 summarize the 1992 data for BWRs, PWRs, and LWRs. Table 4.9 shows that, at both BWRs and PWRs, about 65-70% of the collective dose is incurred during routine and special maintenance activities. Also, the portion of the collective dose incurred during most of the other activities is similar at the two types of plants.

One should note that the collective doses obtained from these reports are not used in any other tables in this document. The reasons for this are that the Technical Specifications of each plant requires only 80% of the plant's collective dose be accounted for, and some utilities may use the results of self-reading pocket dosimeters instead of the results of the official dosimeter (usually thermoluminescent dosimeters) in compiling the data. Also, when examining the number of personnel shown on these reports, it should be kept in mind that individuals who perform tasks in more than one category may be counted more than once.

TABLE 4.8 a
ACTIVITIES CONTRIBUTING TO HIGH COLLECTIVE DOSES AT SELECTED PLANTS IN 1992

BWRs with High Collective Doses

River Bend 1 (710 rem)

Outage dose/duration: 635 rem/180 days
Average daily outage dose: 3.53 rem/day
Average daily operating dose: 0.41 rem/day

-In-service inspection (Total of 98 rem)
  Nozzle welds - 87 rem
  Snubbers - 11 rem
-Valve maintenance/testing (Total of 74 rem)
  Live loading and repacking - 21 rem
  Signature testing (for reactor isolation) - 20 rem
  LLRT/ILRT (local/integrated leak rate testing) - 19 rem
  MOV (motor-operated valve) refurbishment - 14 rem
-Replace RWCU (reactor water cleanup) ring header (71.3 rem)
-Decontamination/cleaning (Total of 58.3 rem)
  Chemical decon of RWCU and recirculation piping - 35.3 rem
  Decon of drywell - 12 rem
  Cleaning of suppression pool - 11 rem
-Feedwater nozzle safe end replacement (47 rem)
-Refueling (33 rem)
-CRD (control rod drive) work (Total of 30.2 rem)
  Removal and replacement - 20 rem
  Mechanical rebuild (50 CRDMs) - 10.2 rem
-Replacement of recirculation pump impellers (A and B) (29 rem)
-Inspection of residual heat removal heat exchangers (A and C) (16 rem)
-Replacement of service water piping (11 rem)

Fitzpatrick (674 rem)

Outage dose/duration: 674 rem/366 days
Average daily outage dose: 1.84 rem/day
Average daily operating dose: N/A

-Replace/overhaul/repair MOVs(motor-operated valves) (85.8 rem)
-Appendix R (fire protection) modifications (68.2 rem)
-Replace/overhaul/repair miscellaneous valves (64.9 rem)
-In-service inspection (61.7 rem)
-Operations surveillances (49.8 rem)
-Routine maintenance (Total of 46.9 rem)
  Mechanical - 35.9 rem
  Electrical - 11.0 rem
-Refueling (Total of 45.5 rem)
  Replace/repair CRDs (control rod drives) - 22.6 rem
  Defuel/refuel - 6.7 rem
  Head reassembly - 6.5 rem
  Head disassembly - 4.0 rem
-Health physics surveillance (29.8 rem)
-Decontamination work (24.5 rem)
-Replace core spray (19.1 rem)
-Plant cleanup/tool decon/desludge torus (19.1 rem)
-Radwaste (18.1 rem)
-Painting/drywell preservation (12.8 rem)
-Replace pumps (10.6 rem)
-Valve LLRT (local leak rate testing) (10.3 rem)
-Inspections/planning (10.3 rem)
-I&C surveillances (9.5 rem)
-Snubber inspection/removal/replacement (8.3 rem)

Oyster Creek (657 rem)

Outage dose/duration (14R outage*):
678 rem/80 days
Average daily outage dose (14R outage):
8.48 rem/day
Average daily operating dose (1992):
0.76 rem/day
*(Since 46 days of the 81-day 14R outage extended into 1993, some of the doses listed below were incurred in 1993)

-Plant maintenance (155 rem)
-Operations (77 rem)
-RCS augmented IGSCC (intergranular stress corrosion cracking) Inspections (68 rem)
-Drywell corrosion mitigation work (56 rem)
-Drywell scaffolding and insulation (14R outage) (55 rem)
-Radcon activities (42 rem)
-CRD (control rod drive) procurement/exchange (15 CRDs) (31 rem)
-Drywell shielding (30 rem)
-Exchange safety and relief valves (22 rem)
-Valve maintenance and overhaul (20 rem)
-Reactor disassembly/reassembly/refuel floor work (19 rem)

LaSalle 1 and 2 (1167 rem)

Outage dose/duration (U 1-refueling):
345 rem/123 days
Outage dose/duration (U 2-refueling & forced):
560 rem/98 days
Average daily outage dose (U 1): 2.80 rem/day
Average daily outage dose (U 2): 5.71 rem/day
Average daily operating dose: N/A

Unit 1

-Plant modifications (55 rem)
-MOV (motor-operated valve) work (limitorque repairs) (34 rem)
-Reactor vessel disassembly/reassembly (31 rem)
-Shielding in drywell (20 rem)
-HP support (contractor) (16 rem)
-SRV (safety relief valve) removal/installation (8 SRVs) (16 rem)
-CRD (control rod drive) exchange (10 drives) (10 rem)

Unit 2

-Plant modifications (53 rem)
-CRD (control rod drive) exchange (31 drives) (50 rem)
-MOV (motor-operated valve) work (limitorque repairs) (46 rem)
-Reactor vessel disassembly/reassembly (36 rem)
-SRV (safety relief valve) removal/installation (18 SRVs) (33 rem)
-LPRM (low power range monitor) replacement (21 strings) (26 rems)
-Valve maintenance (necessitated by LLRT (local leak rate test) failures) (26 rem)

Washington Nuclear 2 (612 rem)

Outage dose/duration (refueling): 469 rem/75 days
Average daily outage dose (refueling): 6.25 rem/day
Average daily operating dose: N/A

-In-service inspection (75 rem)
-Refueling (50 rem)
-CRD (control rod drive) rebuilding (30 drives) (39 rem)
-MSRV (main steam relief valve) setpoint verification (37 rem)
-Health physics support (drywell) (19 rem)
-Recirculation valve modification (19 rem)
-Penetration seal work (15 rem)

TABLE 4.8 b
ACTIVITIES CONTRIBUTING TO HIGH COLLECTIVE DOSES AT SELECTED PLANTS IN 1992

PWRs with High Collective Doses

Crystal River (424 rem)

Outage dose/duration: 398 rem/77 days
Average daily outage dose: 5.16 rem/day
Average daily operating dose: 0.09 rem/day

-Steam generator related work (primary side)(Total of 69.8 rem)
  Manway cover removal/replacement - 7.3 rem
  Channel head washdown - 1.8 rem
  Nozzle dam installation/removal - 4.3 rem
  Eddy current testing - 20.4 rem
  Tube plugging/stabilizer insertion - 27.0 rem
  Tube "pull" for inspection - 9.0 rem
-Valve maintenance (refuel outage) (Total of 54.4 rem)
  Repack/repair reactor building valves - 21.4 rem
  Repack/repair valves in letdown cooler room - 20.3 rem
  MOV (motor-operated valve) testing and maintenance - 12.7 rem
-Scaffold installation/removal (refuel outage) (53.5 rem)
-Health physics refuel outage support (42.8 rem)
-Reactor disassembly/head lift/refuel sequence/reactor reassembly (40.6 rem)
-Installation of permanent reactor building access platforms (28.7 rem)
-Insulation removal/replacement (refuel outage) (28.7 rem)
-Steam generator sludge removal and support (secondary side)(19.6 rem)
-Replacement of reactor coolant pump rotating assembly (refuel outage) (14.5 rem)

Zion 1 and 2 (1043 rem)

Outage dose/duration (U 1): 763 rem/168 days
Outage dose/duration (U 2): 270 rem/210 days
Average daily outage dose (U 1): 4.54 rem/day
Average daily outage dose (U 2): 1.29 rem/day
Average daily operating dose: N/A

Unit 1

-Steam generator related work (Total of 148.1 rem)
  Tube sleeving/plugging - 79.5 rem
  Eddy current testing - 46.4 rem
  Secondary side maintenance/repair - 22.1 rem
-Valve maintenance work (119.8 rem)
-Miscellaneous modification work (67.5 rem)
-In-service inspections (66.9 rem)
-RWP/rad chem surveys (64.5 rem)
-Decontamination work (49.6 rem)
-Snubber inspection/repair/testing (46.4 rem)
-Refueling (Total of 41.4 rem)
  Reactor disassembly - 22.0 rem
  Reactor reassembly - 19.4 rem
-Tours and inspections (25.8 rem)

Unit 2

-Steam generator sleeving/plugging (74.7 rem)
-Valve maintenance (36.4 rem)
-In-service inspections (20.7 rem)
-RWP/rad chem surveys (20.4 rem)
-Miscellaneous low dose work (17.6 rem)

Arkansas 1 and 2 (876 rem)

Outage dose/duration (U 1): 489 rem/70 days
Outage dose/duration (U 2): 296 rem/79 days
Average daily outage dose (U 1): 6.99 rem/day
Average daily outage dose (U 2): 3.75 rem/day
Average daily operating dose (U 1): 0.13 rem day
Average daily operating dose (U 2): 0.12 rem day

Unit 1

-Steam generator related work (89.3 rem)
-In-service inspections (68.7 rem)
-Design change packages (68.4 rem)
-Refueling operations (50.0 rem)
-Routine maintenance (33.9 rem)
-HP operations functions (29.8 rem)
-Decon/laundry/radwaste (25.6 rem)
-Chemical decontamination (19.1 rem)
-LPI (low pressure injection) hanger inspection/maintenance (18.5 rem)
-Valve maintenance (16.5 rem)
-Operations functions (12.1 rem)
-Installation of reactor building cooling coils (10.8 rems)
-Inspections/walkdowns (9.2 rem)

Unit 2

-Steam generator related work (Total of 53.9 rem)
  Primary side work - 37.7 rem
  Secondary side work - 17.3 rem
-HP operations (21.1 rem)
-Routine maintenance (21.0 rem)
-Refueling operations (20.4 rem)
-In-service inspections (19.1 rem)
-Reactor coolant pump maintenance (14.5 rem)
-Decon/laundry/radwaste (13.3 rem)
-Valve maintenance (12.6 rem)
-Design change packages (10.7 rem)
-Inspections/walkdowns (5.7 rem)
-Snubber inspection/maintenance (5.7 rem)

Millstone 2 (1264 rem)

Outage dose/duration*: 1091 rem/232 days
Average daily outage dose: 4.7 rem/day
Average daily operating dose: 0.08 rem/day
*(Millstone 2 replaced its steam generators in 1992)

-Steam generator(S/G) related work (Total of 677.3 rem)
  S/G replacement project - 630.2 rem
  Installation of permanent S/G platforms - 27 rem
  S/G disposal - 20.1 rem
-Blanket radiation work permits (72.2 rem)
-Reactor coolant pump work (42.0 rem)
-Refueling (36.5 rem)
-Preventive/corrective maintenance (33.4 rem)
-Staging/shielding (28.2 rem)
-Miscellaneous outage work (27.6 rem)
-MOV (motor-operated valve) work (16.2 rem)
-In-service inspection (14.0 rem)
-Reactor vessel insulation (14.0 rem)

Maine Yankee (461 rem)

Outage dose/duration: 425 rem/89 days
Average daily outage dose: 4.79 rem/day
Average daily operating dose: 0.13 rem/day

-Steam generator related work (Total of 76.2 rem)
  ECT (eddy current testing)/repair - 54.5 rem
  Sludge lancing (secondary side) - 21.6 rem
-Refurbishment of reactor coolant pump rotating assembly (40.2 rem)
-In-service inspections (39.7 rem)
-MOV (motor-operated valve) project (32.0 rem)
-Refueling (head lift, remove/reinstall missile shield) (24.5 rem)
-Steam generator access platform improvement (19.6 rem)

TABLE 4.9
ANNUAL COLLECTIVE DOSE
BY WORK FUNCTION AND PERSONNEL TYPE
1992

WORK AND JOB FUNCTION	STATION EMPLOYEES PERSON-cSv	% OF TOTAL	UTILITY EMPLOYEES PERSON-cSv	% OF TOTAL	CONTRACT WORKERS PERSON-cSv	% OF TOTAL	TOTAL PER WORK FUNCTION PERSON-cSv	% OF TOTAL
BOILING WATER REACTORS								
REACTOR OPS & SURV	1,217	9.4%	40	0.3%	499	3.9%	1,756	13.6%
ROUTINE MAINTENANCE	2,005	15.5%	171	1.3%	3,060	23.7%	5,236	40.5%
IN-SERVICE INSPECTION	128	1.0%	88	0.7%	812	6.3%	1,029	8.0%
SPECIAL MAINTENANCE	742	5.7%	159	1.2%	2,548	19.7%	3,449	26.7%
WASTE PROCESSING	173	1.3%	5	0.0%	208	1.6%	386	3.0%
REFUELING	317	2.5%	108	0.8%	641	5.0%	1,066	8.2%
TOTAL	4,583	35.5%	571	4.4%	7,768	60.1%	12,922	100.0%
PRESSURIZED WATER REACTORS								
REACTOR OPS & SURV	887	5.7%	36	0.2%	622	4.0%	1,545	9.9%
ROUTINE MAINTENANCE	1,754	11.3%	522	3.4%	3,512	22.6%	5,788	37.2%
IN-SERVICE INSPECTION	166	1.1%	167	1.1%	1,264	8.1%	1,597	10.3%
SPECIAL MAINTENANCE	544	3.5%	314	2.0%	3,052	19.6%	3,910	25.1%
WASTE PROCESSING	210	1.3%	4	0.0%	288	1.8%	501	3.2%
REFUELING	487	3.1%	138	0.9%	1,599	10.3%	2,224	14.3%
TOTAL	4,048	26.0%	1,182	7.6%	10,336	66.4%	15,566	100.0%
ALL LIGHT WATER REACTORS								
REACTOR OPS & SURV	2,104	7.4%	76	0.3%	1,121	3.9%	3,301	11.6%
ROUTINE MAINTENANCE	3,759	13.2%	693	2.4%	6,572	23.1%	11,025	38.7%
IN-SERVICE INSPECTION	294	1.0%	255	0.9%	2,077	7.3%	2,626	9.2%
SPECIAL MAINTENANCE	1,287	4.5%	473	1.7%	5,599	19.7%	7,359	25.8%
WASTE PROCESSING	383	1.3%	9	0.0%	496	1.7%	887	3.1%
REFUELING	804	2.8%	247	0.9%	2,240	7.9%	3,290	11.5%
TOTAL	8,631	30.3%	1,753	6.2%	18,104	63.6%	28,488	100.0%

Table 4.10 shows that workers performing special maintenance prior to 1987 incurred the largest portion (35%-45%) of the collective dose and that workers performing routine maintenance activities usually incurred between 30% and 35% of the total. However, for the past six years in a row, the percentage of collective dose attributed to routine maintenance has been greater than that of special maintenance. This may be indicative of a trend showing a reduction in TMI-related activities and a greater emphasis on steady-state routine maintenance. Overall, figures have been fairly stable over the years with these two categories, special maintenance and routine maintenance, always accounting for the majority of the collective dose. Some of the fluctuations shown in the percentage of the dose incurred during refueling activities (particularly in 1991 and 1992, when it increased to over 9%) is due to the fact that some sites include doses other than those directly associated with fuel movement in this category.

Figure 4.5 graphically shows the trends in the collective dose by work function and type of personnel for the years 1988 through 1992 for BWRs and PWRs separately. The general decrease in collective dose is also apparent among most of these activities.

Table 4.11 presents the distribution of the collective dose for 1992 at all LWRs among five occupational categories. As in past years, maintenance personnel incurred the majority (67%) of the collective dose with contractor maintenance personnel receiving about twice as much as the station and utility maintenance employees combined. None of the values listed changed significantly from those found for 1986 through 1991. The collective doses shown in Tables 4.9 and 4.11 do not equal those shown in other tables in the report because they are the sum of the doses taken from the type of annual reports shown in Appendix D rather than the collective dose that was obtained or calculated from the annual reports required to be submitted pursuant to 10 CFR Part 20.407.

Another use made of the reports given in Appendix D is in proportioning the collective dose obtained from the § 20.407 annual reports into the work functions and personnel types shown in Appendix C. This was done in the following way:

(1) The collective dose incurred by workers in the work function "Reactor Operations and Surveillance" on each plant's annual report submitted pursuant to their technical specifications (the first number in the last column in Appendix D) was determined.

TABLE 4.10

PERCENTAGES OF ANNUAL COLLECTIVE
DOSE AT LWRs BY WORK FUNCTION
1982 - 1992

WORK FUNCTION	PERCENTAGE OF COLLECTIVE DOSE EACH YEAR										
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
REACTOR OPERATIONS AND SURVEILLANCE	9.4%	10.1%	11.4%	12.8%	12.8%	11.9%	11.0%	12.2%	12.3%	14.0%	11.6%
ROUTINE MAINTENANCE	27.9%	29.7%	26.9%	34.6%	33.2%	35.0%	37.7%	36.2%	36.5%	36.1%	38.7%
INSERVICE INSPECTION	6.5%	7.6%	6.3%	8.6%	8.3%	8.0%	8.7%	9.5%	8.8%	8.9%	9.2%
SPECIAL MAINTENANCE	46.8%	43.9%	45.4%	32.5%	35.5%	33.2%	30.1%	31.3%	31.6%	28.2%	25.8%
WASTE PROCESSING	5.0%	4.6%	3.6%	5.1%	4.0%	3.9%	3.6%	3.4%	3.0%	3.1%	3.1%
REFUELING	4.4%	4.1%	6.4%	6.5%	6.2%	8.1%	8.8%	7.3%	7.7%	9.7%	11.5%

Figure 4.5
Collective Dose by Work Function and Personnel Type 1988 -- 1992

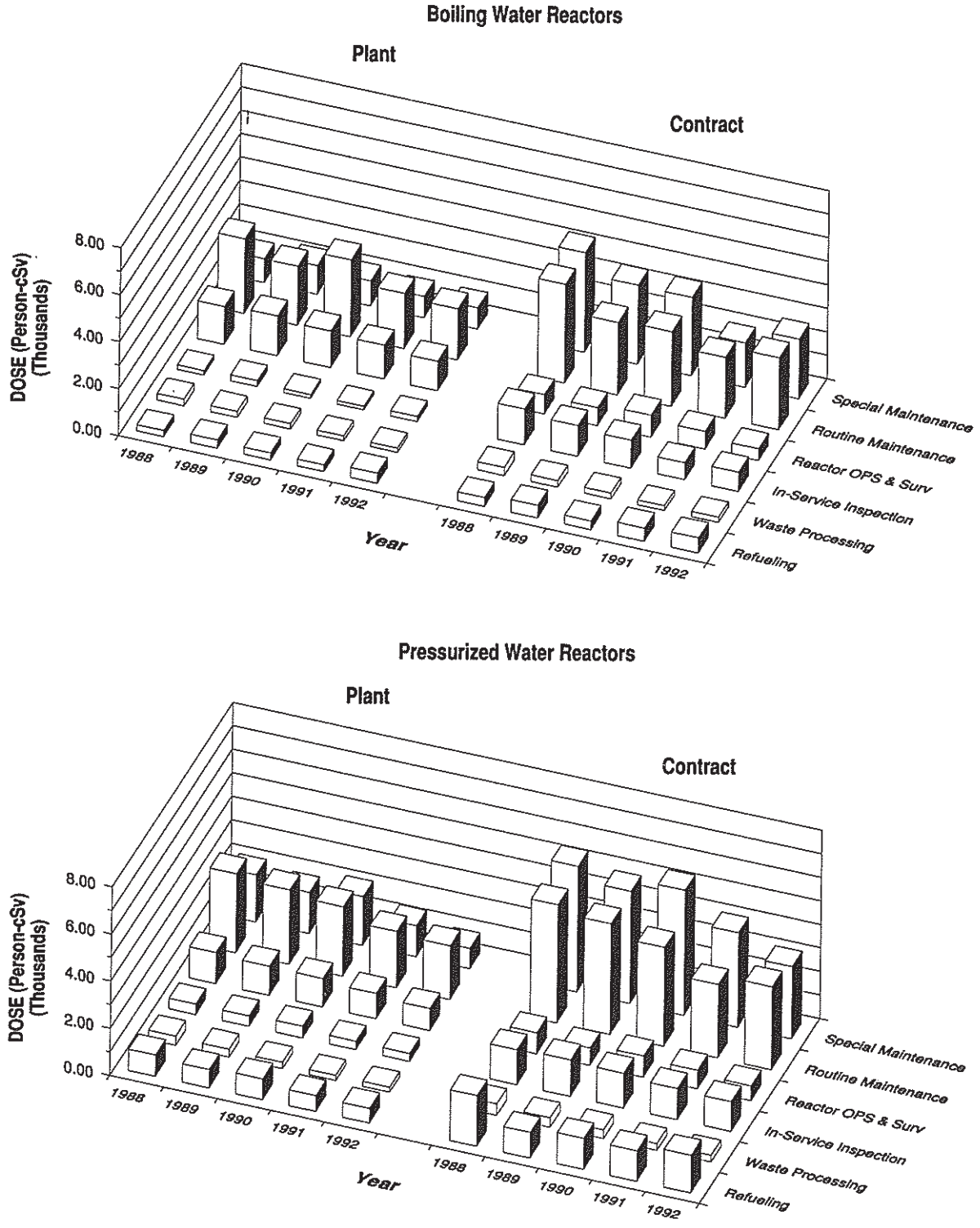


TABLE 4.11
ANNUAL COLLECTIVE DOSE
BY OCCUPATION AND PERSONNEL TYPE
1992

OCCUPATION	STATION EMPLOYEES PERSON-cSv	% OF TOTAL	UTILITY EMPLOYEES PERSON-cSv	% OF TOTAL	CONTRACT WORKERS PERSON-cSv	% OF TOTAL	TOTAL PER WORK FUNCTION PERSON-cSv	% OF TOTAL
BOILING WATER REACTORS								
MAINTENANCE	2,352	18.2%	443	3.4%	6,026	46.6%	8,821	68.3%
OPERATIONS	996	7.7%	22	0.2%	237	1.8%	1,255	9.7%
HEALTH PHYSICS	741	5.7%	5	0.0%	813	6.3%	1,559	12.1%
SUPERVISORY	251	1.9%	13	0.1%	153	1.2%	417	3.2%
ENGINEERING	242	1.9%	88	0.7%	539	4.2%	869	6.7%
TOTAL	4,583	35.5%	571	4.4%	7,768	60.1%	12,922	100.0%
PRESSURIZED WATER REACTORS								
MAINTENANCE	2,022	13.0%	1,042	6.7%	7,114	45.7%	10,178	65.4%
OPERATIONS	777	5.0%	18	0.1%	361	2.3%	1,156	7.4%
HEALTH PHYSICS	877	5.6%	47	0.3%	1,613	10.4%	2,537	16.3%
SUPERVISORY	175	1.1%	21	0.1%	326	2.1%	522	3.4%
ENGINEERING	197	1.3%	55	0.4%	922	5.9%	1,174	7.5%
TOTAL	4,048	26.0%	1,182	7.6%	10,336	66.4%	15,566	100.0%
ALL LIGHT WATER REACTORS								
MAINTENANCE	4,374	15.4%	1,485	5.2%	13,140	46.1%	18,999	66.7%
OPERATIONS	1,773	6.2%	39	0.1%	598	2.1%	2,411	8.5%
HEALTH PHYSICS	1,618	5.7%	51	0.2%	2,425	8.5%	4,095	14.4%
SUPERVISORY	426	1.5%	34	0.1%	479	1.7%	939	3.3%
ENGINEERING	439	1.5%	143	0.5%	1,461	5.1%	2,043	7.2%
TOTAL	8,631	30.3%	1,753	6.2%	18,104	63.6%	28,488	100.0%

(2) The ratio of this dose to the total collective dose (the last number in the last column in Appendix D) was calculated and multiplied by the total collective dose that had been calculated or obtained from the 10 CFR 20.407 annual report. This product is the collective dose shown in the column headed "Operations" in Appendix C.

(3) The collective dose shown in the column headed "Maintenance and Others" in Appendix C was determined by first summing the collective doses incurred by workers in the five remaining functions given in Appendix D and then calculating the fraction that this dose is of the total collective dose. This fraction was multiplied by the total collective dose calculated from the § 20.407 annual reports to yield the collective dose shown in this column of Appendix C.

(4) A similar procedure was followed in determining the collective dose for the columns headed "Contractor" and "Station & Utility" in Appendix C.

4.7 Number of Personnel by Work Function and Employee Type

Half of the information presented in the statistical annual reports shown in Appendix D concerns the number of various types of personnel that performed certain work functions. Tables 4.12 and 4.13 sum this information to show the percentage of personnel by work function and occupation. The major problem in interpreting the figures shown in these tables is the fact that the same person may perform several work functions during the year so that the total number of personnel obtained by summing those shown in the various work functions would be inflated. However, Table 4.12 is still useful in showing the percentage of personnel associated with each of the six work functions shown. About 57% of the personnel performed routine or special maintenance functions, about 19% were involved with reactor operations and surveillance, and the remaining 24% were divided among the other three work functions.

Table 4.13 shows the percentage of personnel in each of five occupational categories at BWRs, PWRs, and LWRs. The workers were similarly distributed at BWRs and PWRs, the largest difference occurred in the health physics category with 8.4% at BWRs and 15.1% at PWRs. Overall, 58% of the personnel were contractors, 32% were station employees, and 10% were utility employees in 1992.

Table 4.14 presents the average annual dose incurred by workers in the five occupational categories in 1992. These averages were calculated by dividing the collective dose reported for these groups (see Table 4.11) by the number of individuals shown in Table 4.13. It shows that in most instances, the

TABLE 4.12
NUMBER OF PERSONNEL*
BY WORK FUNCTION AND PERSONNEL TYPE
1992

WORK AND JOB FUNCTION	STATION EMPLOYEES NUMBER	STATION EMPLOYEES % OF TOTAL	UTILITY EMPLOYEES NUMBER	UTILITY EMPLOYEES % OF TOTAL	CONTRACT WORKERS NUMBER	CONTRACT WORKERS % OF TOTAL	TOTAL PER WORK FUNCTION NUMBER	TOTAL PER WORK FUNCTION % OF TOTAL
BOILING WATER REACTORS								
REACTOR OPS & SURV	11,265	12.3%	1,306	1.4%	5,268	5.7%	17,839	19.5%
ROUTINE MAINTENANCE	14,079	15.4%	1,681	1.8%	21,221	23.1%	36,981	40.3%
IN-SERVICE INSPECTION	1,208	1.3%	712	0.8%	5,104	5.6%	7,024	7.7%
SPECIAL MAINTENANCE	3,449	3.8%	897	1.0%	12,031	13.1%	16,377	17.9%
WASTE PROCESSING	3,367	3.7%	221	0.2%	1,653	1.8%	5,241	5.7%
REFUELING	2,789	3.0%	537	0.6%	4,904	5.3%	8,230	9.0%
TOTAL	36,157	39.4%	5,354	5.8%	50,181	54.7%	91,692	100.0%
PRESSURIZED WATER REACTORS**								
REACTOR OPS & SURV	5,645	8.7%	1,685	2.6%	4,286	6.6%	11,616	17.8%
ROUTINE MAINTENANCE	7,494	11.5%	2,333	3.6%	12,604	19.3%	22,431	34.4%
IN-SERVICE INSPECTION	1,135	1.7%	904	1.4%	4,140	6.4%	6,179	9.5%
SPECIAL MAINTENANCE	3,014	4.6%	1,483	2.3%	9,015	13.8%	13,512	20.7%
WASTE PROCESSING	1,451	2.2%	62	0.1%	1,719	2.6%	3,232	5.0%
REFUELING	2,630	4.0%	695	1.1%	4,874	7.5%	8,199	12.6%
TOTAL	21,369	32.8%	7,162	11.0%	36,638	56.2%	65,169	100.0%
ALL LIGHT WATER REACTORS**								
REACTOR OPS & SURV	16,910	10.8%	2,991	1.9%	9,554	6.1%	29,455	18.8%
ROUTINE MAINTENANCE	21,573	13.8%	4,014	2.6%	33,825	21.6%	59,412	37.9%
IN-SERVICE INSPECTION	2,343	1.5%	1,616	1.0%	9,244	5.9%	13,203	8.4%
SPECIAL MAINTENANCE	6,463	4.1%	2,380	1.5%	21,046	13.4%	29,889	19.1%
WASTE PROCESSING	4,818	3.1%	283	0.2%	3,372	2.1%	8,473	5.4%
REFUELING	5,419	3.5%	1,232	0.8%	9,778	6.2%	16,429	10.5%
TOTAL	57,526	36.7%	12,516	8.0%	86,819	55.3%	156,861	100.0%

* Workers may be counted in more than one category. The number of personnel in Table 4.12 should be considered to be more accurate than Table 4.11, because the actual total number of individuals in each profession was provided by some plants in an attempt to correct for the multiple counting of individuals.

** Table 4.11 does not include the number of personnel from the PWRs at Point Beach 1,2 (427 people), because the data were not submitted in the suggested format.

TABLE 4.13
NUMBER OF PERSONNEL*
BY OCCUPATION AND PERSONNEL TYPE
1992

OCCUPATION	STATION EMPLOYEES NUMBER	STATION EMPLOYEES % OF TOTAL	UTILITY EMPLOYEES NUMBER	UTILITY EMPLOYEES % OF TOTAL	CONTRACT WORKERS NUMBER	CONTRACT WORKERS % OF TOTAL	TOTAL PER WORK FUNCTION NUMBER	TOTAL PER WORK FUNCTION % OF TOTAL
BOILING WATER REACTORS								
MAINTENANCE	8,049	14.5%	2,681	4.8%	24,061	43.4%	34,791	62.7%
OPERATIONS	3,915	7.1%	377	0.7%	2,657	4.8%	6,949	12.5%
HEALTH PHYSICS	2,108	3.8%	43	0.1%	2,509	4.5%	4,660	8.4%
SUPERVISORY	1,423	2.6%	604	1.1%	991	1.8%	3,018	5.4%
ENGINEERING	1,785	3.2%	1,747	3.1%	2,514	4.5%	6,046	10.9%
TOTAL	17,280	31.2%	5,452	9.8%	32,732	59.0%	55,464	100.0%
PRESSURIZED WATER REACTORS								
MAINTENANCE	6,889	13.0%	3,116	5.9%	20,231	38.2%	30,236	57.1%
OPERATIONS	3,840	7.3%	413	0.8%	1,647	3.1%	5,900	11.1%
HEALTH PHYSICS	2,749	5.2%	316	0.6%	4,912	9.3%	7,977	15.1%
SUPERVISORY	2,110	4.0%	799	1.5%	1,019	1.9%	3,928	7.4%
ENGINEERING	1,278	2.4%	1,080	2.0%	2,528	4.8%	4,886	9.2%
TOTAL	16,866	31.9%	5,724	10.8%	30,337	57.3%	52,927	100.0%
ALL LIGHT WATER REACTORS								
MAINTENANCE	14,938	13.8%	5,797	5.3%	44,292	40.9%	65,027	60.0%
OPERATIONS	7,755	7.2%	790	0.7%	4,304	4.0%	12,849	11.9%
HEALTH PHYSICS	4,857	4.5%	359	0.3%	7,421	6.8%	12,637	11.7%
SUPERVISORY	3,533	3.3%	1,403	1.3%	2,010	1.9%	6,946	6.4%
ENGINEERING	3,063	2.8%	2,827	2.6%	5,042	4.7%	10,932	10.1%
TOTAL	34,146	31.5%	11,176	10.3%	63,069	58.2%	108,391	100.0%

* Workers may be counted in more than one category. The number of personnel in this table is considered to be more accurate than Table 4.11 because the actual total number of individuals in each category was provided by some plants in an attempt to correct for the multiple counting of individuals. This table does include the number of personnel from Point Beach 1,2.

TABLE 4.14
AVERAGE DOSES BY OCCUPATION AND PERSONNEL TYPE*
1992

OCCUPATION	STATION COLL. DOSE	STATION NUMBER OF EMPLOYEES	STATION AVERAGE DOSE	UTILITY COLL. DOSE	UTILITY NUMBER OF EMPLOYEES	UTILITY AVERAGE DOSE	CONTRACT COLL. DOSE	CONTRACT NUMBER OF EMPLOYEES	CONTRACT AVERAGE DOSE	TOTAL COLL. DOSE	TOTAL NUMBER OF EMPLOYEES	TOTAL AVERAGE DOSE
BOILING WATER REACTORS												
MAINTENANCE	2,352	8,049	0.29	443	2,681	0.17	6,026	24,061	0.25	8,821	34,791	0.25
OPERATIONS	996	3,915	0.25	22	377	0.06	237	2,657	0.09	1,255	6,949	0.18
HEALTH PHYSICS	741	2,108	0.35	5	43	0.11	813	2,509	0.32	1,559	4,660	0.33
SUPERVISORY	251	1,423	0.18	13	604	0.02	153	991	0.15	417	3,018	0.14
ENGINEERING	242	1,785	0.14	88	1,747	0.05	539	2,514	0.21	869	6,046	0.14
TOTAL	4,583	17,280	0.27	571	5,452	0.10	7,768	32,732	0.24	12,922	55,464	0.23
PRESSURIZED WATER REACTORS												
MAINTENANCE	2,022	6,889	0.29	1,042	3,116	0.33	7,114	20,231	0.35	10,178	30,236	0.34
OPERATIONS	777	3,840	0.20	18	413	0.04	361	1,647	0.22	1,156	5,900	0.20
HEALTH PHYSICS	877	2,749	0.32	47	316	0.15	1,613	4,912	0.33	2,537	7,977	0.32
SUPERVISORY	175	2,110	0.08	21	799	0.03	326	1,019	0.32	522	3,928	0.13
ENGINEERING	197	1,278	0.15	55	1,080	0.05	922	2,528	0.36	1,174	4,886	0.24
TOTAL	4,048	16,866	0.24	1,182	5,724	0.21	10,336	30,337	0.34	15,566	52,927	0.29
ALL LIGHT WATER REACTORS												
MAINTENANCE	4,374	14,938	0.29	1,485	5,797	0.26	13,140	44,292	0.30	18,999	65,027	0.29
OPERATIONS	1,773	7,755	0.23	39	790	0.05	598	4,304	0.14	2,411	12,849	0.19
HEALTH PHYSICS	1,618	4,857	0.33	51	359	0.14	2,425	7,421	0.33	4,095	12,637	0.32
SUPERVISORY	426	3,533	0.12	34	1,403	0.02	479	2,010	0.24	939	6,946	0.14
ENGINEERING	439	3,063	0.14	143	2,827	0.05	1,461	5,042	0.29	2,043	10,932	0.19
TOTAL	8,631	34,146	0.25	1,753	11,176	0.16	18,104	63,069	0.29	28,488	108,391	0.26

* Workers may be counted in more than one category, but the actual total number of individuals in each category was used when it was provided by the plant.

maintenance and health physics personnel incur the highest average doses. When examining the values of the averages that are given in Table 4.14, one should bear in mind the several sources of error to which they are subject: (1) the number of individuals may be inflated because the same plant contractor employee may work at several plants so that the employee would be counted more than once in a summary such as Table 4.14; (2) the occupations are not clearly defined so that workers performing certain tasks in one plant may be classified as being in one occupation and be included in a different one at another plant; (3) some plants count only those workers whose doses exceed 0.10 cSv (rem) while other plants count all workers regardless of the dose received. It is because of these reasons that the usefulness of the numbers of individuals obtained from the reports provided in Appendix D is rather limited, and they are not used to develop any other statistics in this document.

4.8 Graphical Representation of Dose Trends in Appendix E

Appendix E is a recent addition to this report series. Each page of Appendix E presents two types of graphs for one site. One graph plots selected dose-performance indicators from 1973 through 1992, and the other indicates the collective dose by job function for 1978 through 1992. The dose and performance indicators shown in the top graph illustrate the history of the collective dose for the site, the rolling three-year average collective dose per reactor, and the gross electricity generated at the site. These data are plotted, beginning with the plant's first full year of commercial operation, and continuing through 1992. However, any data reported prior to 1973 are not included. The three-year average collective dose per reactor data is included because it appears to provide a better overall indication of the plant's general trend in collective dose. This average is determined by summing the collective dose for the current year and the previous two years and then dividing this sum by the number of reactors reporting during those years. Data for years when the plant was not in commercial operation have been included when available. This reduces the sporadic effects on annual doses of refueling operations (usually a three-year cycle) and occasional high-dose maintenance activities, and gives a better idea of collective dose trends over the life of the plant. One should note that for sites with more than one reactor, the plot of the three-year rolling average will lie below that of the plot of the annual collective dose for the site because it is calculated on a per-reactor basis.

The second type of graph at the bottom of each page in Appendix E displays the breakdown of collective dose by job function and employee type for the years 1978 through 1992. The horizontal axis lists the six job functions of reactor

operations, routine maintenance, in-service inspection, special maintenance, waste management and refueling operations, and the vertical axis indicates collective dose at each site. This representation quickly shows the job functions where most of the dose was accumulated as well as the division of the collective dose among plant and contract workers. The data are taken from the submittals presented in Appendix D and therefore represent at least 80% of the collective dose at each site. Only those reactors that have completed at least one full year of commercial operation are presented in Appendix E.

4.9 Health Implications of Average Annual Doses

Studies of populations chronically exposed to low levels of radiation delivered over protracted periods have not shown consistent or conclusive evidence of an associated increase in the risk of cancer. Thus, there is no evidence that the doses to workers recorded here cause harm.

The risk estimates presented below are based on extensive studies of Japanese A-bomb survivors and other populations exposed to large doses of radiation delivered in short periods of time. This information is supplemented by animal and *in vitro* studies, such as irradiation of cell cultures. These studies have confirmed that human cells have mechanisms that repair damaged chromosomes. The existence of this repair helps to explain the finding that lower doses of radiation delivered at lower dose rates produce less of an effect on a cell per unit dose than high-dose, high-dose-rate irradiations. Thus the estimates of risks to radiation workers are likely to be conservative.

Health effects due to radiation exposure fall into three groups: carcinogenic effects, genetic effects, and mental retardation. Mental retardation has been observed only in Japanese A-bomb survivors exposed at 8-15 weeks gestational age, and is consequently not applicable to the workplace except in the case of a pregnant female worker. Genetic effects have never been observed in man, though they have been observed in mice.

Risk of cancer induction is known to increase with increasing dose, but is hard to quantify as the risk varies with the site of the cancer, the age and sex of the exposed individual, the energy and nature of the radiation, the magnitude and duration of the dose, and exposure to other carcinogens. Since nearly 20% of all deaths in the United States occur from cancer, the estimated number of cancers attributable to occupational radiation exposure is a small fraction of the total number that occur. (Those who do not succumb to cancer

will perforce succumb to some other cause and in essentially the same time frame.)

The Committee on the Biological Effects of Ionizing Radiations (BEIR) of the National Academy of Sciences (NAS) National Research Council has been conducting an ongoing study of the health effects of ionizing radiation. Its latest report, BEIR V, was published in 1990. Based on this report, the 109,645 workers receiving the average dose of 0.29 cSv (rem) or the maximum accidental dose of 1.9 cSv (rem) to the whole body during 1992 (see Section 6) might expect an increased cancer death risk of about 8 chances in a thousand for the average dose and 1 chance per thousand for the maximum dose.[10] Should a worker receive 0.29 cSv (rem) continuously during an entire working career (working from age 18 until age 65), his/her lifetime risk of dying from cancer is estimated to increase by approximately 4%. Since the American Cancer Society estimates that an individual's risk of dying of cancer is about 20% (one in five), the risk to an individual receiving 0.29 cSv (rem) would be approximately 21%.

The potential genetic effects from a worker population receiving 31,953 person-cSv (person-rem) (Table 3.1) are small compared to genetic damages that normally occur spontaneously in a population of this size. Approximately 110,204 serious genetic defects occur normally in one million live births, i.e., an average of about one serious defect in every ten live births. Theoretically, the total genetic damage in the first generation children of the 109,645 exposed workers would, according to the report NUREG/CR-4214 [Ref. 17], be an increase of about 1 case (approximately 0.01%) compared to the expected 10,000 cases that occur normally.[11] No significant increase in the number of genetic defects has been observed in the children of individuals exposed to much higher levels of ionizing radiation at Hiroshima and Nagasaki, Japan.

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These estimates were calculated from Table 4-2 of Ref. 16. The average dose risk estimate assumes continuous lifetime exposure (ages 18-65), while the acute dose risk estimate assumes a one-time, instantaneous exposure. Note that these estimates are based on observations of individuals exposed to high doses of radiation over short periods of time. The BEIR committee, in its report, cautions that dose rate reduction factors (DREFs) will need to be applied to low-dose and low-dose-rate exposures. (see Ref. 16, pp. 171 and 174)

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Assuming that, on the average, each exposed person will have one live-born child in the future, i.e., 109,645 children born to this worker population.

5 TERMINATION DATA SUBMITTED PURSUANT TO 10 CFR § 20.408

5.1 Termination Reports, 1969-1992

In 1969, the Atomic Energy Commission (predecessor of the NRC) began requiring certain categories of licensees[12] to submit personal identification and exposure information upon the termination of each monitored person's employment or work assignment at their facilities. The appropriate information on each report has been manually coded and entered into the Commission's computerized Radiation Exposure Information Reporting System (REIRS) for permanent retention. The data are retrievable by several criteria - social security number, name, facility, etc. - which allow statistical analysis of the data as well as the tracing of individual dose histories. During the years that this information has been collected, over 1.8 million reports have been received for the 711,994 individuals who have been reported as having terminated their employment at facilities in one or more of the categories of covered licensees. The figures given for the number of reports and the number of individuals are different because thousands of individuals have worked at more than one facility over the years and a termination report was submitted to the NRC each time they left a facility.

Table 5.1 provides a breakdown of this information for individuals terminating during each of these 24 years and, since the majority of termination reports are submitted by nuclear power facilities, the number of individuals terminating from power reactors is displayed separately. The 1992 data are subject to revision as more termination reports covering this period are received and processed into REIRS. For this reason, each year that this report is produced, the previous year's termination data are revised to reflect all of the reports that have been processed to date.

5.2 Limitations of Termination Data

When examining or using the statistics that are based on the termination data, one should keep in mind that these data have various limitations: (1) some licensees submit a termination report for each monitoring period rather than waiting until the individual actually completes a work assignment at the facility; (2) the reports contain no indication of the tasks the workers may have performed nor of the type of employees (contractor, plant part-time,

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12 Commercial nuclear power reactors; industrial radiographers; fuel processors, fabricators, and reprocessors; and manufacturers and distributors of specified quantities of by-product material. Three other types of NRC licensees are now required to submit reports pursuant to 10 CFR § 20.407 and § 20.408: geologic repositories for high-level radioactive waste; receivers of radioactive waste from other persons for land disposal; and independent installations for the storage of spent fuel.

etc.) they were while monitored by the licensee; (3) the period(s) of exposure that is reported for terminating individuals usually indicate the monitoring period during which they may have been exposed to radiation rather than the actual dates of exposure; (4) most licensees report cumulative periods of exposure and doses rather than the actual periods and dose incurred during each period; and (5) licensees having more than one licensed facility sometimes include in the termination report, submitted when individuals leave the second facility, the dose that they incurred at the first facility, which may already have been reported. Although the REIR System corrects for most of these problems, they are still a source of error in any statistics developed from the termination data.

TABLE 5.1
TERMINATION REPORTS SUBMITTED TO THE NRC

1969 - 1992

YEAR	All Covered Categories*		Power Reactor Licensees	
	Number of Reports Submitted	Number of Terminating Individuals	Number of Reports Submitted	Number of Terminating Individuals
1969	4,194	3,917	576	531
1970	6,520	5,828	1,995	1,807
1971	8,872	8,181	2,070	1,938
1972	10,633	9,599	4,051	3,364
1973	17,366	15,240	9,533	7,860
1974	26,347	21,729	19,963	15,727
1975	36,154	27,680	30,632	22,680
1976	52,865	39,274	47,623	34,630
1977	56,516	41,885	50,807	37,209
1978	61,121	44,020	55,063	38,570
1979	78,176	57,903	71,802	52,432
1980	100,344	72,475	93,515	66,816
1981	107,592	74,510	101,656	69,115
1982	108,309	68,809	103,810	64,779
1983	114,997	78,089	110,982	74,510
1984	113,745	80,958	121,474	77,708
1985	117,264	81,605	112,831	77,742
1986	113,745	83,459	109,548	79,736
1987	127,842	92,492	124,592	89,636
1988	116,697	83,558	113,398	80,832
1989	115,729	80,468	112,050	77,446
1990	115,967	79,003	111,977	75,814
1991	110,135	75,369	105,387	71,611
1992	105,328	74,566	102,152	71,846

* Commercial nuclear power reactors; industrial radiographers; fuel processors, fabricators, and reprocessors; manufacturers and distributors of specified quantities of byproduct materials; low-level waste disposal facilities; and independent spent fuel storage installations.

5.3 Transient Workers per Calendar Quarter

One use of the information contained in the termination reports is the examination of the doses being received by short-term workers. Since a large number of the termination reports indicated periods of exposure that were less than 90 days, it is possible that several thousand individuals could have been employed by two or more licensees during the same calendar quarter. Thus, in this report, a "quarterly transient" worker is defined as an individual who began and terminated employment at two or more different licensed facilities within one calendar quarter. This allows one to examine the doses of those workers who move rapidly between facilities.

Table 5.2 displays some of the information gathered from these termination reports that were submitted by all covered licensees and by licensed nuclear power facilities, separately. One can quickly see that the vast majority of these individuals are monitored by nuclear power facilities.

The bottom half of the table separates the information shown for power reactor licensees into that for reactor workers employed by two, three, and four or more different reactor licensees. The table shows that most of these transients were reported by two different licensees during a quarter and that their average quarterly dose has decreased from 0.34 cSv (rem) in 1983 to a value of 0.17 cSv (rem) in 1992. The average dose for each category of transient worker is considerably less than that incurred 10 years ago. This is believed to be a reflection of the industry's continuing efforts to reduce the exposure of all individuals working at their facilities and their efforts to limit the workers' annual doses to less than 5 cSv (rem) regardless of the number of facilities at which they work during the year.

Examination of these records also revealed that some individuals have worked for as many as six different NRC licensees during one calendar quarter, and examination of their doses revealed **no instances during the last ten years in which a worker exceeded the quarterly limit of 3 cSv (rem) as a result of working at two or more different licensed facilities within one calendar quarter.** However, because some facilities do not report the workers' doses in quarterly increments in the termination reports that are submitted to the NRC, it is not always possible to determine, from the data in REIRS, the portion of the dose received during each quarter. This inability could have allowed any of these doses that exceeded 3 cSv to go undetected by the analyses presented in this document. Regulations require that each licensee take measures to ensure that such exposures do not occur, and if they do occur, they are reported to the Commission separately (see Section 6). The inspection of licensees by the NRC regional inspectors serve to enforce these regulations.

TABLE 5.2
TRANSIENT WORKERS PER CALENDAR QUARTER
1983 - 1992

All Covered Licensees				Power Reactor Facilities			
Year	No. of Persons Terminated by Two or more Licensees Within One Quarter	Collective Dose (person-cSv person-rem)	Average Individual Dose (cSv or rem)	Year	No. of Persons Terminated by Two or more Licensees Within One Quarter	Collective Dose (person-cSv person-rem)	Average Individual Dose (cSv or rem)
1983	2,774	913	0.33	1983	2,728	886	0.32
1984	3,414	1,123	0.33	1984	3,356	1,083	0.32
1985	2,791	700	0.25	1985	2,746	674	0.25
1986	3,069	921	0.30	1986	3,033	910	0.30
1987	3,543	1,022	0.29	1987	3,517	1,011	0.29
1988	3,840	1,019	0.27	1988	3,799	1,011	0.27
1989	3,649	768	0.21	1989	3,604	762	0.21
1990	3,983	833	0.21	1990	3,906	810	0.21
1991	3,570	797	0.22	1991	3,448	754	0.22
1992	3,151	536	0.17	1992	3,063	513	0.17

Power Reactor Facilities

Year	No. of Persons Terminated by Two Licensees	Collective Dose	Average Dose	No. of Persons Terminated by Three Licensees	Collective Dose	Average Dose	No. of Persons Terminated by >Three Licensees	Collective Dose	Average Dose
1983	2,276	767	0.34	362	101	0.28	90	18	0.20
1984	2,782	901	0.32	431	147	0.34	143	35	0.24
1985	2,340	597	0.26	335	67	0.20	71	10	0.14
1986	2,612	785	0.30	362	115	0.32	59	10	0.17
1987	2,992	875	0.29	425	121	0.28	100	16	0.16
1988	3,081	826	0.27	573	162	0.28	145	23	0.16
1989	2,967	620	0.21	504	109	0.22	133	33	0.25
1990	3,225	707	0.22	529	82	0.15	152	22	0.14
1991	2,838	668	0.24	471	75	0.16	139	11	0.08
1992	2,484	421	0.17	450	78	0.17	129	14	0.11

5.4 Transient Workers per Calendar Year at Nuclear Power Facilities

Since the number of transient workers per calendar quarter comprises only a small percentage of the total number of individuals terminating each year, it is useful to examine the data reported for workers who began and terminated two or more periods of employment with two or more different reactor facilities within one calendar year. An examination of these data would allow one to determine the number and average dose for these "annual transients." Since more than 95% of these transients are reported by nuclear power facilities, only the termination records of these individuals were examined in detail.

Table 5.3 summarizes the number and doses of the transients found among the individuals terminating during the ten years from 1983 through 1992. The lower portion of Table 5.3 shows the number and doses of workers who were terminated by two, three, and four or more different licensees during each calendar year. The table shows the general decreasing trend in the average measurable dose for each category of transient reactor worker.

Another way in which the distribution of the doses received by transient workers can be useful is in the determination of the impact that the inclusion of these individuals in each of two or more licensees' annual reports had on the annual summary (as reported in Appendices B and F) for all nuclear power facilities (one of the problems mentioned in Section 2). Table 5.4a shows the correct distribution of transient worker doses as determined from the above-mentioned termination reports and compares it with the distribution of the doses of these workers as they would have appeared in a summation of the annual statistical reports submitted by each of the nuclear power facilities. The corrected dose distribution is also shown in Table 4.4. During each of the years shown, each of the transient workers was counted an average of 2.6 times so that in 1992, the 9,724 transients would have been reported as 25,393 individuals. This was not surprising because some individuals were reported by as many as 24 different facilities.

Table 5.4b illustrates the impact that the multiple reporting of these transient individuals had on the staff's summation of the annual statistical reports for the years 1986 through 1992. Since each nuclear power facility reports the distribution of the doses received by workers while monitored by the particular facility during the year, one would expect that a summation of these reports would result in individuals being counted several times in dose ranges lower than the range in which their total accumulated dose (the sum of the personnel monitoring results incurred at each facility during the year) would actually place them. Thus, while the total collective dose would remain

TABLE 5.3

TRANSIENT WORKERS PER CALENDAR YEAR AT NUCLEAR POWER FACILITIES

1983 - 1992

Year	No. of Commercial Reactors	No. of Persons Terminated by Two or More Licensees	Collective Dose (person-cSv person-rem)	Average Dose (cSv or rem)
1983	76	6,340	6,675	1.05
1984	79	7,760	8,045	1.04
1985	83	6,871	5,319	0.77
1986	90	7,816	5,954	0.76
1987	97	9,469	6,712	0.71
1988	103	9,295	5,875	0.63
1989	107	10,509	6,776	0.64
1990	110	11,376	7,641	0.67
1991	111	9,568	5,554	0.58
1992	110	9,724	4,885	0.50

Year	No. of Persons Terminated by Two Licensees	Collective Dose	Average Dose	No. of Persons Terminated by Three Licensees	Collective Dose	Average Dose	No. of Persons Terminated by >Three Licensees	Collective Dose	Average Dose
1983	4,203	3,624	0.86	1,256	1,694	1.39	881	1,357	1.53
1984	5,118	4,224	0.83	1,461	1,945	1.33	1,181	1,875	1.59
1985	4,584	3,000	0.65	1,357	1,400	1.03	930	920	0.99
1986	5,079	2,907	0.57	1,490	1,508	1.01	1,247	1,539	1.23
1987	6,107	3,339	0.55	1,852	1,693	0.91	1,510	1,680	1.11
1988	5,889	2,880	0.49	1,899	1,529	0.81	1,507	1,465	0.97
1989	6,721	3,362	0.50	2,111	1,738	0.82	1,677	1,676	1.00
1990	6,958	3,553	0.51	2,480	2,064	0.83	1,938	2,023	1.04
1991	6,132	2,804	0.46	1,980	1,484	0.75	1,456	1,266	0.87
1992	6,317	2,532	0.40	1,981	1,292	0.65	1,426	1,060	0.75

TABLE 5.4a
REPORTED AND CORRECT DOSE OF TRANSIENT WORKERS FOR CALENDAR YEAR AT POWER REACTORS*

Type of Distribution and Year	Number of Individuals with Whole Body Doses in the Ranges (cSv or rem)															Total Individuals	**Collective Dose (Person-cSv or -rem)	Avg. Dose (cSv or rem)	Avg Meas. Dose (cSv or rem)
	Less than Measurable	Meas'ble <0.10	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.00	1.00-2.00	2.00-3.00	3.00-4.00	4.00-5.00	5.0-6.0	6.0-7.0	7.0-8.0	8.0-9.0	9.0-10.0	>10				
Reported Distribution of Transients - 1986	6,866	5,372	2,071	1,935	1,236	856	1,685	299	50	1							20,371	5,954	0.29	0.44
Correct Distribution of Transients - 1986	1,319	2,006	648	656	472	369	1,248	691	325	72							7,806	5,954	0.76	0.92
Reported Distribution of Transients - 1987	9,369	5,276	2,762	2,650	1,780	1,125	1,835	189	30	1							25,017	6,712	0.26	0.42
Correct Distribution of Transients - 1987	1,992	1,717	773	922	767	632	1,681	670	266	48							9,468	6,712	0.70	0.88
Reported Distribution of Transients - 1988	10,892	4,272	2,703	2,616	1,650	1,087	1,498	144	5								24,867	5,875	0.24	0.42
Correct Distribution of Transients - 1988	2,601	1,276	866	900	679	610	1,544	628	174	17							9,295	5,875	0.63	0.88
Reported Distribution of Transients - 1989	11,249	5,120	3,220	3,010	1,802	1,069	1,688	234	7	1							27,400	6,776	0.25	0.42
Correct Distribution of Transients - 1989	2,544	1,640	1,009	1,128	933	665	1,621	659	278	24							10,501	6,776	0.65	0.85
Reported Distribution of Transients - 1990	11,643	5,875	3,930	3,691	2,103	1,323	1,896	171	8								30,640	7,641	0.25	0.40
Correct Distribution of Transients - 1990	2,479	1,603	1,166	1,300	1,011	823	1,965	750	259	20							11,376	7,641	0.67	0.86
Reported Distribution of Transients - 1991	10,452	4,689	3,186	3,117	1,733	949	1,070	147	13								25,356	5,554	0.22	0.37
Correct Distribution of Transients - 1991	2,360	1,378	998	1,182	854	706	1,471	415	188	16							9,568	5,554	0.58	0.77
Reported Distribution of Transients - 1992	10,245	4,960	3,598	3,320	1,615	797	794	60	4								25,393	4,885	0.19	0.32
Correct Distribution of Transients - 1992	2,387	1,387	1,116	1,350	1,020	739	1,307	360	57	1							9,724	4,885	0.50	0.67

*Includes data from Fort St. Vrain.
**Collective dose found by summing the actual doses reported for those workers in their termination reports.

TABLE 5.4b
EFFECTS OF TRANSIENT WORKERS ON ANNUAL STATISTICAL COMPILATIONS*

Type of Distribution and Year	Number of Individuals with Whole Body Doses in the Ranges (cSv or rem)															Total Individuals	**Collective Dose (Person-cSv or -rem)	Avg. Dose (cSv or rem)	Avg. Meas. Dose (cSv or rem)
	Less than Measurable	Meas'ble <0.10	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.00	1.00-2.00	2.00-3.00	3.00-4.00	4.00-5.00	5.0-6.0	6.0-7.0	7.0-8.0	8.0-9.0	9.0-10.0	>10				
Reported Statistical Distribution - 1986	73,469	44,899	15,997	13,121	7,780	5,180	10,678	2,670	593	75							174,462	42,383	0.24	0.42
**Correct Statistical Distribution - 1986	67,922	41,533	14,574	11,842	7,016	4,693	10,241	3,062	868	146							161,897	42,383	0.26	0.45
Reported Statistical Distribution - 1987	92,559	44,782	17,823	14,567	8,599	5,825	10,765	1,711	241	22							196,894	40,402	0.21	0.39
**Correct Statistical Distribution - 1987	85,182	41,223	15,834	12,839	7,586	5,332	10,611	2,192	477	69							181,345	40,402	0.22	0.42
Reported Statistical Distribution - 1988	95,783	43,245	17,750	14,869	8,874	5,938	10,264	1,958	342	9		1					199,033	40,879	0.21	0.40
**Correct Statistical Distribution - 1988	87,492	40,249	15,913	13,153	7,903	5,461	10,310	2,442	511	26		1					183,461	40,879	0.22	0.43
Reported Statistical Distribution - 1989	92,968	48,809	19,484	15,661	8,814	5,541	8,701	1,189	99	11							201,277	35,932	0.18	0.33
**Correct Statistical Distribution - 1989	84,263	45,329	17,273	13,779	7,945	5,137	8,634	1,614	370	34							184,378	35,932	0.19	0.36
Reported Statistical Distribution - 1990	93,037	46,879	20,293	16,583	9,318	5,760	8,525	1,215	84	1							201,695	36,592	0.18	0.34
**Correct Statistical Distribution - 1990	83,873	42,607	17,529	14,192	8,226	5,260	8,594	1,794	335	21							182,431	36,592	0.20	0.37
Reported Statistical Distribution - 1991	95,342	45,898	18,952	15,119	8,066	4,437	5,574	670	44	1							194,103	28,527	0.15	0.29
**Correct Statistical Distribution - 1991	87,250	42,587	16,764	13,184	7,187	4,194	5,975	938	219	17							178,315	28,527	0.16	0.31
Reported Statistical Distribution - 1992	96,453	45,960	20,597	17,142	8,881	4,626	5,468	449	17	3							199,596	29,309	0.15	0.28
**Correct Statistical Distribution - 1992	88,595	42,387	18,115	15,172	8,286	4,568	5,981	749	70	4							183,927	29,309	0.16	0.31

*Includes data from Fort St. Vrain for the years 1986 through 1989.
**Distribution found by subtracting the correct from the reported distribution shown in Table 5.4a and then subtracting this difference from the reported statistical distribution shown in Table 5.4b.

the same, the number of workers, their dose distribution, and average dose would be affected by this multiple reporting. This was found to be true because too few workers were reported in the higher dose ranges. For example, in 1992, Table 5.4b shows that the summation of annual reports indicated that 103,143 workers received a measurable dose (199,596 monitored minus 96,453 with no measurable exposure), 469 of whom received doses greater than 2 cSv (rem). After accounting for those individuals who were reported more than once, the corrected distribution indicated that there were really only 95,332 workers who received a measurable dose and that 823 of them received doses greater than 2 cSv (rem).

Since the number of transient workers receiving measurable doses and the collective dose they receive are only about 5% and 17% of the total number of workers and of the total collective dose, respectively, for 1992, their impact on most of the statistics derived from compilations of the annual summary reports is not very great. However, when examining the number of annual doses in the higher dose ranges (Table 5.4b), one finds that the correct statistical distribution indicates that the number of workers who received doses greater than 4 cSv (rem) is usually considerably higher than the number found in the reported statistical distribution. But there is still a clear decreasing trend in the number of higher doses; in 1992, there were only 74 annual doses that exceeded 3 cSv (rem), compared with 236 in 1991. Table 5.5 shows that no doses greater than 5 cSv (rem) were reported in 1992 and that **since 1985, there have been no additional transient workers identified as having received a dose of greater than 5 cSv (rem) that would not have appeared on the annual reports received by the Commission.** This reflects the industry's continuing concerted efforts to keep the total annual doses of all workers under 5 cSv (rem) and shows that such reductions can be accomplished without increasing the collective dose since the collective dose has decreased during this same time period.

5.5 Temporary Workers per Calendar Year at Nuclear Power Facilities

To complete the examination of the doses received by the short-term workers employed at nuclear power facilities, Table 5.6 summarizes the data compiled on "temporary workers." For purposes of this report, temporary workers were defined to be those individuals who began and ended a period of employment or work assignment at only one nuclear power facility during the calendar year.

One apparent discrepancy in the above analysis of termination data is that not all of the individuals who terminated during each of the calendar years are included. When one compares the total number of persons terminating during a year (Table 5.1) to the sum of workers terminating from one facility

TABLE 5.5

ANNUAL WHOLE BODY DOSES EXCEEDING 5 cSv (rem)
AT NUCLEAR POWER FACILITIES

Year	Reported Number >5 cSv (rem)	Corrected Number >5 cSv (rem)	Difference
1977	270	351	81
1978	103	158	55
1979	130	180	50
1980	311	391	80
1981	189	235	46
1982	74	135	61
1983	85	169	84
1984	0	74	74
1985	0	1	1
1986	0	0	0
1987	0	0	0
1988	1	1	0
1989	0	0	0
1990	0	0	0
1991	0	0	0
1992	0	0	0

(temporary workers, Table 5.6) and the number of individuals terminating from two or more facilities (transient workers, Table 5.3), one finds a considerable difference in these figures. This is because of the criteria that are used to determine which individuals should be included in the "temporary" and "transient" worker groups. To be included in either of these groups in this analysis, the individuals' periods of employment must begin and end during the same calendar year. Any individual whose beginning or ending dates of employment overlap the beginning and ending dates of the calendar year are not included in these analyses. In 1992, for example, one finds that the number of individuals not included in these analyses is approximately 15,000. However, there is no indication that the exclusion of these individuals significantly impacts the statistics presented here.

TABLE 5.6

TEMPORARY WORKERS PER CALENDAR YEAR
AT NUCLEAR POWER FACILITIES
(Individuals Terminated by Only One Employer)

Year	No. of Reactors	Number of Temps. Monitored	Number with Measurable Doses	Collective Dose (person-cSv person-rem)	Average Dose (cSv or rem)	Average Measurable Dose (cSv or rem)
1978	64	28,864	17,110	9,821	0.34	0.57
1979	67	38,347	21,491	9,488	0.25	0.44
1980	68	48,383	28,305	16,168	0.33	0.57
1981	70	48,265	28,675	16,755	0.35	0.58
1982	74	44,503	25,646	14,266	0.32	0.56
1983	75	50,903	26,682	16,007	0.31	0.60
1984	78	53,438	29,988	15,856	0.30	0.52
1985	82	48,678	24,991	10,418	0.21	0.42
1986	90	47,108	22,911	8,014	0.17	0.35
1987	96	51,365	22,433	8,303	0.16	0.37
1988	102	44,812	20,575	7,618	0.17	0.37
1989	107	47,041	22,252	7,134	0.15	0.32
1990	110	46,742	23,062	8,296	0.18	0.36
1991	111	43,929	20,554	5,961	0.14	0.29
1992	110	46,861	22,008	6,371	0.14	0.29

5.6 Five-Year Career Dose Averages

In 1990, the International Commission on Radiological Protection (ICRP) recommended that occupational effective dose be limited to 2 cSv (rem) per year. The ICRP further recommended that this dose be averaged over defined periods of five years, i.e., no more than 10 cSv (rem) to any worker over a five-year period. The annual dose should be constrained by a limit of 5 cSv (rem) in any single year. These recommendations were based on a finding that detriment due to radiation exposure was more a function of long-term cumulative dose than it was of small variations in annual dose, provided the annual dose did not exceed a defined upper bound.

The extent to which licensees have been able to meet the 5 cSv (rem) per year recommendation has been analyzed extensively in previous sections of this

report. To assess the extent to which NRC reactor licensees meet the five-year career dose recommendation, the REIRS database was queried to sum the whole body dose for each individual whose termination records were within a five-year period. Only those individuals whose exposure period began and ended during a five year interval are included. Individuals need not have terminated in order to have been included in an interval, since reactor licensees often report yearly dose increments. Individuals may be counted in more than one interval.

The data are presented in Table 5.7. The compilation of over 2.3 million records included in this query shows that, for all years 1978 to 1992, 99.6% of the individuals with measurable dose meet the recommendation of a five-year career total of less than 10 cSv (rem). In addition, for each successive five-year period, the extent to which these recommendations are being met has been steadily increasing. For the period 1978 to 1982, 709 workers did not meet the recommendation, while for the period 1988 to 1992, only 150 did not meet the recommended five-year career dose totals.

TABLE 5.7

FIVE-YEAR REACTOR CAREER DOSE TOTALS*
1978-1992

Years	Number of Individuals with Whole Body Doses in the Ranges (cSv or rem)																					Percent of Workers W/ Meas. Dose Meeting ICRP
	0.00-0.01	0.01-1.00	1.0-2.0	2.0-3.0	3.0-4.0	4.0-5.0	5.0-6.0	6.0-7.0	7.0-8.0	8.0-9.0	9.0-10.0	10.0-11.0	11.0-12.0	12.0-13.0	13.0-14.0	14.0-15.0	15-20	20-25	25-30	30-50	>50	
'78-82	71,835	81,747	15,368	7,923	4,426	2,413	1,537	1,072	689	462	309	189	164	103	65	50	109	22	4	2	1	99.4%
'79-83	77,565	86,961	16,470	8,924	4,941	2,770	1,847	1,238	800	546	347	273	148	109	75	58	119	12	1	2	1	99.4%
'80-84	81,587	87,264	16,277	8,889	5,082	2,980	1,939	1,283	918	610	405	289	185	111	76	60	77	16	3	2	1	99.3%
'81-85	85,484	89,702	15,716	8,525	4,755	2,968	1,922	1,340	999	629	389	277	164	129	77	43	89	9	3	0	1	99.4%
'82-86	89,200	94,136	14,927	8,040	4,637	2,984	1,914	1,323	898	590	380	280	158	121	57	50	78	9	3	1	2	99.4%
'83-87	97,661	97,206	14,451	7,556	4,418	2,661	1,651	1,122	750	488	330	213	128	71	46	35	46	3	3	0	6	99.6%
'84-88	104,296	101,148	14,753	6,874	3,945	2,289	1,423	926	585	416	237	126	101	69	52	21	25	4	2	0	4	99.7%
'85-89	104,921	96,616	14,029	6,376	3,540	2,015	1,241	801	462	313	182	151	81	43	27	12	18	0	0	0	5	99.7%
'86-90	103,087	90,636	13,339	5,768	3,051	1,730	1,066	700	405	278	157	102	65	27	13	7	3	0	0	0	4	99.8%
'87-91	97,968	76,032	12,960	5,500	2,887	1,568	1,014	578	342	207	143	79	49	17	9	0	1	0	1	0	0	99.9%
'88-92	96,977	75,056	12,192	5,023	2,397	1,364	745	453	252	164	91	70	53	18	6	0	2	0	1	0	0	99.9%

* Data includes exposure records through 1992. No corrections for "overexposures" have been made. Only those exposures that have been reported on termination reports submitted under 10 CFR 20.408 are included after 1987.

6 EXPOSURES TO PERSONNEL IN EXCESS OF REGULATORY LIMITS

6.1 Control Levels

10 CFR 20.101 and 20.104, and 20.103, limit the external and internal exposure, respectively, of workers to ionizing radiation from licensed material and other sources of radiation within the licensee's control.[13] Section 20.101 sets limits on whole body, skin, and extremity exposures. Section 20.104 sets limits on exposures to minors. Whole-body dose is generally limited to 1.25 cSv (rem) per calendar quarter. Licensees are permitted to allow workers to be exposed to doses not exceeding 3 cSv (rem) per calendar quarter if they can show that the worker's cumulative dose will not exceed 5 cSv (rem) multiplied by the worker's age since his/her eighteenth birthday. [Cumulative dose <5(N-18) where N is the worker's age.] Form NRC-4 or its equivalent is used to record determinations of prior dose.

Exposures in excess of regulatory limits are sometimes referred to as "overexposures." The phrase "exposures in excess of regulatory limits" is preferred to "overexposures" because the latter suggests that a worker has been subjected to an unacceptable biological risk, which may not be the case.

10 CFR 20.103 places a regulatory limit on the amount of internal exposure to radioactive material a worker may sustain in a calendar quarter. It is based on the intake a worker would experience if he/she breathed air containing the maximum permissible concentration (MPC) of a radionuclide for 13 40-hour work weeks, using the breathing rate for moderate activity. (Note that the rule refers to the quantity of material taken in, not the amount retained.) The MPCs are listed in Appendix B, Table I, Column 1, of 10 CFR Part 20. Because there are 520 hours in 13 40-hour work weeks, the limit is frequently expressed in terms of an intake of 520 MPC-hours. If more than one radionuclide is taken in, the sum of the MPC-hours for all radionuclides must be less than or equal to 520. This rule applies regardless of the route of intake (inhalation, ingestion, absorption through the skin or an open wound, injection, etc.).

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[13] These are the section numbers before they were changed by the revision of Part 20, 56 FR 23360, May 21, 1991. The "old" version of 10 CFR Part 20 remained in effect throughout 1991.

10 CFR 20.403 and 20.405 require that all persons licensed by the NRC submit reports of all occurrences involving personnel radiation exposures that exceed certain control levels, thus providing for investigations and corrective actions as necessary. Based on the magnitude of the exposure, the occurrence may be placed into one of three categories:

(1) Category A

10 CFR § 20.403(a)(1) - Exposure of the whole body of any individual to 25 cSv (rem) or more; exposure to the skin of the whole body of any individual to 150 cSv (rem) or more; or exposure of the extremities (feet, ankles, hands or forearms) of any individual to 375 cSv (rem) or more. The Commission must be notified immediately of these events.

(2) Category B

10 CFR § 20.403(b)(1) - Exposure of the whole body of any individual to 5 cSv (rem) or more; exposure of the skin of the whole body of any individual to 30 cSv (rem) or more; or exposure of the extremities to 75 cSv (rem) or more. The Commission must be notified within 24 hours of these events.

(3) Category C

10 CFR § 20.405 - Exposure of any individual to radiation or concentrations of radioactive material that exceeds any applicable quarterly limit in Part 20 [§§ 20.101, 20.104(b), 20.103(a)(1), or 20.103(a)(2)] or in the licensee's license, but is less than the values given above. This includes reports of whole body exposures that exceed 1.25 cSv (rem), or that exceed 3 cSv (rem), as discussed in § 3.2 of this document. Reports of skin exposures that exceed 7.5 cSv (rem) and extremity exposures that exceed 18.75 cSv (rem) are included, and reports of exposures of individuals to concentrations in excess of the levels given in 10 CFR § 20.103 and Appendix B (internal exposures) usually fall into this category as well. These reports must be submitted to the Commission in writing within thirty days of the occurrence. Written reports of events required to be reported under Category A or B must also be submitted within 30 days.

6.2 Summary of Exposures in Excess of Regulatory Limits

Table 6.1 summarizes all of the occupational exposures in excess of regulatory limits to external sources of radiation as reported by Commission licensees pursuant to §§ 20.403 and 20.405 during the years 1984 through 1992. For 1989 through 1992 it shows the number of individuals who exceeded various limits while employed by one of several types of licensees. For the years 1984 through 1988, only the exposures in excess of regulatory limits reported by licensed industrial radiography firms are shown separately. Most of the occurrences included in the "Others" category come from research facilities, universities, and measuring and well-logging activities. In 1992, thirteen individuals received external doses that exceeded applicable quarterly limits with the only external whole body dose in excess of limits being 1.9 cSv (rem). In each of the years from 1988 through 1992, the highest external whole body dose was 6.1, 93, 24, 3, and 1.9 cSv (rem), respectively.

In 1992 there were no incidents in which individuals received external exposures of the magnitude described as Category A or B. The only external whole body dose in excess of limits was 1.9 cSv (rem) received by an individual while preparing radioactive waste for transfer. An NRC Form 4 was not maintained for the individual. The dose limit for a calendar quarter for an individual without an NRC Form 4 on file is 1.25 cSv (rem).

TABLE 6.1
OCCUPATIONAL EXPOSURES IN EXCESS OF REGULATORY LIMITS
1984 - 1992

YEAR	LICENSE CATEGORY	PERSONS AND DOSES (REM)	TYPES OF EXPOSURES AND DOSES								
			WHOLE BODY (REM)			SKIN (REMS)			EXTREMITY (REMS)		
			(<5)	(>5<25)	(>25)	(>7.5<30)	(>30<150)	(>150)	(>18.75<75)	(>75<375)	(>375)
1992	INDUSTRIAL RADIOGRAPHY	NO. OF PERSONS									1
		SUM OF DOSES									300-1000
	POWER REACTORS	NO. OF PERSONS	1			4					
		SUM OF DOSES	1.9			57.7					
	MEDICAL FACILITIES	NO. OF PERSONS							4	1	
		SUM OF DOSES							143.6	272	
	MARKETING & MANUFACT.	NO. OF PERSONS									
		SUM OF DOSES									
	OTHER	NO. OF PERSONS				1			1		
		SUM OF DOSES				24.1			40.5		
1991	INDUSTRIAL RADIOGRAPHY	NO. OF PERSONS	2								
		SUM OF DOSES	5.6								
	POWER REACTORS	NO. OF PERSONS									
		SUM OF DOSES									
	MEDICAL FACILITIES	NO. OF PERSONS	2								
		SUM OF DOSES	3.8								
	MARKETING & MANUFACT.	NO. OF PERSONS							1		
		SUM OF DOSES							22.3		
	OTHER	NO. OF PERSONS	1								
		SUM OF DOSES	2.4								
1990	INDUSTRIAL RADIOGRAPHY	NO. OF PERSONS	3	3[a,b]				1[a]		1	2[b]
		SUM OF DOSES	7.2	49.9				6000		111	3962
	POWER REACTORS	NO. OF PERSONS							1		
		SUM OF DOSES							48.8		
	MEDICAL FACILITIES	NO. OF PERSONS	3[c]								
		SUM OF DOSES	8.9								
	MARKETING & MANUFACT.	NO. OF PERSONS									
		SUM OF DOSES									
	OTHER	NO. OF PERSONS	1								
		SUM OF DOSES	2.3								
1989	INDUSTRIAL RADIOGRAPHY	NO. OF PERSONS	3		1				1		
		SUM OF DOSES	8.1		93				72		
	POWER REACTORS	NO. OF PERSONS							1		
		SUM OF DOSES							55		
	MEDICAL FACILITIES	NO. OF PERSONS	3						1		
		SUM OF DOSES	5.3						50		
	MARKETING & MANUFACT.	NO. OF PERSONS									
		SUM OF DOSES									
	OTHER	NO. OF PERSONS	1			1				1	
		SUM OF DOSES	1.3			9.2				178	
1988	INDUSTRIAL RADIOGRAPHY	NO. OF PERSONS	3	1						1	
		SUM OF DOSES	8.1	6.1						118	
	ALL OTHER	NO. OF PERSONS	7			4	1	1	1	1	
		SUM OF DOSES	19.34			66.8	61	278	58	127	
1987	INDUSTRIAL RADIOGRAPHY	NO. OF PERSONS	1							1	
		SUM OF DOSES	3.1							180	
	ALL OTHER	NO. OF PERSONS	2	1		5			3		1
		SUM OF DOSES	2.8	7.5		128.4			72.0		650
1986	INDUSTRIAL RADIOGRAPHY	NO. OF PERSONS	2								
		SUM OF DOSES	4.4								
	ALL OTHER	NO. OF PERSONS	3						1	1	2
		SUM OF DOSES	9.6						41.2	115	930
1985	INDUSTRIAL RADIOGRAPHY	NO. OF PERSONS	6	3	1					1	
		SUM OF DOSES	16.7	32.6	27.0					288	
	ALL OTHER	NO. OF PERSONS	7						3	1	
		SUM OF DOSES	11.8						60.2	93	
1984	INDUSTRIAL RADIOGRAPHY	NO. OF PERSONS	3	1		1	1		3		
		SUM OF DOSES	12.5	8.2		10.8	38.0		127.9		
	ALL OTHER	NO. OF PERSONS	6	1					5		
		SUM OF DOSES	15.0	5.2					110.7		

[a]This individual received a whole-body dose of 24 rem in addition to a 6000 rem skin dose.

[b]One of these individuals received a 9 rem whole-body dose in addition to a 1070 rem extremity dose.

[c]One of these persons exceeded the quarterly whole-body dose limits three times in one calendar year.

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APPENDIX A

Listing of Annual Exposure Data Compiled for Certain NRC Licensees in Descending Order of Average Measurable Dose

1992

APPENDIX A

INDUSTRIAL RADIOGRAPHERS Single Location - 1992

Licensee Name	Program Code - 03310	License Number	Total Individuals Monitored	Workers with Measurable Exposure	Collective Dose (person-cSv)	Average Meas'ble Dose (cSv or rem)
DURALOY		37-02279-02	9	4	3.050	0.76
INDUSTRIAL NDT CO., INC.		39-24888-01	25	20	13.325	0.67
TRINITY INDUSTRIES, INC.		34-21480-01	4	3	1.925	0.64
WISCONSIN CENTRIFUGAL, INC.		48-11641-01	5	5	2.350	0.47
AMERICAN FOUNDRY		35-26893-01	5	1	0.375	0.38
ARROW TANK & ENGINEERING CO.		22-13253-01	6	2	0.750	0.38
P. X. ENGINEERING COMPANY, INC.		20-15102-01	5	4	1.300	0.33
CARONDELET FOUNDRY COMPANY		24-26136-01	8	2	0.425	0.21
CMI-QUAKER ALLOY, INC.		37-03671-01	15	10	1.975	0.20
MAYNARD ELECTRIC STEEL CASTING CO.		48-07080-01	4	4	0.775	0.19
LUCIUS PITKIN, INC.		29-27816-01	15	7	1.300	0.19
DURIRON CO., INC.		34-06398-01	3	2	0.350	0.18
MANOIR - ELECTRO ALLOYS, INC.		34-24346-01	14	8	1.350	0.17
MINNESOTA VALLEY ENGINEERING,		22-24393-01	12	6	0.950	0.16
ARMY, DEPARTMENT OF THE		29-00047-02	253	36	3.000	0.08
ARMY, DEPARTMENT OF THE		13-18235-01	16	1	0.050	0.05
CONNEX PIPE SYSTEMS, INC.		34-00850-02	4	3	0.150	0.05
COPES-VULCAN		37-19530-01	1	1	0.050	0.05
EMPIRE STEEL CASTINGS, INC.		37-02448-01	6	2	0.100	0.05
HARRISON STEEL CASTINGS CO.		13-02141-01	5	2	0.100	0.05
HIGH STEEL STRUCTURES, INC.		37-17534-01	12	8	0.400	0.05
INGERSOLL-RAND CO.		29-02015-02	2	2	0.100	0.05
IONICS, INC.		37-20757-02	10	2	0.100	0.05
LYNCHBURG FOUNDRY CO.		45-17464-01	13	2	0.100	0.05
NATIONAL AERONAUTICS & SPACE ADM.		34-00507-04	28	1	0.050	0.05
NILES STEEL TANK CO.		21-04741-01	1	1	0.050	0.05
REFINERY PRODUCTS CORP.		48-03665-02	5	2	0.100	0.05
SHAFER VALVE COMPANY		34-21198-01	3	3	0.150	0.05
ST. LOUIS STEEL CASTING, INC.		24-01587-01	3	3	0.150	0.05
THIOKOL CORPORATION		17-16380-01	43	8	0.400	0.05
TRANS WORLD AIRLINES, INC.		24-05151-05	54	3	0.150	0.05
WAUKESHA FOUNDRY DIVISION		48-13776-01	7	1	0.050	0.05
ATLANTIC RESEARCH CORPORATION		45-02808-04	16	16	0.750	0.05
BABCOCK & WILCOX CO.		34-02160-03	35	5	0.160	0.03
BUCKEYE STEEL CASTINGS		34-06627-01	2	0	0.000	0.00
DAY & ZIMMERMANN, INC.		42-15051-02	4	0	0.000	0.00
DRESSER INDUSTIRES, INC.		29-02210-02	4	0	0.000	0.00
GENERAL MOTORS CORPORATION		21-02392-01	3	0	0.000	0.00
MASON & HANGER-SILAS MASON CO., INC		14-24479-01	7	0	0.000	0.00
MISSOURI STEEL CASTINGS CO.		25-15152-01	5	0	0.000	0.00
NORTHWEST AIRLINES, INC.		22-12080-01	54	0	0.000	0.00

APPENDIX A (cont.)

INDUSTRIAL RADIOGRAPHERS Single Location - 1992

Licensee Name	Program Code - 03310	License Number	Total Individuals Monitored	Workers with Measurable Exposure	Collective Dose (person-cSv)	Average Meas'ble Dose (cSv or rem)
PELTON CASTEEL, INC.		48-02669-02	4	0	0.000	0.00
PRYOR FOUNDRY, INC.		35-18099-01	2	0	0.000	0.00
THE WILLIAM POWELL CO.		34-02963-01	3	0	0.000	0.00
WESTINGHOUSE ELECTRIC CORP.		37-05809-02	9	0	0.000	0.00
			744	180	36.360	0.20

APPENDIX A (cont.)

INDUSTRIAL RADIOGRAPHERS Multiple Location - 1992

Licensee Name	Program Code - 03320	License Number	Total Individuals Monitored	Workers with Measurable Exposure	Collective Dose (person-cSv)	Average Meas'ble Dose (cSv or rem)
TRI STATE INSPECTION & CONSULTANTS		37-19640-01	3	2	5.405	2.70
QUALITY ENERGY SERV. & TESTS CORP.		35-26815-01	16	13	27.930	2.15
PENN INSPECTION CO.		35-21144-01	14	14	25.955	1.85
INDEPENDENT INSPECTION CORPORATION		35-26824-01	8	8	13.450	1.68
H & H X-RAY SERV., INC.		17-19236-01	8	8	12.300	1.54
MATTINGLY TESTING SERVICES, INC.		25-21479-01	8	6	8.625	1.44
GLOBE X-RAY SERV., INC.		35-15194-01	31	28	32.500	1.16
BARNETT INDUSTRIAL X-RAY		35-26953-01	9	9	10.125	1.13
MIDWEST INSPECTION SERVICES		35-27005-01	28	26	28.015	1.08
TULSA GAMMA RAY, INC.		35-17178-01	38	36	38.500	1.07
SIERRA TESTING, INC.		35-26950-01	80	48	47.275	0.98
ACCU-TECH EVALUATION SERVICES, INC		29-28358-01	19	17	16.375	0.96
CALUMET TESTING SERV., INC.		13-16347-01	36	26	24.475	0.94
TWIN PORTS TESTING, INC.		48-23476-01	37	21	19.425	0.93
BILL MILLER, INC.		35-19048-01	43	41	37.525	0.92
WESTERN X-RAY COMPANY		35-19993-01	12	12	9.850	0.82
TEI ANALYTICAL SERVICES, INC.		37-28004-01	59	54	41.850	0.78
QUALITY SYSTEMS NDE, LTD.		37-28085-01	35	32	24.375	0.76
TESTMASTER INSPECTION CO.,INC.		34-24872-01	19	17	12.900	0.76
TECHNICAL WELDING LABORATORY, INC.		42-25214-01	39	39	29.050	0.74
NORTH AMERICAN INSPECTION, INC.		37-23370-01	115	110	81.275	0.74
MID AMERICAN INSPECTION SERIVES,INC		21-26060-01	20	18	13.175	0.73
H&G INSP. CO., INC.		42-26838-01	57	54	39.375	0.73
SCIENTIFIC INSPECTION TECH., INC.		41-25027-01	44	38	27.700	0.73
H. R. INSPECTION SERV., INC.		15-06209-01	8	8	5.575	0.70
COLBY & THIELMEIER TESTING CO.		24-13737-01	11	11	7.475	0.68
JAN X-RAY SERV., INC.		21-16560-01	53	52	34.950	0.67
CONSOLIDATED NDE, INC.		29-21452-01	137	105	70.275	0.67
ST. LOUIS TESTING LABS., INC.		24-00188-02	11	9	5.950	0.66
NON DESTRUCTIVE INSPECTION SERV.		47-11883-01	5	5	3.175	0.64
CENTURY INSPECTION, INC.		42-08456-02	123	106	64.125	0.60
CTI, INC.		50-19202-01	112	88	51.925	0.59
NORTHWEST INSP. & TESTING SERV. INC		11-27394-01	3	3	1.740	0.58
TESTING TECHNOLOGIES, INC.		45-25007-01	11	10	5.625	0.56
HIGH MOUNTAIN INSP. SERV., INC.		49-26808-01	51	30	16.225	0.54
X-R-I TESTING		21-05472-01	147	40	21.600	0.54
PITT-DES MOINES, INC.		37-27878-01	25	19	10.100	0.53
HUNTINGTON TESTING & TECHNOLOGY		47-23076-01	30	29	15.250	0.53
EDWARDS PIPELINE TESTING, INC.		35-23193-01	199	188	98.100	0.52
INDUSTRIAL NDT SERVICES DIVISION		13-06147-04	15	9	4.450	0.49
MQS INSPECTION, INC.		12-00622-07	729	525	256.875	0.49
CONNELL LIMITED PARTNERSHIP		35-13735-01	3	3	1.420	0.47

APPENDIX A (cont.)

INDUSTRIAL RADIOGRAPHERS Multiple Location - 1992

Licensee Name	Program Code - 03320	License Number	Total Individuals Monitored	Workers with Measurable Exposure	Collective Dose (person-cSv)	Average Meas'ble Dose (cSv or rem)
GLITSCH FIELD SERVICES/NDE,INC.		34-14071-01	42	28	12.875	0.46
ANR PIPELINE CO.		21-24502-01	5	1	0.440	0.44
RELIANCE TESTING COMPANY		19-17176-01	21	18	7.800	0.43
AMERICAN INSPECTION COMPANY		12-24801-01	50	33	14.250	0.43
POWER INSPECTION, INC.		37-21428-01	14	14	6.000	0.43
LAW ENGINEERING		10-00346-03	9	9	3.775	0.42
DAYTON X-RAY CO.		34-06943-01	15	6	2.450	0.41
SENIOR ENGINEERING CO.		24-19500-01	5	4	1.590	0.40
BRAUN ITERTEC ENGINEERING, INC.		22-16537-02	20	15	5.800	0.39
PROFESSIONAL SERV. INDUSTRIES, INC.		37-00276-25	8	7	2.700	0.39
ARCTIC SLOPE INSP. SERVICES, INC.		50-29015-01	17	15	5.750	0.38
COMO TECH INSPECTION		15-26978-01	8	8	3.025	0.38
D & S TESTING, INC.		34-21458-01	6	4	1.475	0.37
N. V. ENTERPRISES		49-26888-01	7	4	1.475	0.37
AMERICON, INC.		34-02160-04	16	5	1.725	0.35
ADVEX CORPORATION		45-16452-01	12	11	3.750	0.34
ALASKA INDUSTRIAL X-RAY		50-16084-01	8	8	2.675	0.33
S. K. MCBRYDE, INC.		32-25137-01	6	3	0.975	0.33
CONAM INSPECTION, INC.		12-16559-01	103	86	27.550	0.32
TENNESSEE VALLEY AUTHORITY		41-06832-06	72	49	15.607	0.32
Q. C. LABS., INC.		09-11579-03	26	19	5.925	0.31
CTL ENGINEERING, INC.		34-08331-01	2	2	0.620	0.31
QUALITY ASSURANCE LABS., INC.		18-19078-01	8	5	1.550	0.31
ABC TESTING, INC.		20-19778-01	6	5	1.525	0.31
X-RAY, INC.		46-03414-03	42	38	11.475	0.30
BRANCH RADIOGRAPHIC LABS., INC.		29-03405-02	20	20	5.775	0.29
VENEGAS INDUSTRIAL TESTING		28-14847-02	4	3	0.850	0.28
LEHIGH TESTING LABORATORIES, INC.		07-01173-03	6	5	1.350	0.27
NON-DESTRUCTIVE TESTING CORP.		29-19742-01	11	8	2.125	0.27
GENERAL DYNAMICS CORPORATION		06-01781-08	59	59	13.275	0.23
OLD DOMINION FABRICATORS		45-15581-01	4	4	0.900	0.23
NOVA DATA TESTING LABS, INC.		45-24872-01	8	7	1.500	0.21
NEWPORT NEWS SHIPBUILDING & DRYDOCK		45-09428-02	82	82	17.450	0.21
NATIONAL INSPECTION & CONSULTANTS		09-21289-01	6	4	0.850	0.21
HERRON TESTING LABORATORIES, INC.		34-00681-03	9	6	1.250	0.21
FROEHLING & ROBERTSON, INC.		45-08890-01	14	9	1.800	0.20
MATERIAL TESTING LABORATORIES, INC.		45-17151-01	16	13	2.500	0.19
NDT SERVICES, INC.		52-19438-01	8	6	1.125	0.19
INDESERV, INC.		45-25074-01	2	2	0.350	0.18
CRAMER & LINDELL ENGINEERS, INC.		06-20794-01	25	18	3.125	0.17
CERTIFIED TESTING LABS., INC.		29-14150-01	30	30	4.875	0.16
LABARGE PIPE & STEEL CO.		35-26836-01	4	3	0.475	0.16

APPENDIX A (cont.)

INDUSTRIAL RADIOGRAPHERS Multiple Location - 1992

Licensee Name	Program Code - 03320	License Number	Total Individuals Monitored	Workers with Measurable Exposure	Collective Dose (person-cSv)	Average Meas'ble Dose (cSv or rem)
CANSPEC GROUP INC.		29-28659-01	7	7	1.050	0.15
WALASHEK ENTERPRISES, INC.		53-23225-01	7	6	0.875	0.15
CHICAGO BRIDGE AND IRON COMPANY		42-13553-02	214	143	20.675	0.14
ALONSO & CARUS IRON WORKS, INC.		52-21350-01	8	5	0.700	0.14
PROFESSIONAL WELDING ASSOC.,INC.		48-25806-01	10	9	1.200	0.13
QUALITY INSPECTION & TESTING		50-29038-01	3	3	0.400	0.13
INSPECTION SERVICES AND TESTING		50-23257-01	14	6	0.750	0.13
TRUTOM LTD.		31-28562-01	18	8	0.975	0.12
SCIENTIFIC TECHNICAL, INC.		45-24882-01	6	4	0.450	0.11
STONE & WEBSTER ENGINEERING CORP.		20-05600-02	9	2	0.225	0.11
MAGNA CHEK, INC.		21-19111-02	34	12	1.300	0.11
BATH IRON WORKS CORP.		18-00828-04	19	5	0.500	0.10
UNITED STATES TESTING CO., INC.		29-28614-01	19	11	1.050	0.10
PSI ENERGY, INC.		13-15544-06	6	3	0.275	0.09
DEPT. OF NAVY, MARE ISLAND		04-00221-A1NP	46	42	3.775	0.09
ASTROTECH, INC.		37-09928-01	10	7	0.600	0.09
ANCHOR/DARLING VALVE COMPANY		37-15476-01	8	4	0.325	0.08
SIEMENS NUCLEAR POWER SERVICES, INC		41-25097-01	12	4	0.325	0.08
TENNECO, INC.		42-09073-01	21	16	1.250	0.08
NORFOLK SHIPBUILDING & DRYDOCK CO.		45-12042-01	23	10	0.625	0.06
AMERICAN AIRLINES, INC.		35-13964-01	31	8	0.400	0.05
AMOCO OIL CO.		13-00155-10	31	15	0.750	0.05
ARMY, DEPARTMENT OF THE		30-02405-05	3	1	0.050	0.05
EBASCO SERVICES INCORPORATED		29-07056-03	16	1	0.050	0.05
FACTORY MUTUAL RESEARCH CORPORATION		20-04007-02	5	3	0.150	0.05
FOSTER WHEELER ENERGY CORP.		31-01776-05	14	3	0.150	0.05
MASSACHUSETTS MATERIALS RES., INC.		20-19130-01	10	4	0.200	0.05
NAVY, DEPARTMENT OF THE		10-44466-A1NP	33	28	1.400	0.05
NAVY, DEPT. OF THE		59-04697-A1NP	9	4	0.200	0.05
NAVY, DEPT. OF THE, NAVAL SUB BASE		53-00314-A1NP	30	5	0.250	0.05
NAVY, DEPT. OF THE, SHORE INT.		53-23653-01	16	6	0.300	0.05
NAVY, DEPT. OF THE, SHORE INT. MTN.		53-68251-A1NP	16	6	0.300	0.05
NAVY, DEPT. OF THE		59-21047-A1NP	15	15	0.750	0.05
NAVY, DEPT. OF THE		59-04620-A1NP	9	8	0.400	0.05
NAVY, DEPT. OF THE		59-05837-A1NP	13	9	0.450	0.05
NAVY, DEPT. OF THE		59-04648-A1NP	14	10	0.500	0.05
NAVY, DEPT. OF THE		59-04638-A1NP	8	5	0.250	0.05
NAVY, DEPT. OF THE		59-21046-A1NP	14	8	0.400	0.05
NAVY, DEPT. OF THE		59-04639-A1NP	12	2	0.100	0.05
POWER PIPING CO.		37-09945-01	7	3	0.150	0.05
TAMPELLA POWER, INC.		37-28585-01	4	4	0.200	0.05
UNITED STATES TESTING CO.		04-23240-01	4	3	0.150	0.05

APPENDIX A (cont.)

INDUSTRIAL RADIOGRAPHERS Multiple Location - 1992

Licensee Name	Program Code - 03320	License Number	Total Individuals Monitored	Workers with Measurable Exposure	Collective Dose (person-cSv)	Average Meas'ble Dose (cSv or rem)
VERMONT NONDESTRUCTIVE TESTING INC.		44-28509-01	5	1	0.050	0.05
VOITH HYDRO, INC.		37-16280-03	28	1	0.050	0.05
PRECISION COMPONENTS CORP.		37-16280-01	70	15	0.067	0.00
AMOCO OIL CO.		45-01378-02	14	0	0.000	0.00
FOSTER WHEELER CONSTRUCTORS, INC.		29-28016-01	0	0	0.000	0.00
INDUSTRIAL TESTING LAB. SERV. CORP.		37-16406-01	12	0	0.000	0.00
INTERNATIONAL TESTING LABS., INC.		29-14027-01	6	0	0.000	0.00
			4,230	3,068	1,549.664	0.51

APPENDIX A (cont.)

MANUFACTURERS AND DISTRIBUTORS - 1992

Licensee Name	Program Type	Program Code	License Number	Total Individuals Monitored	Workers with Measurable Exposure	Collective Dose (person-cSv)	Average Meas'ble Dose (cSv or rem)
MINNESOTA MINING & MFG. CO.	A-BROAD	03211	22-00057-06	105	72	108.500	1.51
DU PONT MERCK PHARMACEUTICAL CO.	A-BROAD	03211	20-28598-01	932	587	274.250	0.47
ADVANCED MEDICAL SYS., INC.	A-BROAD	03211	34-19089-01	15	15	4.875	0.33
RTS TECHNOLOGY INC.	A-BROAD	03211	20-27966-01	4	3	0.550	0.18
ABB PROCESS AUTOMATION, INC.	A-BROAD	03211	34-00255-03	426	51	4.275	0.08
E. R. SQUIBB & SONS, INC.	A-BROAD	03211	29-00139-02	942	97	5.925	0.06
UPJOHN CO.	A-BROAD	03211	21-00182-03	612	512	25.725	0.05
NUCLEAR RESEARCH CORP.	A-BROAD	03211	29-04236-01	47	17	0.850	0.05
				3,083	1,354	424.950	0.31
OHMART CORP.	B-BROAD	03212	34-00639-01	80	53	10.450	0.20
FRONTIER TECHNOLOGY CORP.	B-BROAD	03212	SNM-1957	23	6	0.675	0.11
REUTER-STOKES INSTRUMENTS, INC.	B-BROAD	03212	34-18233-01	32	20	1.375	0.07
FISCHER TECHNOLOGY, INC.	B-BROAD	03212	06-19165-01	8	0	0.000	0.00
HAUNI RICHMOND, INC.	B-BROAD	03212	45-18340-01	3	0	0.000	0.00
				146	79	12.500	0.16
ELIAS USA, INC.	OTHER	03214	48-26355-01	1	1	0.375	0.38
SCAN TECHNOLOGIES, INC.	OTHER	03214	37-20807-01	4	3	1.050	0.35
QUAL-X, INC.	OTHER	03214	34-16907-02	4	2	0.580	0.29
DU PONT MERCK PHARMACEUTICALS CO.	OTHER	03214	20-00320-19	7	7	1.450	0.21
GENERAL NUCLEONICS, INC.	OTHER	03214	04-12071-02	10	9	0.775	0.09
PYROTRONICS	OTHER	03214	29-08864-03	26	26	1.950	0.08
HALLIBURTON CO.	OTHER	03214	35-00502-02	177	41	2.175	0.05
SMH (US) INC.	OTHER	03214	37-03572-06	83	80	4.125	0.05
CANBERRA INDUSTRIES, INC.	OTHER	03214	06-15099-01	47	3	0.150	0.05
CENTOCOR, INC.	OTHER	03214	37-19413-01	193	58	2.900	0.05
CP CLARE CORPORATION	OTHER	03214	24-26366-01	8	1	0.050	0.05
HERLEY-MDI	OTHER	03214	20-13270-01	10	1	0.050	0.05
HNU SYSTEMS, INC.	OTHER	03214	20-27938-02	34	6	0.300	0.05
INTERGRATED INDUSTRIAL SYS., INC.	OTHER	03214	06-21253-01	28	3	0.150	0.05
NUCLEAR RESEARCH CORPORATION	OTHER	03214	37-02401-01	56	13	0.650	0.05
RADIATION MONITORING DEVICES, INC.	OTHER	03214	20-16325-01	23	2	0.100	0.05
SOLON TECHNOLOGIES, INC./HARSHAW	OTHER	03214	34-06558-05	41	13	0.650	0.05
STOCKER & YALE, INC.	OTHER	03214	20-16532-01	18	18	0.900	0.05
OUTOKUMPU ELECTRONICS, INC.	OTHER	03214	37-28461-01	16	2	0.080	0.04
LIFECODES CORPORATION	OTHER	03214	06-28766-01	21	1	0.010	0.01
BERTHOLD SYSTEMS, INC.	OTHER	03214	37-21226-01	3	0	0.000	0.00
BRISTOL-MYERS SQUIBB USPNG (T-6)	OTHER	03214	13-00772-02	26	0	0.000	0.00
DRG INTERNATIONAL, INC.	OTHER	03214	29-17621-01	3	0	0.000	0.00
HARREL, INCORPORATED	OTHER	03214	06-16699-01	3	0	0.000	0.00
MOLINS RICHMOND, INC.	OTHER	03214	45-02429-01	12	0	0.000	0.00
VARIAN/CROSSED FIELD AND RECEIVER	OTHER	03214	20-02237-04	12	0	0.000	0.00
				866	290	18.470	0.06

APPENDIX A (cont.)

MANUFACTURERS AND DISTRIBUTORS - 1992

Licensee Name	Program Type	Program Code	License Number	Total Individuals Monitored	Workers with Measurable Exposure	Collective Dose (person-cSv)	Average Meas'ble Dose (cSv or rem)
MALLINCKRODT MEDICAL, INC.	PHARMACIES	02500	24-04206-15MD	11	5	5.150	1.03
NUCLEAR PHARMACY OF IDAHO, INC.	PHARMACIES	02500	11-27398-01MD	5	5	3.500	0.70
MALLINCKRODT, INC.	PHARMACIES	02500	20-15215-02MD	35	32	11.325	0.35
MALLINCKRODT, INC.	PHARMACIES	02500	37-21345-01MD	30	15	3.925	0.26
MALLINCKRODT MEDICAL, INC.	PHARMACIES	02500	24-04206-16MD	9	2	0.350	0.18
GAMMA-MED	PHARMACIES	02500	34-26334-01	7	7	1.000	0.14
MPI PHARMACY SERVICES, INC.	PHARMACIES	02500	29-28341-02MD	18	11	1.500	0.14
MALLINCKRODT MEDICAL, INC.	PHARMACIES	02500	24-04206-10MD	22	16	1.550	0.10
MALLINCKRODT, INC.	PHARMACIES	02500	24-04206-07MD	10	7	0.600	0.09
OKLAHOMA, UNIVERSITY OF	PHARMACIES	02500	35-03176-04MD	30	4	0.340	0.09
MALLINCKRODT, INC.	PHARMACIES	02500	24-04206-08MD	14	10	0.750	0.08
SYNCOR CORP.	PHARMACIES	02500	35-19583-01MD	12	5	0.375	0.08
SYNCOR CORPORATION	PHARMACIES	02500	34-16654-01MD	28	6	0.425	0.07
MALLINCKRODT, INC.	PHARMACIES	02500	24-04206-12MD	9	9	0.575	0.06
SPECTRUM PHARMACY INCORPORATED	PHARMACIES	02500	13-26367-01	14	9	0.500	0.06
MALLINCKRODT MEDICAL, INC.	PHARMACIES	02500	24-17450-02MD	11	5	0.250	0.05
MID-AMERICA ISOTOPES, INC.	PHARMACIES	02500	24-26241-01	13	1	0.050	0.05
MPI PHARMACY SERVICES, INC.	PHARMACIES	02500	34-26239-01MD	22	2	0.100	0.05
SYNCOR CORPORATION	PHARMACIES	02500	45-17769-01MD	13	4	0.200	0.05
SYNCOR INTERNATIONAL CORPORATION	PHARMACIES	02500	20-21227-01MD	23	6	0.300	0.05
				336	161	32.765	0.20

APPENDIX A (cont.)

FUEL FABRICATORS AND PROCESSORS - 1992

Licensee Name	Program Code - 21210	License Number	Total Individuals Monitored	Workers with Measurable Exposure	Collective Dose (person-cSv)	Average Meas'ble Dose (cSv or rem)
WESTINGHOUSE ELECTRIC CORP.		SNM-1107	618	468	89.200	0.19
B&W FUEL CO.		SNM-1168	168	101	16.300	0.16
SIEMENS POWER CORP.		SNM-1227	590	511	73.700	0.14
NUCLEAR FUEL SERVICES, INC.		SNM-0124	1,423	1,312	177.825	0.14
COMBUSTION ENGINEERING, INC.		SNM-1067	225	64	7.450	0.12
GENERAL ELECTRIC CO.		SNM-1097	1,255	432	45.025	0.10
GENERAL ATOMICS		SNM-0696	907	81	6.475	0.08
BABCOCK & WILCOX CO.		SNM-0042	3,066	1,975	113.325	0.06
UNC, INC.		SNM-0368	12	0	0.000	0.00
			8,264	4,944	529.300	0.11

INDEPENDENT SPENT FUEL STORAGE INSTALLATION - 1992

Licensee Name	Program Code - 23200	License Number	Total Individuals Monitored	Workers with Measurable Exposure	Collective Dose (person-cSv)	Average Meas'ble Dose (cSv or rem)
GENERAL ELECTRIC CO.		SNM-2500	26	24	7.550	0.31
PUBLIC SERV. CO. OF CO		SNM-2504	253	60	3.250	0.05
VIRGINIA ELECTRIC POWER*		SNM-2501	0	0	0.000	0.00
			279	84	10.800	0.13

*Reported with Surry 1,2 DPR-32,37

LOW LEVEL WASTE DISPOSAL FACILITIES - 1992

Licensee Name	Program Code - 03231	License Number	Total Individuals Monitored	Workers with Measurable Exposure	Collective Dose (person-cSv)	Average Meas'ble Dose (cSv or rem)
CHEM-NUCLEAR SYSTEMS, INC.		12-13536-01	123	65	33.650	0.52
U. S. ECOLOGY, INC.		16-19204-01	344	17	3.425	0.20
			467	82	37.075	0.45

APPENDIX B

Annual Whole Body Doses at Licensed Nuclear Power Facilities

1992

APPENDIX B
ANNUAL WHOLE BODY DOSES AT LICENSED NUCLEAR POWER FACILITIES
CY 1992

PLANT NAME	TYPE	Number of Individuals with Whole Body Doses in the Ranges (cSv or rem)													TOTAL NUMBER MONITORED	NUMBER WITH MEAS. EXPOSURE	TOTAL COLLECTIVE DOSE (Person-cSv,rem)
		No Measurable	Meas. <0.10	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.00	1.00-2.00	2.00-3.00	3.00-4.00	4.00-5.00	5.00-6.00	6.00-7.00	7.00-12.00	>12.0			
ARKANSAS 1,2	PWR	1,370	1,353	646	528	266	161	136	24							4,484	3,114	876 **
BEAVER VALLEY 1,2	PWR	1,504	605	397	282	92	15	23				—				2,918	1,414	289 **
BIG ROCK POINT	BWR	24	272	29	22	39	35	67	20	9	3					520	496	277
BRAIDWOOD 1,2	PWR	1,421	393	348	222	56	26	13	1							2,480	1,059	228 **
BROWNS FERRY 1,2,3	BWR	3,837	1,259	679	457	169	68	26								6,495	2,658	516 **
BRUNSWICK 1,2	BWR	2,313	1,329	627	348	182	89	108	7							5,003	2,690	623 **
BYRON 1,2	PWR	1,644	426	289	231	56	14	5								2,665	1,021	199 **
CALLAWAY 1	PWR	774	357	322	243	107	50	54								1,907	1,133	336 **
CALVERT CLIFFS 1,2	PWR	1,623	1,291	284	182	88	62	72								3,602	1,979	330 **
CATAWBA 1,2	PWR	1,748	562	342	366	163	57	25								3,263	1,515	414
CLINTON	BWR	1,360	426	216	232	144	119	54	4							2,555	1,195	431
COMANCHE PEAK	PWR	3,832	651	261	135	61	14	6								4,960	1,128	188
COOK 1,2	PWR	1,213	879	416	331	167	84	77								3,167	1,954	492 **
COOPER STATION	BWR	2,287	289	78	56	21	11	8								2,750	463	84
CRYSTAL RIVER 3	PWR	1,025	538	296	276	139	70	82	2							2,428	1,403	424 **
DAVIS-BESSE	PWR	714	238	28	21											1,001	287	19 **
DIABLO CANYON 1,2	PWR	2,087	811	477	317	135	53	57								3,937	1,850	459
DRESDEN 2,3	BWR	2,139	794	291	222	212	124	163	6							3,951	1,812	619 **
DUANE ARNOLD	BWR	1,940	297	186	166	135	103	143	13							2,983	1,043	502 **
FARLEY 1,2	PWR	616	677	403	403	199	96	215	20	5						2,634	2,018	805 **
FERMI 2	BWR	1,413	545	325	239	85	16	3								2,626	1,213	245
FITZPATRICK	BWR	1,209	1,211	402	290	168	125	163	15							3,583	2,374	674 **
FORT CALHOUN	PWR	693	285	156	158	114	54	35								1,495	802	272
GINNA	PWR	818	288	165	185	108	56	30								1,650	832	261 **
GRAND GULF	BWR	1,556	952	409	374	153	69	69	6							3,588	2,032	484 **
HADDAM NECK	PWR	744	375	141	124	96	39	22								1,541	797	202 **
HARRIS	PWR	797	420	199	188	67	37	19								1,727	930	213 **
HATCH 1,2	BWR	1,166	602	283	296	207	117	108	1	1						2,781	1,615	550 **
HOPE CREEK 1	BWR	1,087	891	241	217	136	106	102	1							2,781	1,694	436 **
INDIAN POINT 2	PWR	646	296	83	63	23	7	17								1,135	489	97 **
INDIAN POINT 3	PWR	982	491	233	168	79	22	10								1,985	1,003	212
KEWAUNEE	PWR	476	183	93	107	37	18	12								926	450	122
LASALLE 1,2	BWR	1,211	766	422	404	229	176	388	33							3,629	2,418	1,167 **
LIMERICK 1,2	BWR	1,899	745	340	276	129	44	24	1							3,458	1,559	330 **
MAINE YANKEE	PWR	673	391	196	219	193	87	102	1							1,862	1,189	461 **

* Indicates plants counted for the first time in 1992 after completing their first full year of operation.
** Indicates actual collective dose reported by facility, otherwise calculated by staff.

APPENDIX B (Continued)
ANNUAL WHOLE BODY DOSES AT LICENSED NUCLEAR POWER FACILITIES
CY 1992

PLANT NAME	TYPE	Number of Individuals with Whole Body Doses in the Ranges (cSv or rem)													TOTAL NUMBER MONI-TORED	NUMBER WITH MEAS. EXPOSURE	TOTAL COLLECTIVE DOSE (Person-cSv,rem)
		No Mea-surable	Meas. <0.10	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.00	1.00-2.00	2.00-3.00	3.00-4.00	4.00-5.00	5.00-6.00	6.00-7.00	7.00-12.00	>12.0			
MCGUIRE 1,2	PWR	1,765	734	369	301	106	42	67								3,384	1,619	418
MILLSTONE POINT 1	BWR	231	142	61	52	32	20	32	9							- 579	348	99 **
MILLSTONE POINT 2,3	PWR	2,117	1,306	559	478	291	179	297	80							5,307	3,190	1,280 **
MONTICELLO	BWR	409	222	79	78	34	15	25	1							863	454	114 **
NINE MILE POINT 1,2	BWR	1,737	677	383	343	196	86	109	6							3,537	1,800	563 **
NORTH ANNA 1,2	PWR	870	1,208	276	258	178	84	134	21							3,029	2,159	576 **
OCONEE 1,2,3	PWR	1,408	651	477	457	203	84	81	1							3,362	1,954	612
OYSTER CREEK	BWR	318	1,458	451	415	191	133	117	5	1						3,089	2,771	657 **
PALISADES	PWR	222	672	181	204	96	46	67	1							1,489	1,267	295 **
PALO VERDE 1,2,3	PWR	2,357	915	385	333	150	90	96	11	1						4,338	1,981	541 **
PEACH BOTTOM 2,3	BWR	2,801	870	406	309	151	85	84	6							4,712	1,911	502 **
PERRY	BWR	976	381	298	381	208	107	112								2,463	1,487	571 **
PILGRIM	BWR	1,692	641	307	189	139	48	8								3,024	1,332	281 **
POINT BEACH 1,2	PWR	460	190	119	124	69	41	70	4							1,077	617	256 **
PRAIRIE ISLAND 1,2	PWR	978	376	170	157	78	36	28								1,823	845	211 **
QUAD CITIES 1,2	BWR	1,579	738	440	413	249	176	363	34							3,992	2,413	1,157 **
RIVER BEND 1	BWR	1,620	778	366	342	209	144	178	5							3,642	2,022	710 **
ROBINSON 2	PWR	929	483	283	251	148	66	34	2							2,196	1,267	352 **
SALEM 1,2	PWR	2,231	3,259	629	291	129	35	32	1							6,607	4,376	431 **
SAN ONOFRE 1,2,3	PWR	2,148	871	308	258	156	51	7								3,799	1,651	324 **
SEABROOK	PWR	1,188	410	207	130	46	11	2								1,994	806	147
SEQUOYAH 1,2	PWR	1,821	662	391	355	177	76	52	1							3,535	1,714	465 **
SOUTH TEXAS 1,2	PWR	1,789	478	231	166	43	4	1								2,712	923	147 **
ST. LUCIE 1,2	PWR	1,520	563	356	219	66	32	15								2,771	1,251	264
SUMMER 1	PWR	825	170	50	17	12										1,074	249	27 **
SURRY 1,2	PWR	1,232	583	319	373	199	90	91	5							2,892	1,660	539 **
SUSQUEHANNA 1,2	BWR	1,778	643	361	333	231	126	179	12							3,663	1,885	724 **
THREE MILE ISLAND 1	PWR	429	461	65	27	2	3									987	558	34 **
TROJAN	PWR	1,226	315	128	95	18	8	3								1,793	567	84 **
TURKEY POINT 3,4	PWR	1,376	613	311	244	116	42	48								2,750	1,374	325 **
VERMONT YANKEE	BWR	999	276	181	197	121	62	78	6							1,920	921	381
VOGTLE 1,2	PWR	1,033	366	269	294	168	106	59								2,295	1,262	426 **
WASHINGTON NUCLEAR 2	BWR	2,013	536	233	232	185	135	155	13							3,502	1,489	612 **
WATERFORD 3	PWR	1,201	607	351	172	47	22	14								2,414	1,213	226
WOLF CREEK 1	PWR	657	304	61	45	17	7	12								1,103	446	78

* Indicates plants counted for the first time in 1992 after completing their first full year of operation.
** Indicates actual collective dose reported by facility, otherwise calculated by staff.

APPENDIX B (Continued)
ANNUAL WHOLE BODY DOSES AT LICENSED NUCLEAR POWER FACILITIES
CY 1992

PLANT NAME	TYPE	Number of Individuals with Whole Body Doses in the Ranges (cSv or rem)													TOTAL NUMBER MONI- TORED	NUMBER WITH MEAS. EXPOSURE	TOTAL COLLECTIVE DOSE (Person-cSv,rem)
		No Measurable	Meas. <0.10	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.00	1.00-2.00	2.00-3.00	3.00-4.00	4.00-5.00	5.00-6.00	6.00-7.00	7.00-12.00	>12.0			
ZION 1,2	PWR	1,677	513	233	261	165	110	380	70							3,409	1,732	1,043 **
TOTALS: 73 PWRs		56,859	28,220	12,503	10,259	4,926	2,287	2,602	245	6						117,907	61,048	16,000
TOTALS: 37 BWRs		39,594	17,740	8,094	6,883	3,955	2,339	2,866	204	11	3					81,689	42,095	13,309
TOTALS: 110 LWRs		96,453	45,960	20,597	17,142	8,881	4,626	5,468	449	17	3					199,596	103,143	29,309

* Indicates plants counted for the first time in 1992 after completing their first full year of operation.
** Indicates actual collective dose reported by facility, otherwise calculated by staff.

APPENDIX B (Continued)
ANNUAL WHOLE BODY DOSES AT LICENSED NUCLEAR POWER FACILITIES
FACILITIES NOT IN OPERATION OR IN OPERATION LESS THAN ONE YEAR
CY 1992

PLANT NAME	TYPE	Number of Individuals with Whole Body Doses in the Ranges (cSv or rem)													TOTAL NUMBER MONI-TORED	NUMBER WITH MEAS. EXPOSURE	TOTAL COLLECTIVE DOSE (Person-cSv,rem)
		No Mea-surable	Meas. <0.10	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.00	1.00-2.00	2.00-3.00	3.00-4.00	4.00-5.00	5.00-6.00	6.00-7.00	7.00-12.00	>12.0			
BELLEFONTE	PWR	119	14													133	14	1
FORT ST. VRAIN *	HTGR	520	144	36	21	12	1									734	214	25 **
HUMBOLDT BAY *	BWR	167	8													175	8	0
INDIAN POINT 1 *	PWR	Indian Point 1 reported with Indian Point 2																
LACROSSE *	BWR	759	3	17	8											787	28	6
RANCHO SECO *	PWR	189	55	9	6											259	70	7
SHOREHAM	BWR	1,568	113													1,681	113	2 **
THREE MILE ISLAND 2*	PWR	154	165	31	26	9	6	65	13							469	315	157 **
WATTS BAR 1,2	PWR	179	26	4												209	30	1 **
YANKEE-ROWE *	PWR	486	102	102	55	34	19	12								810	324	94 **
TOTALS: 10		4,141	630	199	116	55	26	77	13							5,257	1,116	293

* Indicates plants that are no longer in commercial operation.
** Indicates actual collective dose reported by facility, otherwise calculated by staff.

APPENDIX C*

Personnel, Dose, and Power Generation Summary

1969-1992

A discussion of the methods used to collect and calculate the information contained in this Appendix is given in Section 2.1.

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Collective Dose (person-cSv or rem)	Person-cSv (-rem) per Work Function		Person-cSv (-rem) per Personnel Type		Average Meas'ble Dose (cSv or rem)	Person-cSv (-rem)/ MW-Yr
						Opera-tions	Maint. & Others	Contrac-tor	Station & Utility		
ARKANSAS 1,2	1975	588.0	76.5	147	21					0.14	0.0
Docket 50-313, 50-368; DPR-51; NPF-6	1976	464.6	56.6	476	289	27	262	100	189	0.61	0.6
1st commercial operation 12/74	1977	610.3	76.8	601	256	28	228	111	145	0.43	0.4
Type - PWRs	1978	627.2	77.5	722	189	32	157	109	80	0.26	0.3
Capacity - 836, 858 MWe	1979	397.0	55.3	1,321	369	54	315	252	117	0.28	0.9
	1980	452.8	63.7	1,233	342	81	261	213	129	0.28	0.8
	1981	1,104.7	68.3	2,225	1,102	130	972	843	259	0.50	1.0
	1982	905.4	58.6	1,608	803	97	706	505	298	0.50	0.9
	1983	915.0	54.7	2,109	1,397	96	1,301	1,145	252	0.66	1.5
	1984	1,289.1	77.4	1,742	806	89	717	533	273	0.46	0.6
	1985	1,192.3	73.6	1,262	286	62	224	148	138	0.23	0.2
	1986	1,070.3	66.9	2,135	1,141	194	947	881	260	0.53	1.1
	1987	1,366.1	88.9	1,123	382	92	290	205	177	0.34	0.3
	1988	1,070.3	69.4	2,421	1,387	138	1,249	1,094	293	0.57	1.3
	1989	1,066.3	72.0	2,063	711	36	675	522	189	0.34	0.7
	1990	1,351.9	84.2	2,493	762	32	730	625	137	0.31	0.6
	1991	1,515.8	88.4	2,064	351	35	316	242	109	0.17	0.2
	1992	1,352.1	77.4	3,114	876	21	855	719	157	0.28	0.6
BEAVER VALLEY 1,2	1977	355.6	57.0	331	87	8	79	58	29	0.26	0.2
Docket 50-334, 50-412; DPR-66, NPF-73	1978	304.2	40.8	646	190	11	179	151	39	0.29	0.6
1st commercial operation 10/76, 11/87	1979	221.0	40.0	704	132	22	110	67	65	0.19	0.6
Type - PWRs	1980	39.8	6.8	1,817	553	76	477	477	76	0.30	13.9
Capacity - 810, 820	1981	573.4	73.6	1,237	229	38	191	142	87	0.19	0.4
	1982	326.7	41.6	1,755	599	126	473	481	118	0.34	1.8
	1983	561.2	68.2	1,485	772	158	614	615	157	0.52	1.4
	1984	576.7	71.8	1,393	504	124	380	302	202	0.36	0.9
	1985	717.7	91.9	619	60	17	43	12	48	0.10	0.1
	1986	581.3	70.7	1,575	627	82	545	456	171	0.40	1.1
	1987	684.1	83.8	1,282	210	43	167	137	73	0.16	0.3
	1988	1,386.1	87.4	1,764	530	90	440	438	92	0.30	0.4
	1989	1,017.4	69.6	2,349	1,378	197	1,181	1,151	227	0.59	1.4
	1990	1,271.0	85.3	1,675	348	33	315	268	80	0.21	0.3
	1991	1,267.5	78.6	1,689	495	62	433	325	170	0.29	0.4
	1992	1,441.9	89.1	1,414	289	29	260	203	86	0.20	0.2
BIG ROCK POINT	1969	48.1		165	136					0.82	2.8
Docket 50-155; DPR-6	1970	43.5		290	194					0.67	4.5
1st commercial operation 3/63	1971	44.4		260	184					0.71	4.1
Type - BWR	1972	43.5		195	181					0.93	4.2
Capacity - 67 MWe	1973	50.9		241	285			119	166	1.18	5.6
	1974	40.7	70.3	281	276	54	222	42	234	0.98	6.8
	1975	35.1	59.8	300	180	58	122	20	160	0.60	5.1

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Collective Dose (person-cSv or rem)	Person-cSv (-rem) per Work Function		Person-cSv (-rem) per Personnel Type		Average Meas'ble Dose (cSv or rem)	Person -cSv (-rem)/ MW-Yr
						Opera-tions	Maint. & Others	Contrac-tor	Station & Utility		
BIG ROCK POINT (Continued)	1976	29.5	50.1	488 –	289	82	207	105	184	0.59	9.8
	1977	43.6	73.4	465	334	94	240	60	274	0.72	7.7
	1978	48.5	77.9	285	175	93	82	9	166	0.61	3.6
	1979	13.0	23.5	623	455	89	366	102	353	0.73	35.0
	1980	48.9	79.0	599	354	91	263	91	263	0.59	7.2
	1981	56.9	90.6	479	160	58	102	38	122	0.33	2.8
	1982	43.6	70.8	521	328	129	199	67	261	0.63	7.5
	1983	42.3	71.0	493	263	32	231	55	208	0.53	6.2
	1984	50.3	78.6	297	155	37	118	21	134	0.52	3.1
	1985	43.8	73.5	435	291	54	237	60	231	0.67	6.6
	1986	61.0	95.5	202	84	34	50	17	67	0.42	1.4
	1987	45.3	71.0	251	222	45	177	35	187	0.88	4.9
	1988	46.1	72.8	303	170	34	136	25	145	0.56	3.7
	1989	50.2	79.0	418	177	38	139	32	145	0.42	3.5
	1990	51.3	77.2	351	232	33	199	45	187	0.66	4.5
	1991	59.1	85.2	435	226	31	195	42	184	0.52	3.8
	1992	32.7	54.5	496	277	36	241	51	226	0.56	8.5
BRAIDWOOD 1,2	1989	1,381.8	75.4	1,460	296	7	289	198	98	0.20	0.2
Docket 50-456, 50-457; NPF-72, NPF-77	1990	1,740.2	84.1	1,081	186	9	177	107	79	0.17	0.1
1st commercial operation 7/88, 10/88	1991	1,377.2	68.9	1,641	550	101	449	387	163	0.34	0.4
Type - PWRs	1992	1,885.9	89.0	1,059	228	29	199	140	88	0.22	0.1
Capacity - 1120, 1120 MWe											
BROWNS FERRY 1,2,3	1975	161.7	17.8	2,380	325					0.14	2.0
Docket 50-259, 50-260, 50-296	1976	337.6	26.9	2,207	234					0.11	0.7
DPR - 33, - 52, - 68	1977	1,327.5	73.7	1,858	863	60	803	249	614	0.46	0.7
1st commercial operation 8/74, 3/75, 3/77	1978	1,992.1	73.5	2,376	1,792	4	1,788	261	1,531	0.75	0.9
Type - BWRs	1979	2,393.0	79.1	2,689	1,667	0	1,667	289	1,378	0.62	0.7
Capacity - 1065,1065,1065 MWe	1980	2,182.1	73.6	2,712	1,826	4	1,822	50	1,776	0.67	0.8
	1981	2,132.9	69.5	3,379	2,380	100	2,280	404	1,976	0.70	1.1
	1982	2,025.4	67.6	3,277	2,220	181	2,039	317	1,903	0.68	1.1
	1983	1,641.0	54.3	3,302	3,363	276	3,087	909	2,454	1.02	2.0
	1984	1,431.9	54.2	2,962	1,940	229	1,711	541	1,399	0.65	1.4
	1985	368.2	11.9	2,755	1,159	201	958	306	853	0.42	3.1
	1986	0.0	0.0	3,003	1,050	196	854	343	707	0.35	---
	1987	0.0	0.0	3,115	1,181	187	994	222	959	0.38	---
	1988	0.0	0.0	3,324	1,155	234	921	109	1,046	0.35	---
	1989	0.0	0.0	2,683	656	97	559	131	525	0.24	---
	1990	0.0	0.0	2,717	1,310	64	1,246	68	1,242	0.48	---
	1991	445.0	17.7	1,815	354	134	220	121	233	0.20	0.8
	1992	979.9	32.2	2,658	516	85	431	299	217	0.19	0.5

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function		Person-rems (-cSv) per Personnel Type		Average Meas'ble Dose (rems or cSv)	Person rems (-cSv)/ MW-Yr
						Opera-tions	Maint. & Others	Contrac-tor	Station & Utility		
BRUNSWICK 1,2	1976	297.2	56.0	1,265	326	15	311	222	104	0.26	1.1
Docket 50-324, 50-325; DPR-62, -71	1977	291.1	55.7	1,512	1,120	48	1,071	782	337	0.74	3.8
1st commercial operation 3/77, 11/75	1978	1,173.1	83.7	1,458	1,004	99	905	695	309	0.69	0.9
Type - BWRs	1979	810.0	60.1	2,891	2,602	97	2,505	2,074	528	0.90	3.2
Capacity - 790, 790 MWe	1980	687.2	52.2	3,788	3,870	111	3,759	3,098	772	1.02	5.6
	1981	925.2	56.9	3,854	2,638	159	2,479	1,890	748	0.68	2.9
	1982	540.3	50.3	4,957	3,792	162	3,630	2,841	951	0.76	7.0
	1983	636.7	44.3	5,602	3,475	152	3,323	2,428	1,047	0.62	5.5
	1984	761.3	51.5	5,046	3,260	143	3,117	2,363	897	0.65	4.3
	1985	822.2	58.4	4,057	2,804	120	2,684	2,077	727	0.69	3.4
	1986	1,051.3	69.1	3,370	1,909	97	1,812	1,273	636	0.57	1.8
	1987	1,152.4	80.6	3,052	1,419	144	1,275	861	558	0.46	1.2
	1988	990.8	70.1	2,648	1,747	219	1,528	1,051	696	0.66	1.8
	1989	990.9	65.8	3,844	1,786	181	1,605	1,295	491	0.46	1.8
	1990	991.6	67.8	3,182	1,548	152	1,396	1,156	392	0.49	1.6
	1991	952.8	64.5	2,586	778	120	658	451	327	0.30	0.8
	1992	375.9	27.9	2,690	623	95	528	464	159	0.23	1.7
BYRON 1,2	1986	894.5	88.6	1,081	76	12	64	47	29	.07	0.1
Docket 50-454, 50-455; NPF-37, NPF-66	1987	650.9	70.9	1,826	769	11	758	667	102	0.42	1.2
1st commercial operation 9/85,8/87	1988	1,534.7	86.3	1,222	459	0	459	333	126	0.38	0.3
Type - PWRS	1989	1,812.6	90.2	1,109	172	21	151	105	67	0.16	0.1
Capacity - 1105, 1105	1990	1,567.3	78.8	1,396	434	38	396	266	168	0.31	0.3
	1991	1,816.3	89.9	1,077	268	42	226	158	110	0.25	0.1
	1992	1,888.4	90.1	1,021	199	43	156	118	81	0.19	0.1
CALLAWAY 1	1985	967.4	90.0	964	36	16	20	7	29	0.04	0.0
Docket 50-483; NPF-30	1986	865.2	81.3	1,052	225	53	172	129	96	0.21	0.3
1st commercial operation 12/84	1987	759.0	71.1	1,082	393	89	304	249	144	0.36	0.5
Type - PWR	1988	1,069.2	93.4	353	27	12	15	2	25	0.08	0.0
Capacity - 1125 MWe	1989	1,000.3	85.4	1,055	283	46	237	191	92	0.27	0.3
	1990	960.7	84.1	1,134	442	50	392	332	110	0.39	0.5
	1991	1,193.1	99.7	280	21	9	12	2	19	0.07	0.0
	1992	967.5	83.0	1,133	336	52	284	244	92	0.30	0.3
CALVERT CLIFFS 1,2	1976	753.4	95.2	507	74	28	46	8	66	0.15	0.1
Docket 50-317, 50-318; DPR-53, -69	1977	583.0	72.1	2,265	547	36	511	224	323	0.24	0.9
1st commercial operation 5/75, 4/77	1978	1,188.5	75.8	1,391	500	13	487	143	357	0.36	0.4
Type - PWRs	1979	1,161.0	74.0	1,428	805	32	773	426	379	0.56	0.7
Capacity - 825, 825 MWe	1980	1,309.9	84.1	1,496	677	15	662	402	275	0.45	0.5
	1981	1,379.7	83.1	1,555	607	29	578	378	229	0.39	0.4
	1982	1,238.3	73.7	1,805	1,057	84	973	402	655	0.59	0.9
	1983	1,397.2	81.6	1,915	668	5	663	143	525	0.35	0.5
	1984	1,389.4	79.3	1,369	479	61	418	79	400	0.35	0.3
	1985	1,189.8	68.4	1,598	694	69	625	144	550	0.43	0.6

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function		Person-rems (-cSv) per Personnel Type		Average Meas'ble Dose (rems or cSv)	Person rems (-cSv)/ MW-Yr
						Opera-tions	Maint. & Others	Contrac-tor	Station & Utility		
CALVERT CLIFFS 1,2 (Continued)	1986	1,530.0	87.2	1,296	347	2	345	101	246	0.27	0.2
	1987	1,207.3	71.8	1,384	412	29	383	110	302	0.30	0.3
	1988	1,397.7	81.0	1,296	291	30	261	90	201	0.22	0.2
	1989	333.6	20.1	1,786	346	11	335	216	130	0.19	1.0
	1990	161.1	11.0	2,019	304	12	292	203	101	0.15	1.9
	1991	1,085.0	64.7	1,974	132	25	107	70	62	0.07	0.1
	1992	1,271.2	73.9	1,979	330	35	295	228	102	0.17	0.3
CATAWBA 1,2	1986	638.9	49.9	1,724	286	27	259	68	218	0.17	0.4
Docket 50-413, 50-414; NPF-35, NPF-52	1987	1,651.2	75.9	1,865	449	32	417	161	288	0.24	0.3
1st commercial operation 6/85, 8/86	1988	1,675.2	77.2	2,009	556	71	485	200	356	0.28	0.3
Type - PWR	1989	1,733.6	79.5	1,660	334	48	286	110	224	0.20	0.2
Capacity - 1129, 1129 MWe	1990	1,616.3	70.8	2,174	809	58	751	292	517	0.37	0.5
	1991	1,691.5	74.6	1,871	462	50	412	141	321	0.25	0.3
	1992	1,962.8	83.9	1,515	414	52	362	92	322	0.27	0.2
CLINTON	1988	701.3	84.2	769	130	48	82	64	66	0.17	0.2
Docket 50-461; NPF-62	1989	348.3	48.5	1,196	372	91	281	261	111	0.31	1.1
1st commercial operation 11/87	1990	435.8	55.1	1,390	553	407	146	438	115	0.40	1.3
Type - BWR	1991	722.7	80.8	1,010	233	222	11	143	90	0.23	0.3
Capacity - 930 MWe	1992	589.7	68.6	1,195	431	63	368	287	144	0.36	0.7
COMANCHE PEAK	1991	644.4	82.2	985	148	13	135	111	37	0.15	0.2
Docket 50-445; NPF-87	1992	830.8	84.0	1,128	188	28	160	158	30	0.17	0.2
1st commercial operation 8/90											
Type - PWR											
Capacity - 1150 MWe											
COOK 1,2	1976	807.4	83.1	395	116	13	103	71	45	0.29	0.1
Docket 5-315; DPR-58, -74	1977	573.0	76.1	802	300	21	278	138	161	0.37	0.5
1st commercial operation 8/75, 7/78	1978	744.8	73.6	778	336	49	287	139	197	0.43	0.5
Type - PWRs	1979	1,373.0	65.3	1,445	718	45	673	454	264	0.50	0.5
Capacity - 1020, 1060 MWe	1980	1,552.4	74.1	1,345	493	46	447	323	170	0.37	0.3
	1981	1,557.3	73.4	1,341	656	48	608	443	213	0.49	0.4
	1982	1,461.6	69.8	1,527	699	67	632	472	227	0.46	0.5
	1983	1,456.5	71.2	1,418	658	50	608	467	191	0.46	0.5
	1984	1,526.0	75.3	1,559	762	43	719	597	165	0.49	0.5
	1985	925.4	47.6	1,984	945	92	853	758	187	0.48	1.0
	1986	1,307.1	73.4	1,774	745	64	681	585	160	0.42	0.6
	1987	1,199.5	70.2	1,696	666	79	587	525	141	0.39	0.6
	1988	1,160.4	63.5	2,266	867	52	815	762	105	0.38	0.7
	1989	1,433.1	72.8	1,575	493	50	443	421	72	0.31	0.3
	1990	1,318.5	67.9	1,851	580	87	493	504	76	0.31	0.4
	1991	1,837.4	90.2	815	69	28	41	48	21	0.08	0.0

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function: Opera-tions	Person-rems (-cSv) per Work Function: Maint. & Others	Person-rems (-cSv) per Personnel Type: Contrac-tor	Person-rems (-cSv) per Personnel Type: Station & Utility	Average Meas'ble Dose (rems or cSv)	Person rems (-cSv)/ MW-Yr
CALVERT CLIFFS 1,2 (Continued)	1986	1,530.0	87.2	1,296	347	2	345	101	246	0.27	0.2
	1987	1,207.3	71.8	1,384	412	29	383	110	302	0.30	0.3
	1988	1,397.7	81.0	1,296	291	30	261	90	201	0.22	0.2
	1989	333.6	20.1	1,786	346	11	335	216	130	0.19	1.0
	1990	161.1	11.0	2,019	304	12	292	203	101	0.15	1.9
	1991	1,085.0	64.7	1,974	132	25	107	70	62	0.07	0.1
	1992	1,271.2	73.9	1,979	330	35	295	228	102	0.17	0.3
CATAWBA 1,2	1986	638.9	49.9	1,724	286	27	259	68	218	0.17	0.4
Docket 50-413, 50-414; NPF-35, NPF-52	1987	1,651.2	75.9	1,865	449	32	417	161	288	0.24	0.3
1st commercial operation 6/85, 8/86	1988	1,675.2	77.2	2,009	556	71	485	200	356	0.28	0.3
Type - PWR	1989	1,733.6	79.5	1,660	334	48	286	110	224	0.20	0.2
Capacity - 1129, 1129 MWe	1990	1,616.3	70.8	2,174	809	58	751	292	517	0.37	0.5
	1991	1,691.5	74.6	1,871	462	50	412	141	321	0.25	0.3
	1992	1,962.8	83.9	1,515	414	52	362	92	322	0.27	0.2
CLINTON	1988	701.3	84.2	769	130	48	82	64	66	0.17	0.2
Docket 50-461; NPF-62	1989	348.3	48.5	1,196	372	91	281	261	111	0.31	1.1
1st commercial operation 11/87	1990	435.8	55.1	1,390	553	407	146	438	115	0.40	1.3
Type - BWR	1991	722.7	80.8	1,010	233	222	11	143	90	0.23	0.3
Capacity - 930 MWe	1992	589.7	68.6	1,195	431	63	368	287	144	0.36	0.7
COMANCHE PEAK	1991	644.4	82.2	985	148	13	135	111	37	0.15	0.2
Docket 50-445; NPF-87	1992	830.8	84.0	1,128	188	28	160	158	30	0.17	0.2
1st commercial operation 8/90											
Type - PWR											
Capacity - 1150 MWe											
COOK 1,2	1976	807.4	83.1	395	116	13	103	71	45	0.29	0.1
Docket 5-315; DPR-58, -74	1977	573.0	76.1	802	300	21	278	138	161	0.37	0.5
1st commercial operation 8/75, 7/78	1978	744.8	73.6	778	336	49	287	139	197	0.43	0.5
Type - PWRs	1979	1,373.0	65.3	1,445	718	45	673	454	264	0.50	0.5
Capacity - 1020, 1060 MWe	1980	1,552.4	74.1	1,345	493	46	447	323	170	0.37	0.3
	1981	1,557.3	73.4	1,341	656	48	608	443	213	0.49	0.4
	1982	1,461.6	69.8	1,527	699	67	632	472	227	0.46	0.5
	1983	1,456.5	71.2	1,418	658	50	608	467	191	0.46	0.5
	1984	1,526.0	75.3	1,559	762	43	719	597	165	0.49	0.5
	1985	925.4	47.6	1,984	945	92	853	758	187	0.48	1.0
	1986	1,307.1	73.4	1,774	745	64	681	585	160	0.42	0.6
	1987	1,199.5	70.2	1,696	666	79	587	525	141	0.39	0.6
	1988	1,160.4	63.5	2,266	867	52	815	762	105	0.38	0.7
	1989	1,433.1	72.8	1,575	493	50	443	421	72	0.31	0.3
	1990	1,318.5	67.9	1,851	580	87	493	504	76	0.31	0.4
	1991	1,837.4	90.2	815	69	28	41	48	21	0.08	0.0
	1992	760.9	50.8	1,954	492	60	432	416	76	0.25	0.6

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function		Person-rems (-cSv) per Personnel Type		Average Meas'ble Dose (rems or cSv)	Person rems (-cSv)/ MW-Yr
						Opera-tions	Maint. & Others	Contrac-tor	Station & Utility		
COOPER STATION	1975	456.4	83.6	579	117	30	87	19	98	0.20	0.3
Docket 50-298; DPR-46	1976	433.3	75.5	763	350	39	311	210	140	0.46	0.8
1st commercial operation 7/74	1977	538.2	86.2	315	198	50	147	66	131	0.63	0.4
Type - BWR	1978	576.0	91.0	297	158	40	118	58	100	0.53	0.3
Capacity - 764 MWe	1979	591.0	87.6	426	221	50	171	90	131	0.52	0.4
	1980	448.3	71.2	785	859	71	788	644	215	1.09	1.9
	1981	457.1	71.2	935	579	63	516	382	197	0.62	1.3
	1982	622.3	84.6	743	542	66	476	361	181	0.73	0.9
	1983	396.6	63.3	1,383	1,293	57	1,236	1,081	212	0.93	3.3
	1984	411.9	67.2	1,598	799	46	753	635	164	0.50	1.9
	1985	127.3	21.5	1,980	1,333	49	1,284	1,104	229	0.67	10.5
	1986	480.0	74.7	895	320	49	271	115	205	0.36	0.7
	1987	652.3	96.2	549	103	26	77	11	92	0.19	0.2
	1988	493.4	67.9	942	251	40	211	118	133	0.27	0.5
	1989	564.3	76.2	1,202	343	40	303	228	115	0.29	0.6
	1990	602.0	79.4	1,174	379	34	345	265	114	0.32	0.6
	1991	566.3	78.8	1,099	405	50	355	255	150	0.37	0.7
	1992	731.0	96.4	463	84	16	68	16	68	0.18	0.1
CRYSTAL RIVER 3	1978	311.5	41.4	643	321	8	313	244	77	0.50	1.0
Docket 50-302; DPR-72	1979	453.0	58.9	1,150	495	29	466	346	149	0.43	1.1
1st commercial operation 3/77	1980	404.1	53.2	1,053	625	24	601	382	243	0.59	1.5
Type - PWR	1981	490.4	62.2	1,120	408	18	390	236	172	0.36	0.8
Capacity - 821 MWe	1982	589.8	76.0	780	177	9	168	116	61	0.23	0.3
	1983	452.1	58.8	1,720	552	71	481	353	199	0.32	1.2
	1984	774.2	94.5	549	49	10	39	22	27	0.09	0.1
	1985	344.2	47.6	1,976	689	44	645	424	265	0.35	2.0
	1986	319.5	41.8	1,057	472	25	447	298	174	0.45	1.5
	1987	436.0	60.9	1,384	488	49	439	302	186	0.35	1.1
	1988	690.2	84.0	569	64	2	62	17	47	0.11	0.1
	1989	352.8	48.8	880	234	5	229	128	106	0.27	0.7
	1990	497.8	63.8	1,441	476	8	468	318	158	0.33	1.0
	1991	654.6	82.0	821	116	8	108	59	57	0.14	0.2
	1992	632.1	76.1	1,403	424	7	417	333	91	0.30	0.7
DAVIS-BESSE 1	1978	326.4	48.7	421	48	13	35	14	34	0.11	0.1
Docket 50-346; NPF-3	1979	381.0	67.0	304	30	8	22	5	25	0.10	0.1
1st commercial operation 7/78	1980	256.4	36.2	1,283	154	4	150	121	33	0.12	0.6
Type - PWR	1981	531.4	67.4	578	58	1	57	32	26	0.10	0.1
Capacity - 874 MWe	1982	390.8	51.5	1,350	164	12	152	139	25	0.12	0.4
	1983	592.1	73.0	718	80	6	74	46	34	0.11	0.1
	1984	518.5	62.5	1,088	177	10	167	122	55	0.16	0.3
	1985	238.3	31.2	718	71	5	66	44	27	0.10	0.3
	1986	3.3	1.3	981	124	22	102	103	21	0.13	37.6

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function: Operations	Person-rems (-cSv) per Work Function: Maint. & Others	Person-rems (-cSv) per Personnel Type: Contractor	Person-rems (-cSv) per Personnel Type: Station & Utility	Average Measurable Dose (rems or cSv)	Person rems (-cSv)/ MW-Yr
DAVIS-BESSE 1 (Continued)	1987	618.0	89.6	625	47	11	36	27	20	0.08	0.1
—	1988	144.1	27.1	1,183	307	36	271	255	52	0.26	2.1
	1989	880.0	98.6	404	38	5	33	5	33	0.09	0.0
	1990	500.0	56.7	1,377	489	14	475	414	75	0.36	1.0
	1991	703.6	81.8	1,000	216	38	178	159	57	0.22	0.3
	1992	915.2	100.0	287	19	10	9	0	19	0.07	0.0
DIABLO CANYON 1,2	1986	641.5	80.6	1,260	304	4	300	206	98	0.24	0.5
Docket 50-275, 50-323; DPR-80, DPR-82	1987	1,688.6	83.0	1,170	336	5	331	226	110	0.29	0.2
1st commercial operation 5/85, 3/86	1988	1,386.1	67.6	1,826	877	4	873	593	284	0.48	0.6
Type - PWRs	1989	1,899.0	87.5	1,646	465	3	462	329	136	0.28	0.2
Capacity - 1073, 1087 MWe	1990	1,952.6	91.0	1,441	323	1	322	220	103	0.22	0.2
	1991	1,809.6	83.8	2,040	546	1	545	377	169	0.27	0.3
	1992	1,995.7	90.9	1,850	459	0	459	303	156	0.25	0.2
DRESDEN 1*,2,3	1969	99.7			286						2.9
Docket 50-010, 50-237, 50-249;	1970	163.1			143						0.9
DPR-2, -19, -25	1971	394.5			715						1.8
1st commercial operation 7/60, 6/70,	1972	1,243.7			728						0.6
11/71	1973	1,112.2		1,341	939	143	796	344	595	0.70	0.8
Type - BWRs	1974	842.5	54.9	1,594	1,662			57	1,605	1.04	2.0
Capacity - 197, 772, 773 MWe	1975	708.1	54.6	2,310	3,423	271	3,152	2,252	1,171	1.48	4.8
	1976	1,127.2	80.8	1,746	1,680	228	1,452	749	931	0.96	1.5
	1977	1,132.9	77.0	1,862	1,694	316	1,377	693	1,000	0.91	1.5
	1978	1,242.2	79.5	1,946	1,529	359	1,170	619	1,529	0.79	1.2
	1979	1,013.0	74.7	2,407	1,800	191	1,609	641	1,159	0.75	1.8
	1980	1,074.4	55.0	2,717	2,105	236	1,869	1,093	1,012	0.77	2.0
	1981	1,035.7	51.5	2,331	2,802	120	2,682	1,850	952	1.20	2.7
	1982	1,085.3	77.9	2,572	2,923	136	2,787	1,731	1,192	1.14	2.7
	1983	913.6	65.6	2,854	3,582	176	3,406	2,127	1,455	1.26	3.9
	1984	789.8	55.3	2,261	1,774	153	1,621	815	959	0.78	2.2
	1985	903.0	64.5	2,817	1,686	474	1,212	879	807	0.60	1.9
	1986	740.5	52.6	3,111	2,668	268	2,400	2,009	659	0.86	3.6
	1987	933.9	74.0	2,052	1,145	241	904	593	552	0.56	1.2
	1988	1,014.7	75.8	2,414	1,409	215	1,194	808	601	0.58	1.4
	1989	1,184.2	83.1	2,259	1,131	154	976	641	489	0.50	1.0
	1990	1,107.8	76.6	2,235	1,400	176	1,224	753	647	0.63	1.3
	1991	675.2	60.7	2,044	1,005	166	839	433	572	0.49	1.5
	1992	872.4	75.4	1,812	619	128	491	272	347	0.34	0.7

*Dresden 1 has been shut down since 1978, and in 1985 it was decided that it would not be put in commercial operation again. Therefore, it is no longer included in the count of commercial reactors.

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function		Person-rems (-cSv) per Personnel Type		Average Meas'ble Dose (rems or cSv)	Person rems (-cSv)/ MW-Yr
						Opera-tions	Maint. & Others	Contrac-tor	Station & Utility		
DUANE ARNOLD	1976	305.2	78.0	350	105	14	91	62	43	0.30	0.3
Docket 50-331; DPR-49	1977	353.6	78.9	538	299	36	263	220	79	0.56	0.8
1st commercial operation 2/75	1978	149.2	33.2	1,112	974	59	915	932	42	0.88	6.5
Type - BWR	1979	352.0	78.0	757	275	35	240	219	56	0.36	0.8
Capacity - 538 MWe	1980	339.1	73.3	1,108	671	32	639	570	101	0.61	2.0
	1981	277.7	69.8	1,286	790	56	734	598	192	0.61	2.8
	1982	278.5	74.7	524	229	18	211	175	54	0.44	0.8
	1983	283.0	62.9	1,468	1,135	42	1,093	1,016	119	0.77	4.0
	1984	329.4	72.9	611	189	28	161	117	72	0.31	0.6
	1985	236.2	53.8	1,414	1,112	49	1,063	954	158	0.79	4.7
	1986	365.5	82.0	476	187	49	138	94	93	0.39	0.5
	1987	308.4	64.7	1,094	667	241	426	478	189	0.61	2.2
	1988	386.5	75.2	1,136	614	71	543	416	198	0.54	1.6
	1989	388.5	79.0	425	194	49	145	58	136	0.46	0.5
	1990	367.4	75.8	1,460	861	126	735	644	217	0.59	2.3
	1991	503.7	94.5	336	202	34	168	43	159	0.60	0.4
	1992	416.5	81.9	1,043	502	123	379	276	226	0.48	1.2
FARLEY 1,2	1978	713.8	86.5	527	108	39	69	34	74	0.20	0.2
Docket 50-348, 50-364; NPF-2, -8	1979	211.0	28.6	1,227	643	108	535	460	183	0.52	3.0
1st commercial operation 12/77, 7/81	1980	557.3	69.3	1,330	435	106	329	185	250	0.33	0.8
Type - PWR	1981	310.2	41.4	1,331	512	96	416	270	242	0.38	1.7
Capacity - 824, 828 MWe	1982	1,271.5	79.2	1,453	484	155	329	196	288	0.33	0.4
	1983	1,356.5	83.0	1,938	1,021	241	780	479	542	0.53	0.8
	1984	1,447.0	86.6	2,046	902	178	724	505	397	0.44	0.6
	1985	1,368.2	81.1	2,551	799	158	641	442	357	0.31	0.6
	1986	1,409.4	83.8	2,314	858	148	710	464	394	0.37	0.6
	1987	1,369.7	84.7	1,871	598	105	493	347	251	0.32	0.4
	1988	1,567.7	92.3	1,840	552	74	478	340	212	0.30	0.4
	1989	1,402.9	84.6	2,206	749	88	661	516	233	0.34	0.5
	1990	1,464.0	86.7	1,700	457	47	410	342	115	0.27	0.3
	1991	1,464.0	88.1	1,645	648	106	542	498	150	0.39	0.4
	1992	1,331.7	81.8	2,018	805	121	684	570	235	0.40	0.6
FERMI 2	1989	624.0	68.5	1,270	255	35	220	182	73	0.20	0.4
Docket 50-341; NPF-43	1990	848.2	84.7	462	83	31	52	14	69	0.18	0.1
1st commercial operation 1/88	1991	739.0	77.0	1,223	228	53	175	151	77	0.19	0.3
Type - BWR	1992	874.3	81.3	1,213	245	50	195	151	94	0.20	0.3
Capacity - 1047 MWe											

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function: Operations	Person-rems (-cSv) per Work Function: Maint. & Others	Person-rems (-cSv) per Personnel Type: Contractor	Person-rems (-cSv) per Personnel Type: Station & Utility	Average Measurable Dose (rems or cSv)	Person rems (-cSv)/ MW-Yr
FITZPATRICK	1976	489.0	71.6	600	202					0.34	0.4
Docket 50-333; DPR-59	1977	460.5	68.4	1,380	1,080	14	1,066	937	143	0.78	2.3
1st commercial operation 7/75	1978	497.0	72.1	904	909	166	743	597	312	1.01	1.8
Type - BWR	1979	349.0	50.8	850	859	169	690	538	321	1.01	2.5
Capacity - 782 MWe	1980	509.5	70.3	2,056	2,040	118	1,922	1,808	232	0.99	4.0
	1981	562.9	74.7	2,490	1,425	187	1,238	1,072	353	0.57	2.5
	1982	583.6	75.0	2,322	1,190	136	1,054	863	327	0.51	2.0
	1983	546.2	70.6	1,715	1,090	158	932	667	423	0.64	2.0
	1984	576.2	76.8	1,610	971	82	889	467	504	0.60	1.7
	1985	492.3	63.7	1,845	1,051	85	966	718	333	0.57	2.1
	1986	711.2	90.6	1,185	411	81	330	168	243	0.35	0.6
	1987	496.2	70.3	1,578	940	164	776	616	324	0.60	1.9
	1988	514.0	69.0	1,553	786	162	624	506	280	0.51	1.5
	1989	727.5	92.3	1,027	377	58	319	191	186	0.37	0.5
	1990	543.8	72.6	1,536	884	92	792	557	327	0.58	1.6
	1991	399.7	53.4	1,269	333	48	285	127	206	0.26	0.8
	1992	0.0	0.0	2,374	674	70	604	476	198	0.28	---
FORT CALHOUN	1975	252.3	67.4	469	294			92	202	0.63	1.2
Docket 50-285; DPR-40	1976	265.9	69.5	516	313	28	285	38	275	0.61	1.2
1st commercial operation 6/74	1977	351.8	79.4	535	297	33	264	72	225	0.56	0.8
Type - PWR	1978	342.3	75.1	596	410	59	351	151	259	0.69	1.2
Capacity - 478 MWe	1979	440.0	95.7	451	126	19	107	47	79	0.28	0.3
	1980	242.3	60.4	891	668	38	630	426	242	0.75	2.8
	1981	260.9	72.3	822	458	61	397	254	204	0.56	1.8
	1982	418.0	89.7	604	217	45	172	102	115	0.36	0.5
	1983	330.4	73.1	860	433	66	367	205	228	0.50	1.3
	1984	279.2	59.9	913	563	91	472	313	250	0.62	2.0
	1985	367.0	73.7	982	373	54	319	231	142	0.38	1.0
	1986	431.8	94.3	756	74	26	48	30	44	0.10	0.2
	1987	366.0	75.4	1,247	388	78	310	226	162	0.31	1.1
	1988	315.5	74.1	1,594	272	74	198	173	99	0.17	0.9
	1989	395.7	89.2	1,210	93	31	62	50	43	0.08	0.2
	1990	290.0	64.2	760	290	30	260	160	130	0.38	1.0
	1991	391.1	91.7	284	57	14	43	25	32	0.20	0.1
	1992	303.4	65.9	802	272	59	213	154	118	0.34	0.9
GINNA	1971	327.8		340	430	69	361	108	322	1.26	1.3
Docket 50-244; DPR-18	1972	293.6		677	1,032	71	961	278	754	1.52	3.5
1st commercial operation 7/70	1973	409.5		319	224	55	169	84	140	0.70	0.5
Type - PWR	1974	253.7	62.4	884	1,225					1.39	4.8
Capacity - 470 MWe	1975	365.2	76.7	685	538					0.79	1.5

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function		Person-rems (-cSv) per Personnel Type		Average Meas'ble Dose (rems or cSv)	Person rems (-cSv)/ MW-Yr
						Opera-tions	Maint. & Others	Contrac-tor	Station & Utility		
GINNA (Continued)	1976	248.8	58.2	758	636	29	607	210	426	0.84	2.6
	1977	365.6	85.5	530	401	15	386	120	281	0.76	1.1
	1978	386.5	80.6	657	450	20	430	98	352	0.68	1.2
	1979	355.0	72.8	878	592	68	524	206	386	0.67	1.7
	1980	370.5	76.0	1,073	708	64	644	302	406	0.66	1.9
	1981	399.0	82.1	925	655	49	606	321	334	0.71	1.6
	1982	289.0	58.8	1,117	1,140	80	1,060	471	669	1.02	3.9
	1983	365.0	74.6	969	855	42	813	378	477	0.88	2.3
	1984	378.1	77.2	713	395	58	337	195	200	0.55	1.0
	1985	436.7	87.9	845	426	89	337	183	243	0.50	1.0
	1986	433.3	87.4	901	357	45	312	107	250	0.40	0.8
	1987	459.0	91.5	773	344	35	309	151	193	0.45	0.7
	1988	423.1	87.4	897	295	37	258	114	181	0.33	0.7
	1989	369.2	75.9	1,254	605	57	548	172	433	0.48	1.6
	1990	414.3	84.4	991	347	38	309	207	140	0.35	0.8
	1991	418.6	86.7	947	328	36	292	201	127	0.35	0.8
	1992	417.6	86.9	832	261	27	234	144	117	0.31	0.6
GRAND GULF	1986	494.7	60.9	1,486	436	68	368	329	107	0.29	0.9
Docket 50-416; NPF-29	1987	920.7	82.2	1,358	420	106	314	303	117	0.31	0.5
1st commercial operation 7/85	1988	1,136.6	96.7	692	147	57	90	52	95	0.21	0.1
Type - BWR	1989	932.6	80.0	1,972	498	93	405	333	165	0.25	0.5
Capacity - 1142 MWe	1990	883.5	78.9	1,765	482	52	430	321	161	0.27	0.5
	1991	1,085.2	94.0	699	94	22	72	25	69	0.13	0.1
	1992	969.0	83.7	2,032	484	68	416	349	135	0.24	0.5
HADDAM NECK	1969	438.5		138	106						
Docket 50-213; DPR-61	1970	424.7		734	689			27	79	0.77	0.2
1st commercial operation 1/68	1971	502.2		289	342			463	226	0.94	1.6
Type -PWR	1972	515.6		355	325			166	176	1.18	0.7
Capacity - 565 MWe	1973	293.1		951	697			181	144	0.91	0.6
	1974	521.4	91.2	550	201			544	153	0.73	2.4
	1975	494.3	89.9	795	703	20	683			0.37	0.4
	1976	482.9	82.5	644	449	5	444			0.88	1.4
	1977	480.7	83.9	894	641	59	582	253	196	0.70	0.9
	1978	563.4	98.6	216	117	25	92	440	201	0.72	1.3
	1979	493.0	87.5	1,226	1,162	74	1,088	18	99	0.54	0.2
	1980	426.8	75.0	1,860	1,353	175	1,178	783	379	0.95	2.4
	1981	487.5	84.3	1,554	1,036	174	862	1,076	277	0.73	3.2
	1982	543.9	93.4	559	126	46	80	809	227	0.67	2.1
	1983	453.7	77.8	1,645	1,384	107	1,277	22	104	0.23	0.2
	1984	404.0	71.7	1,430	1,216	154	1,062	1,022	362	0.84	3.1
								803	413	0.85	3.0

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function: Opera-tions	Person-rems (-cSv) per Work Function: Maint. & Others	Person-rems (-cSv) per Personnel Type: Contrac-tor	Person-rems (-cSv) per Personnel Type: Station & Utility	Average Meas'ble Dose (rems or cSv)	Person rems (-cSv)/ MW-Yr
HADDAM NECK (Continued)	1985	556.1	98.4	384	101	21	80	22	79	0.26	0.2
	1986	294.8	53.6	1,945	1,567	179	1,388	1,274	293	0.81	5.3
	1987	304.6	54.0	1,763	750	99	651	553	197	0.43	0.5
	1988	397.4	70.3	735	237	43	194	107	130	0.32	0.6
	1989	356.4	67.2	1,455	596	68	528	472	124	0.41	1.7
	1990	142.7	32.2	979	421	75	346	268	153	0.43	3.0
	1991	444.4	76.4	1,168	590	80	510	463	127	0.51	1.3
	1992	465.2	80.1	797	202	28	174	129	73	0.25	0.4
HARRIS 1	1988	652.9	75.0	721	169	29	140	118	51	0.23	0.3
Docket 50-400; NPF-63	1989	690.6	79.5	929	156	32	124	85	71	0.17	0.2
1st commercial operation 5/87	1990	776.4	89.6	453	85	13	72	47	38	0.19	0.1
Type - PWR	1991	724.8	81.5	872	226	27	199	150	76	0.26	0.3
Capacity - 860 MWe	1992	661.8	74.9	930	213	34	179	134	79	0.23	0.3
HATCH 1,2	1976	496.3	83.8	630	134	79	55	4	130	0.21	0.3
Docket 50-321, 50-366; DPR-57; NPF-05	1977	446.8	66.3	1,303	465	96	369	220	245	0.36	1.0
	1978	513.0	72.8	1,304	248	88	160	52	196	0.19	0.5
1st commercial operation 12/75, 9/79	1979	401.0	54.6	2,131	582	85	497	381	201	0.27	1.5
Type - BWRs	1980	1,008.7	70.9	1,930	449	143	306	163	286	0.23	0.4
Capacity - 753, 766 MWe	1981	870.9	64.3	2,899	1,337	200	1,137	792	545	0.46	1.5
	1982	768.0	56.6	3,418	1,460	218	1,242	1,064	396	0.43	1.9
	1983	934.7	68.6	3,428	1,299	253	1,046	851	448	0.38	1.4
	1984	658.6	47.3	4,110	2,218	311	1,907	1,861	357	0.54	3.4
	1985	1,211.0	79.6	2,841	818	182	636	508	310	0.29	0.7
	1986	872.0	64.8	3,486	1,497	347	1,150	1,107	390	0.43	1.7
	1987	1,295.4	89.7	2,202	816	207	609	435	381	0.37	0.6
	1988	1,001.4	70.4	2,509	1,401	275	1,126	927	474	0.56	1.4
	1989	1,271.1	87.1	1,350	556	154	402	305	251	0.41	0.4
	1990	1,268.0	83.5	2,902	1,455	224	1,231	1,074	381	0.50	1.1
	1991	1,152.4	77.4	2,508	1,161	196	965	798	363	0.46	1.0
	1992	1,293.8	88.6	1,615	550	119	431	294	256	0.34	0.4
HOPE CREEK 1	1987	869.2	86.4	589	117	21	96	40	77	0.20	0.1
Docket 50-354; NPF-57	1988	832.7	80.7	1,734	287	38	249	163	124	0.17	0.3
1st commercial operation 12/86	1989	791.1	77.8	1,873	465	40	425	292	173	0.25	0.6
Type - BWR	1990	966.4	91.6	1,394	196	26	170	89	107	0.14	0.2
Capacity - 1031 MWe	1991	882.5	84.2	1,700	373	11	362	249	124	0.22	0.4
	1992	841.9	80.8	1,694	436	9	427	304	132	0.26	0.5

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function		Person-rems (-cSv) per Personnel Type		Average Meas'ble Dose (rems or cSv)	Person rems (-cSv)/ MW-Yr
						Opera-tions	Maint. & Others	Contrac-tor	Station & Utility		
HUMBOLDT BAY*	1969	44.6		125	164	69	95	12	152	1.31	3.7
Docket 50-133; DPR-7	1970	49.3		115	209	130	79	37	172	1.82	4.2
1st commercial operation 8/63	1971	39.6		140	292	114	178	65	227	2.09	7.4
Type - BWR	1972	43.1		127	253	81	172	57	196	1.99	5.9
Capacity - 63 MWe	1973	50.1		210	266	60	206			1.27	5.3
	1974	43.4	83.8	296	318	103	215			1.07	7.3
	1975	45.3	83.9	265	339	131	208	112	227	1.28	7.5
	1976	23.5	46.4	523	683	37	646	50	633	1.31	29.1
	1977	0.0	0.0	1,063	1,905	24	1,880	973	931	1.79	---
	1978	0.0	0.0	320	335	13	322	145	190	1.05	---
	1979	0.0	0.0	135	31	11	20	2	29	0.23	---
	1980	0.0	0.0	142	22	10	12	3	19	0.15	---
	1981	0.0	0.0	75	9	3	6	3	6	0.12	---
	1982	0.0	0.0	71	19	5	14	0	19	0.27	---
	1983	0.0	0.0	84	17	4	13	0	17	0.20	---
INDIAN POINT 1**,2,3***	1969	206.2			298						1.4
Docket 50-3, 50-247, 50-286;	1970	43.3			1,639						37.8
DPR-5, -26, -64	1971	154.0			768						5.0
1st commercial operation 10/62, 8/74,	1972	142.3			967						6.8
8/76	1973	0.0		2,998	5,262	709	4,553	2,847	2,415	1.76	---
Type - PWR	1974	556.1	59.4	1,019	910					0.89	1.6
Capacity - 0, 939, 965	1975	584.4	74.8	891	705	166	539	47	658	0.79	1.2
	1976	273.9	34.8	1,590	1,950	154	1,796	172	1,778	1.23	7.1
	1977	1,278.3	75.3	1,391	1,070	189	881	383	687	0.77	0.8
	1978	1,172.3	67.8	1,909	2,006	260	1,746	759	1,247	1.05	1.7

* Humboldt Bay has been shutdown since 1976 and in 1984, it was decided that it would not be placed in operation again. Therefore, it it no longer included in the count of commercial reactors.

** Indian Point 1 was defueled in 1975 and in 1984 it was decided that it would not be placed in operation again. Therefore, it is no longer included in the count of commercial reactors.

***Indian Point 3 was purchased by a different utility and now reports separately.

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function: Opera-tions	Person-rems (-cSv) per Work Function: Maint. & Others	Person-rems (-cSv) per Personnel Type: Contrac-tor	Person-rems (-cSv) per Personnel Type: Station & Utility	Average Meas'ble Dose (rems or cSv)	Person rems (-cSv)/ MW-Yr
INDIAN POINT 1**,2	1979	574.0	71.4	1,349	1,279	209	1,070	612	667	0.95	2.2
	1980	510.8	64.8	1,577	971	304	667	6	965	0.62	1.9
	1981	367.5	46.0	2,595	2,731	237	2,494	1,595	1,136	1.05	7.4
	1982	532.4	65.4	2,144	1,635	343	1,292	883	752	0.76	3.1
	1983	702.6	84.0	1,057	486	202	284	219	267	0.46	0.7
INDIAN POINT 2	1984	416.7	51.9	2,919	2,644	650	1,994	1,863	781	0.91	6.3
Docket 50-247; DPR-26	1985	791.4	95.7	708	192	123	69	95	97	0.27	0.2
1st commercial operation 8/74	1986	457.5	56.2	1,926	1,250	350	900	349	901	0.65	2.7
Type - PWR	1987	611.4	73.4	1,980	1,217	128	1,089	805	412	0.61	2.0
Capacity - 939 MWe	1988	719.3	86.9	890	235	51	184	117	118	0.26	0.3
	1989	532.5	64.6	2,093	1,436	208	1,228	813	623	0.69	2.7
	1990	618.0	66.6	1,061	608	66	542	450	158	0.57	1.0
	1991	461.2	55.7	1,810	1,468	179	1,289	927	541	0.81	3.2
	1992	930.9	99.1	489	97	27	70	39	58	0.20	0.1
INDIAN POINT 3***	1979	574.0	66.5	808	636	63	573	482	154	0.79	1.1
Docket 50-286; DPR-64	1980	367.3	53.2	977	308	47	261	210	98	0.32	0.8
1st commercial operation 8/76	1981	367.5	59.8	677	364	46	318	255	109	0.54	1.0
Type - PWR	1982	171.5	22.5	1,477	1,226	42	1,184	1,093	133	0.83	7.1
Capacity - 965 MWe	1983	7.8	2.6	941	607	38	569	494	113	0.65	77.8
	1984	714.4	76.3	658	230	48	182	127	103	0.35	0.3
	1985	566.5	66.0	1,093	570	35	535	455	115	0.52	1.0
	1986	655.3	73.4	588	202	34	168	123	79	0.34	0.3
	1987	574.6	62.7	1,308	500	84	416	365	135	0.38	0.9
	1988	792.5	83.3	451	93	41	52	39	54	0.21	0.1
	1989	587.8	61.1	1,800	876	130	746	776	100	0.49	1.5
	1990	595.3	62.9	1,066	358	69	289	230	128	0.34	0.6
	1991	862.8	87.5	299	40	23	17	5	35	0.13	0.0
	1992	561.7	61.4	1,003	212	53	159	132	80	0.21	0.4
KEWAUNEE	1975	401.9	88.2	104	28	1	27	12	16	0.27	0.1
Docket 50-305; DPR-43	1976	405.9	78.9	381	270	16	254	193	77	0.71	0.7
1st commercial operation 6/74	1977	425.0	79.9	312	140	8	131	76	63	0.45	0.3
Type - PWR	1978	466.6	89.5	335	154	11	143	89	65	0.46	0.3
Capacity - 503 MWe	1979	412.0	79.0	343	127	6	121	79	48	0.37	0.3
	1980	433.8	82.1	401	165	7	158	103	62	0.41	0.4
	1981	451.8	86.7	383	141	7	134	94	47	0.37	0.3
	1982	458.4	87.6	353	101	5	96	51	50	0.29	0.2
	1983	444.1	83.7	445	165	10	155	119	46	0.37	0.4
	1984	455.3	85.7	482	139	7	132	89	50	0.29	0.3

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function: Opera-tions	Person-rems (-cSv) per Work Function: Maint. & Others	Person-rems (-cSv) per Personnel Type: Contrac-tor	Person-rems (-cSv) per Personnel Type: Station & Utility	Average Meas'ble Dose (rems or cSv)	Person rems (-cSv)/ MW-Yr
KEWAUNEE (Continued)	1985	443.1	82.4	519	176	9	167	114	62	0.34	0.4
	1986	461.7	85.8	502	169	8	161	111	58	0.34	0.4
	1987	480.0	89.7	755	226	8	218	173	53	0.30	0.5
	1988	467.5	88.3	705	210	6	204	165	45	0.30	0.4
	1989	449.1	84.9	570	239	10	229	179	60	0.42	0.5
	1990	468.8	87.9	490	145	5	140	112	33	0.30	0.3
	1991	441.8	83.4	495	221	4	217	188	33	0.45	0.5
	1992	471.4	88.0	450	122	3	119	88	34	0.27	0.3
LACROSSE*	1970	15.3			111			40	71		7.2
Docket 50-409; DPR-45	1971	323.1		218	158					0.72	4.8
1t commercial operation 11/69	1972	29.2		151	172					1.14	5.9
Type - BWR	1973	24.4		157	221					1.41	9.1
Capacity - 48 MWe	1974	37.9	81.0	115	139	89	50	6	133	1.21	3.7
	1975	32.0	69.6	165	234					1.42	7.3
	1976	21.2	47.6	118	110	40	71	6	105	0.93	5.2
	1977	11.3	33.7	141	225	60	164	8	216	1.60	19.9
	1978	21.6	62.0	182	164	69	95	6	158	0.90	7.6
	1979	24.0	71.8	153	186	65	121	21	165	1.22	7.8
	1980	26.4	68.5	124	218	63	155	11	207	1.76	8.3
	1981	29.6	76.0	187	123	62	61	3	120	0.66	4.2
	1982	17.2	44.6	148	205	65	140	16	189	1.39	11.9
	1983	24.8	59.7	160	313	103	210	31	282	1.96	12.6
	1984	38.5	80.5	288	252	141	111	5	247	0.88	6.5
	1985	39.2	86.7	373	173	76	97	22	151	0.46	4.4
	1986	19.6	46.1	260	290					1.12	14.8
	1987	0.0	0.0	127	68	42	26	2	66	0.54	---
LASALLE 1,2	1984	677.8	77.8	1,245	252	29	223	88	164	0.20	0.4
Docket 50-373, -374; NPF-11, -18	1985	987.9	53.0	1,635	685	88	597	420	265	0.42	0.7
1st commercial operation 1/84, 6/84	1986	929.5	50.6	1,614	898	143	755	527	371	0.56	1.0
Type - BWR	1987	1,030.0	59.3	1,744	1,396	217	1,179	989	407	0.80	1.4
Capacity - 1036, 1036 MWe	1988	1,317.6	71.6	2,737	2,471	253	2,218	1,978	493	0.90	1.9
	1989	1,503.5	73.1	2,475	1,386	138	1,248	853	533	0.56	0.9
	1990	1,754.3	84.6	1,830	948	130	818	503	445	0.52	0.5
	1991	1,837.0	86.7	1,985	806	161	645	427	379	0.41	0.4
	1992	1,447.4	72.0	2,418	1,167	195	972	648	519	0.48	0.8

* LACROSSE ended commercial operation in 1987 and will not be put in commercial operation again. Therefore it is no longer included in the count of commercial reactors.

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function: Opera-tions	Person-rems (-cSv) per Work Function: Maint. & Others	Person-rems (-cSv) per Personnel Type: Contrac-tor	Person-rems (-cSv) per Personnel Type: Station & Utility	Average Meas'ble Dose (rems or cSv)	Person rems (-cSv)/ MW-Yr
LIMERICK 1, 2	1987	636.1	70.2	2,156	174	7	167	114	60	0.08	0.3
Docket 50-352, 50-353; NPF-39,-85	1988	794.9	96.5	950	52	20	32	23	29	0.05	0.1
1st commercial operation 2/86, 1/90	1989	628.4	66.0	1,818	266	70	196	156	110	0.15	0.4
Type - BWRs	1990	1,527.7	78.2	1,422	175	37	138	78	97	0.12	0.1
Capacity - 1055, 1055 MWe	1991	1,810.9	86.8	1,151	106	24	82	52	54	0.09	0.1
	1992	1,741.4	84.8	1,559	330	23	307	182	148	0.21	0.2
MAINE YANKEE	1973	408.7		782	117			59	58	0.15	0.3
Docket 50-309; DPR-36	1974	432.6	68.7	619	420	64	356	188	232	0.68	1.0
1st commercial operation 12/72	1975	542.9	79.9	440	319	15	304	181	138	0.72	0.6
Type - PWR	1976	712.2	95.0	244	85	27	58	26	59	0.35	0.1
Capacity - 830 MWe	1977	617.6	82.2	508	245	46	199	112	133	0.48	0.4
	1978	642.7	84.1	638	420	54	366	262	158	0.66	0.7
	1979	537.0	68.4	393	154	70	84	26	128	0.39	0.3
	1980	527.0	72.2	735	462	117	345	277	185	0.63	0.9
	1981	624.2	78.2	868	424	11	413	308	116	0.49	0.7
	1982	542.5	69.1	1,295	619	33	586	462	157	0.48	1.1
	1983	677.1	83.6	592	165	41	124	72	93	0.28	0.2
	1984	605.7	74.4	1,262	884	9	875	702	182	0.70	1.5
	1985	635.4	79.2	1,009	700	54	646	529	171	0.69	1.1
	1986	737.6	87.8	495	100	34	66	14	86	0.20	0.1
	1987	478.1	65.3	1,100	722	39	683	531	191	0.66	1.5
	1988	591.9	79.1	1,058	725	52	673	576	149	0.69	1.2
	1989	819.2	93.7	375	99	38	61	25	74	0.26	0.1
	1990	573.0	71.0	1,359	682	146	536	547	135	0.50	1.2
	1991	738.1	86.6	426	105	27	78	46	59	0.25	0.1
	1992	631.7	79.1	1,189	461	87	374	360	101	0.39	0.7
MCGUIRE 1,2	1982	524.9	80.4	1,560	169	26	143	29	140	0.11	0.3
Docket 50-369, -370; NPF-9, -17	1983	558.3	55.4	1,751	521	35	486	123	398	0.30	0.9
1st commercial operation 12/81, 3/84	1984	764.1	68.5	1,663	507	35	472	106	401	0.30	0.7
Type - PWRS	1985	808.4	77.0	2,217	771	92	679	277	494	0.35	1.0
Capacity - 1129, 1129 MWe	1986	1,360.0	60.1	2,326	1,015	47	968	389	626	0.44	0.7
	1987	1,774.7	79.2	2,865	1,043	38	1,005	510	533	0.36	0.6
	1988	1,830.7	80.2	2,808	1,104	65	1,039	592	512	0.39	0.6
	1989	1,810.2	80.8	1,994	620	44	576	252	368	0.31	0.3
	1990	1,340.3	61.3	2,289	727	63	664	288	439	0.32	0.5
	1991	1,945.1	85.0	1,723	361	18	343	111	250	0.21	0.2
	1992	1,696.8	74.4	1,619	418	38	380	114	304	0.26	0.2

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function: Operations	Person-rems (-cSv) per Work Function: Maint. & Others	Person-rems (-cSv) per Personnel Type: Contractor	Person-rems (-cSv) per Personnel Type: Station & Utility	Average Measurable Dose (rems or cSv)	Person rems (-cSv)/ MW-Yr
MILLSTONE POINT 1	1972	377.6		612	596	50	546	340	256	0.97	1.6
Docket 50-245; DPR-21	1973	225.1		1,184	663	125	538	422	241	0.56	2.9
1st commercial operation 3/71	1974	430.3	79.1	2,477	1,430					0.58	3.3
Type - BWR	1975	465.4	75.6	2,587	2,022					0.78	4.3
Capacity - 654 MWe	1976	449.8	76.1	1,387	1,194	54	1,140	955	239	0.86	2.7
	1977	575.7	89.6	1,075	394	118	274	159	233	0.37	0.7
	1978	556.6	87.6	1,391	1,416	160	1,256	1,036	380	1.02	2.5
	1979	505.0	77.3	2,001	1,795	198	1,597	1,327	468	0.90	3.6
	1980	405.8	69.0	3,024	2,157	100	2,057	1,863	294	0.71	5.3
	1981	304.3	51.6	2,506	1,496	96	1,400	1,201	295	0.60	4.9
	1982	490.2	79.9	1,370	929	78	851	587	342	0.68	1.9
	1983	640.1	95.6	309	244	63	181	74	170	0.79	0.4
	1984	516.1	78.8	1,992	836	80	756	531	305	0.42	1.6
	1985	548.5	83.6	732	608	65	543	369	239	0.83	1.1
	1986	626.8	95.4	389	150	47	103	53	97	0.39	0.2
	1987	523.4	79.6	1,588	684	56	628	523	161	0.43	1.3
	1988	658.8	98.6	327	144	31	113	60	84	0.44	0.2
	1989	554.6	84.2	852	462	40	422	334	128	0.54	0.8
	1990	608.3	91.6	365	131	42	89	58	73	0.36	0.2
	1991	213.1	35.4	1,154	409	60	349	311	98	0.35	1.9
	1992	431.8	68.1	348	99	22	77	63	36	0.28	0.2
MILLSTONE POINT 2,3	1976	545.7	78.7	620	168	26	142	73	95	0.27	0.3
Docket 50-336, 50-423; DPR-65, NPF-49	1977	518.7	65.7	667	242	38	204	153	89	0.36	0.5
1st commercial operation 12/75, 4/86	1978	536.6	67.3	1,420	1,444	65	1,379	1,366	78	1.02	2.7
Type - PWR	1979	520.0	62.8	525	471	81	390	304	167	0.90	0.9
Capacity - 863, 1137 MWe	1980	579.3	69.2	893	637	76	561	515	122	0.71	1.1
	1981	722.4	82.6	890	531	44	487	393	138	0.60	0.7
	1982	595.9	70.6	2,083	1,413	27	1,386	1,219	194	0.68	2.4
	1983	294.0	34.2	2,383	1,881	170	1,711	1,548	333	0.79	6.4
	1984	782.7	93.5	285	120	11	109	63	57	0.42	0.2
	1985	417.8	49.4	1,905	1,581	60	1,521	1,256	325	0.83	3.8
	1986	1,313.8	80.4	2,393	993	27	966	784	209	0.41	0.8
	1987	1,624.5	84.1	1,441	505	19	486	370	135	0.35	0.3
	1988	1,594.8	83.2	1,827	804	31	773	523	281	0.44	0.5
	1989	1,428.3	72.9	1,984	1,079	44	1,035	877	202	0.54	0.8
	1990	1,614.9	87.1	1,652	593	35	558	491	102	0.36	0.4
	1991	819.5	69.7	1,084	381	21	360	256	125	0.35	0.5
	1992	1,115.1	59.9	3,190	1,280	35	1,245	1,173	107	0.40	1.1

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function: Opera-tions	Person-rems (-cSv) per Work Function: Maint. & Others	Person-rems (-cSv) per Personnel Type: Contrac-tor	Person-rems (-cSv) per Personnel Type: Station & Utility	Average Meas'ble Dose (rems or cSv)	Person rems (-cSv)/ MW-Yr
MONTICELLO	1972	424.4		99	61	40	21	1	60	0.62	0.1
Docket 50-263; DPR-22	1973	389.5		401	176	48	128	67	109	0.44	0.5
1st commercial operation 6/71	1974	349.3	74.9	842	349			91	258	0.41	1.0
Type - BWR	1975	344.8	72.2	1,353	1,353					1.00	3.9
Capacity - 536 MWe	1976	476.4	91.5	325	263	59	204	52	212	0.81	0.6
	1977	425.6	79.9	860	1,000	135	865	661	339	1.16	2.3
	1978	459.4	87.2	679	375	62	313	165	210	0.55	0.8
	1979	522.0	97.6	372	157	62	95	52	105	0.42	0.3
	1980	411.8	78.2	1,114	531	82	449	248	283	0.48	1.3
	1981	389.3	72.6	1,446	1,004	101	903	756	248	0.69	2.6
	1982	291.1	63.3	1,307	993	130	863	760	233	0.76	3.4
	1983	494.6	96.3	416	121	57	64	23	98	0.29	0.2
	1984	33.7	9.2	1,872	2,462	208	2,254	927	1,535	1.32	73.1
	1985	509.8	91.7	586	327	87	240	47	280	0.56	0.6
	1986	402.7	79.1	895	596	94	502	114	482	0.67	1.5
	1987	422.5	81.9	941	568	102	466	115	453	0.60	1.3
	1988	542.5	99.8	375	110	40	70	10	100	0.29	0.2
	1989	318.2	76.2	1,102	507	99	408	113	394	0.46	1.6
	1990	536.0	96.9	336	94	42	52	11	83	0.28	0.2
	1991	429.4	80.8	964	465	102	363	101	364	0.48	1.1
	1992	528.3	97.5	454	114	46	68	10	104	0.25	0.2
NINE MILE POINT 1,2	1970	227.0		821	44	12	32	17	27	0.05	0.2
Docket 50-220, 50-410; DPR-63, NPF-69	1971	346.5		1,006	195	43	152	63	132	0.19	0.6
1st commercial operation 12/69, 4/88	1972	381.8		735	285	59	226	28	257	0.39	0.7
Type - BWR	1973	411.0		550	567	139	428	118	449	1.03	1.4
Capacity - 615, 1090 MWe	1974	385.9	70.5	740	824	42	782	279	545	1.11	2.1
	1975	359.0	72.1	649	681	68	613	203	478	1.05	1.9
	1976	484.6	88.2	392	428	52	376	229	199	1.09	0.9
	1977	347.4	59.2	1,093	1,383	41	1,342	883	500	1.27	4.0
	1978	527.7	95.1	561	314	59	255	26	288	0.56	0.6
	1979	354.0	66.1	1,326	1,497	106	1,391	940	557	1.13	4.2
	1980	533.9	92.3	1,174	591	75	516	251	340	0.50	1.1
	1981	385.2	66.0	2,029	1,592	144	1,448	1,064	528	0.78	4.1
	1982	133.5	21.4	1,352	1,264	63	1,201	944	320	0.93	9.5
	1983	329.8	56.2	1,405	860	50	810	576	284	0.61	2.6
	1984	426.8	71.9	1,530	890	163	727	372	518	0.58	2.1
	1985	580.9	96.4	1,007	265	61	204	43	222	0.26	0.5
	1986	371.0	65.3	1,878	1,275	38	1,237	730	545	0.68	3.4
	1987	542.6	93.3	1,190	141	35	106	39	102	0.12	0.3

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function: Opera-tions	Person-rems (-cSv) per Work Function: Maint. & Others	Person-rems (-cSv) per Personnel Type: Contrac-tor	Person-rems (-cSv) per Personnel Type: Station & Utility	Average Meas'ble Dose (rems or cSv)	Person rems (-cSv)/ MW-Yr
NINE MILE POINT 1,2 (Continued)	1988	0.0	0.0	2,626	854	33	821	509	345	0.33	---
	1989	527.5	29.7	2,737	564	53	511	382	182	0.21	1.1
	1990	656.2	46.6	2,405	699	85	614	467	232	0.29	1.1
	1991	1,250.8	79.7	1,543	292	72	220	94	198	0.19	0.2
	1992	965.9	61.8	1,800	563	102	461	184	379	0.31	0.6
NORTH ANNA 1,2	1979	507.0	61.7	2,025	449	78	371	190	259	0.22	0.9
Docket 50-338; NPF-04, -09	1980	681.8	86.5	2,086	218	128	90	85	133	0.10	0.3
1st commercial operation 6/78, 12/80	1981	1,241.9	71.5	2,416	680	188	492	343	337	0.28	0.5
Type - PWRs	1982	777.7	45.8	2,872	1,915	78	1,837	1,207	708	0.67	2.5
Capacity - 911, 909 MWe	1983	1,338.4	76.1	2,228	665	129	536	296	369	0.30	0.5
	1984	1,021.3	58.8	3,062	1,945	155	1,790	1,417	528	0.64	1.9
	1985	1,516.9	86.1	2,436	838	141	697	501	337	0.34	0.6
	1986	1,484.5	83.0	2,831	722	111	611	343	379	0.26	0.5
	1987	1,112.6	67.8	2,624	1,521	60	1,461	1,075	446	0.58	1.4
	1988	1,772.7	96.7	992	112	28	84	19	93	0.11	0.1
	1989	1,226.8	72.5	2,861	1,471	36	1,435	1,159	312	0.51	1.2
	1990	1,590.4	90.5	2,161	590	12	578	433	157	0.27	0.4
	1991	1,597.5	88.6	2,085	629	19	610	461	168	0.30	0.4
	1992	1,403.2	84.1	2,159	576	15	561	413	163	0.27	0.4
OCONEE 1,2,3	1974	650.6	60.1	844	517	18	499	144	373	0.61	0.8
Docket 50-269, 50-270, 50-287;	1975	1,838.3	75.5	829	497	72	425	90	407	0.60	0.3
DPR-38, -47, -55	1976	1,561.4	63.0	1,215	1,026	65	961	219	807	0.84	0.7
1st commercial operation 7/73, 9/74, 12/74	1977	1,566.4	65.9	1,595	1,329	244	1,084	294	1,034	0.83	0.8
Type - PWRs	1978	1,909.0	75.8	1,636	1,393	179	1,214	340	1,053	0.85	0.7
Capacity - 846, 846, 846 MWe	1979	1,708.0	67.7	2,100	1,001	123	878	181	820	0.48	0.6
	1980	1,703.7	70.1	2,124	1,055	117	938	162	893	0.50	0.6
	1981	1,661.5	66.8	2,445	1,211	113	1,098	275	936	0.50	0.7
	1982	1,293.1	52.5	2,445	1,792	97	1,695	364	1,428	0.73	1.4
	1983	2,141.5	82.2	1,902	1,207	88	1,119	316	891	0.63	0.6
	1984	2,242.9	85.7	2,085	1,106	63	1,043	260	846	0.53	0.5
	1985	2,036.3	80.5	2,729	1,304	144	1,160	378	926	0.48	0.6
	1986	1,995.6	79.0	2,499	949	36	913	261	688	0.38	0.5
	1987	1,962.6	82.4	2,672	1,142	51	1,091	376	766	0.43	0.6
	1988	2,228.9	87.2	2,672	871	51	820	317	554	0.33	0.4
	1989	2,188.6	85.4	2,205	684	53	631	200	484	0.31	0.3
	1990	2,405.2	91.4	1,948	404	36	368	132	272	0.21	0.2
	1991	2,275.0	86.7	1,966	551	46	505	143	408	0.28	0.2
	1992	2,110.7	82.0	1,954	612	60	552	166	446	0.31	0.3

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function: Opera-tions	Person-rems (-cSv) per Work Function: Maint. & Others	Person-rems (-cSv) per Personnel Type: Contrac-tor	Person-rems (-cSv) per Personnel Type: Station & Utility	Average Meas'ble Dose (rems or cSv)	Person rems (-cSv)/ MW-Yr
OYSTER CREEK	1970	413.6		95	63	21	42	11	52	0.66	0.1
Docket 50-219; DPR-16	1971	448.9		249	240	50	190	92	148	0.96	0.5
1st commercial operation 12/69	1972	515.0		339	582	150	432	167	415	1.72	1.1
Type - BWR	1973	424.6		782	1,236	195	1,041	683	553	1.58	2.9
Capacity - 620 MWe	1974	434.5	70.4	935	984	166	818	162	822	1.05	2.3
	1975	373.6	73.3	1,210	1,140	169	971	271	869	0.94	3.1
	1976	456.5	79.3	1,582	1,078	70	1,008	587	491	0.68	2.4
	1977	385.7	70.1	1,673	1,614	76	1,538	1,048	566	0.96	4.2
	1978	431.8	74.3	1,411	1,279	134	1,145	696	583	0.91	3.0
	1979	541.0	85.9	842	467	95	372	135	332	0.55	0.9
	1980	232.9	41.4	1,966	1,733	97	1,636	1,183	550	0.88	7.4
	1981	314.8	59.8	1,689	917	48	869	479	438	0.54	2.9
	1982	242.7	62.5	1,270	865	33	832	491	374	0.68	3.6
	1983	27.9	11.5	2,303	2,257	65	2,192	1,863	394	0.98	80.9
	1984	37.1	9.6	2,369	2,054	134	1,920	1,537	517	0.87	55.4
	1985	446.1	89.4	2,342	748	116	632	318	430	0.32	1.7
	1986	157.3	31.5	3,740	2,436	288	2,148	1,924	512	0.65	15.5
	1987	371.0	64.2	1,932	522	112	410	211	311	0.27	1.4
	1988	419.6	65.9	2,875	1,504	135	1,369	1,232	272	0.52	3.6
	1989	287.5	57.3	2,395	910	138	772	566	344	0.38	3.2
	1990	511.8	89.1	1,941	310	76	234	131	179	0.16	0.6
	1991	351.6	60.5	3,089	1,185	151	1,034	938	247	0.38	3.4
	1992	536.3	85.9	2,771	657	70	587	438	219	0.24	1.2
PALISADES	1972	216.8			78						0.4
Docket 50-255; DPR-20	1973	286.8		975	1,133	16	1,117	661	472	1.16	4.0
1st commercial operation 12/71	1974	10.7	5.5	774	627					0.81	58.6
Type - PWR	1975	302.0	64.5	495	306					0.62	1.0
Capacity - 730 MWe	1976	346.9	55.2	742	696	23	673	109	587	0.94	2.0
	1977	616.6	91.4	332	100	13	87	23	77	0.30	0.2
	1978	320.2	49.7	849	764	52	712	173	591	0.90	2.4
	1979	415.0	59.9	1,599	854	99	755	360	494	0.53	2.1
	1980	288.3	42.9	1,307	424	57	367	312	112	0.32	1.5
	1981	418.2	57.2	2,151	902	167	735	737	165	0.42	2.2
	1982	404.3	54.7	1,554	330	73	257	203	127	0.21	0.8
	1983	454.4	60.3	2,167	977	145	832	494	483	0.45	2.2
	1984	98.7	15.2	1,344	573	79	494	239	334	0.43	5.8
	1985	639.2	83.8	1,355	507	105	402	239	268	0.37	0.8
	1986	102.3	15.1	1,438	672	148	524	204	468	0.47	6.6
	1987	319.2	48.2	1,122	456	85	371	216	240	0.41	1.4

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function		Person-rems (-cSv) per Personnel Type		Average Meas'ble Dose (rems or cSv)	Person rems (-cSv)/ MW-Yr
						Opera-tions	Maint. & Others	Contrac-tor	Station & Utility		
PALISADES (Continued)	1988	413.4	56.8	1,472	730	138	592	466	264	0.50	1.8
	1989	442.8	69.1	1,026	314	70	244	190	124	0.31	0.7
	1990	366.7	58.7	2,414	766	109	657	629	137	0.32	2.1
	1991	587.0	78.1	1,315	211	42	169	133	78	0.16	0.4
	1992	581.9	76.1	1,267	295	37	258	211	84	0.23	0.5
PALO VERDE 1,2,3	1987	1,638.1	66.1	1,792	669	101	568	437	232	0.37	0.4
Docket 50-528, 50-529; 50-530; NPF-41, NPF-51, NPF-74	1988	1,700.9	65.5	2,173	688	77	611	472	216	0.32	0.4
1st commercial operation 1/86, 9/86, 1/88	1989	965.3	26.5	2,615	720	87	633	559	161	0.28	0.7
Type - PWRs	1990	2,500.9	67.5	2,236	499	68	431	373	126	0.22	0.2
Capacity - 1221, 1221, 1221 MWe	1991	3,043.9	78.9	2,242	605	79	526	422	183	0.27	0.2
	1992	3,102.3	82.0	1,981	541	53	488	373	168	0.27	0.2
PEACH BOTTOM 2,3	1975	1,234.3	80.9	971	228					0.23	0.2
Docket 50-277, 50-278; DPR-44, -56	1976	1,379.2	73.0	2,136	840	180	660	434	406	0.39	0.6
1st commercial operation 7/74, 12/74	1977	1,052.4	58.7	2,827	2,036	223	1,813	1,374	662	0.72	1.9
Type - BWR	1978	1,636.3	84.0	2,244	1,317	162	1,155	709	608	0.59	0.8
Capacity - 1055, 1035 MWe	1979	1,740.0	84.5	2,276	1,388	245	1,143	717	671	0.61	0.8
	1980	1,374.2	66.3	2,774	2,302	311	1,991	1,596	706	0.83	1.7
	1981	1,161.8	58.0	2,857	2,506	273	2,233	1,880	626	0.88	2.2
	1982	1,583.3	76.9	2,734	1,977	313	1,664	1,348	629	0.72	1.2
	1983	824.7	41.0	3,107	2,963	331	2,632	2,422	541	0.95	3.6
	1984	1,165.8	57.5	3,313	2,450	225	2,225	2,045	405	0.74	2.1
	1985	682.7	37.5	4,209	3,354	395	2,959	2,727	627	0.80	4.9
	1986	1,395.0	71.7	2,454	1,080	294	786	671	409	0.44	0.8
	1987	365.7	20.3	4,363	2,195	178	2,017	1,712	483	0.50	6.0
	1988	0.0	0.0	4,204	2,327	114	2,213	2,025	302	0.55	---
	1989	491.0	35.0	2,301	728	243	485	357	371	0.32	1.5
	1990	1,684.0	85.7	1,585	377	99	278	179	198	0.24	0.2
	1991	1,210.9	62.3	2,702	934	137	797	610	324	0.35	0.8
	1992	1,516.6	78.7	1,911	502	121	381	256	246	0.26	0.3
PERRY	1988	869.3	79.0	782	105	34	71	36	69	0.13	0.1
Docket 50-440; NPF-58	1989	642.2	57.0	1,883	767	113	654	604	163	0.41	1.2
1st commercial operation 11/87	1990	792.7	67.1	1,537	638	51	587	494	144	0.42	0.8
Type - BWR	1991	1,074.2	91.9	600	146	24	122	50	96	0.24	0.1
Capacity - 1141 MWe	1992	856.2	75.5	1,487	571	28	543	440	131	0.38	0.7

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function: Opera-tions	Person-rems (-cSv) per Work Function: Maint. & Others	Person-rems (-cSv) per Personnel Type: Contrac-tor	Person-rems (-cSv) per Personnel Type: Station & Utility	Average Meas'ble Dose (rems or cSv)	Person rems (-cSv)/ MW-Yr
PILGRIM 1	1973	484.0		230	126	49	77			0.55	0.3
Docket 50-293; DPR-35	1974	234.1	39.2	454	415					0.91	1.8
1st commercial operation 12/72	1975	308.1	71.3	473	798	142	656	412	386	1.69	2.6
Type - BWR	1976	287.8	60.7	1,317	2,648	66	2,582	2,270	378	2.01	9.2
Capacity - 670 MWe	1977	316.6	61.4	1,875	3,142	146	2,996	2,176	966	1.68	9.9
	1978	519.5	83.1	1,667	1,327	157	1,170	895	432	0.80	2.6
	1979	574.0	89.4	2,458	1,015	130	885	516	499	0.41	1.8
	1980	360.3	56.2	3,549	3,626	207	3,419	3,076	550	1.02	10.1
	1981	408.9	65.9	2,803	1,836	70	1,766	1,418	418	0.66	4.5
	1982	389.9	63.9	2,854	1,539	314	1,225	1,094	445	0.54	3.9
	1983	559.5	87.2	2,326	1,162	296	866	776	386	0.50	2.1
	1984	1.4	0.4	4,542	4,082	647	3,435	3,767	315	0.90	15.7
	1985	587.3	91.5	2,209	893	13	880	739	154	0.40	1.5
	1986	121.9	18.8	2,635	874	110	764	718	156	0.33	7.2
	1987	0.0	0.0	4,710	1,579	99	1,480	1,485	94	0.34	---
	1988	0.0	0.0	2,073	392	58	334	218	174	0.19	---
	1989	204.6	64.1	1,797	207	137	70	40	167	0.12	1.0
	1990	503.5	82.1	1,898	225	112	113	68	157	0.12	0.4
	1991	406.3	65.8	2,836	605	113	492	410	195	0.21	1.5
	1992	561.0	85.4	1,332	281	50	231	122	159	0.21	0.5
POINT BEACH 1,2	1971	393.4			164						0.4
Docket 50-266, 50-301; DPR-24, -27	1972	378.3			580						1.5
1st commercial operation 12/70, 10/72	1973	693.7		501	588	72	516			1.17	0.8
Type - PWRs	1974	760.2	81.3	400	295	70	225	81	214	0.74	0.4
Capacity - 485, 485 MWe	1975	801.2	82.9	339	459					1.35	0.6
	1976	857.3	86.7	313	370	58	312	107	263	1.18	0.4
	1977	873.9	87.3	417	430	63	366	212	217	1.03	0.5
	1978	914.4	90.9	336	320	71	249	111	209	0.95	0.3
	1979	808.0	80.8	610	644	65	579	448	196	1.06	0.8
	1980	727.2	82.5	561	598	60	538	420	178	1.07	0.8
	1981	760.4	83.6	773	596	83	513	364	232	0.77	0.8
	1982	757.2	84.3	767	609	72	537	375	234	0.79	0.8
	1983	648.2	72.7	1,702	1,403	81	1,322	1,184	219	0.82	2.2
	1984	788.9	78.6	1,372	789	121	668	457	332	0.58	1.0
	1985	831.3	82.5	671	482	71	411	242	240	0.72	0.6
	1986	858.9	85.7	664	402	50	352	219	183	0.61	0.5
	1987	857.5	85.5	720	554	55	499	369	185	0.77	0.6
	1988	899.3	88.6	734	410	64	346	235	175	0.56	0.5
	1989	847.8	85.5	736	504	77	427	284	220	0.68	0.6
	1990	875.5	86.5	617	378	53	325	161	217	0.61	0.4
	1991	874.8	87.1	724	265	42	223	134	131	0.37	0.3
	1992	866.7	85.8	617	256	39	217	118	138	0.41	0.3

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function		Person-rems (-cSv) per Personnel Type		Average Meas'ble Dose (rems or cSv)	Person rems (-cSv), MW-Y
						Opera-tions	Maint. & Others	Contrac-tor	Station & Utility		
PRAIRIE ISLAND 1,2	1974	181.9	43.9	150	18			5	13	0.12	0.1
Docket 50-282, 50-306; DPR-42, -60	1975	836.0	83.3	477	123					0.26	0.1
1st commercial operation 12/73, 12/74	1976	725.2	76.6	818	447	68	379	235	212	0.55	0.6
Type - PWRs	1977	922.9	87.2	718	300	73	227	60	240	0.42	0.3
Capacity - 503, 500 MWe	1978	941.1	92.2	546	221	43	178	48	173	0.40	0.2
	1979	865.0	86.0	594	180	29	151	49	131	0.30	0.2
	1980	800.7	79.9	983	353	40	313	141	212	0.36	0.4
	1981	844.9	80.5	836	329	37	292	128	201	0.39	0.4
	1982	944.9	90.4	645	229	30	199	68	161	0.36	0.2
	1983	921.1	86.8	654	233	14	219	73	160	0.36	0.3
	1984	972.4	91.7	546	147	18	129	52	95	0.27	0.2
	1985	882.6	84.0	1,082	416	31	385	136	280	0.38	0.5
	1986	930.6	90.3	818	255	18	237	80	175	0.31	0.3
	1987	969.6	91.6	593	135	9	126	51	84	0.23	0.1
	1988	932.0	89.1	732	199	17	182	62	137	0.27	0.2
	1989	1,001.8	94.7	476	99	10	89	28	71	0.21	0.1
	1990	925.4	89.2	737	188	8	180	74	114	0.26	0.2
	1991	1,023.3	95.6	586	98	10	88	26	72	0.17	0.1
	1992	811.6	76.2	845	211	12	199	72	139	0.25	0.3
QUAD CITIES 1,2	1974	958.1	72.3	678	482			36	446	0.71	0.5
Docket 50-254, 50-265; DPR-29, -30	1975	833.6	68.4	1,083	1,618	114	1,504	692	926	1.49	1.9
1st commercial operation 2/73, 3/73	1976	951.2	73.1	1,225	1,651	269	1,382	648	1,003	1.35	1.7
Type - BWRs	1977	970.1	84.0	907	1,031	108	923	373	658	1.14	1.1
Capacity - 769, 769 MWe	1978	1,124.5	88.6	1,207	1,618	358	1,260	722	1,618	1.34	1.4
	1979	1,075.0	84.6	1,688	2,158	215	1,943	1,250	908	1.28	2.0
	1980	866.9	64.4	3,089	4,838	291	4,547	3,657	1,181	1.57	5.6
	1981	1,156.9	81.1	2,246	3,146	100	3,046	2,623	523	1.40	2.7
	1982	1,018.7	76.0	2,314	3,757	177	3,580	2,653	1,104	1.62	3.7
	1983	1,088.5	79.2	1,802	2,491	168	2,323	1,898	593	1.38	2.3
	1984	994.6	65.7	1,678	1,579	122	1,457	1,075	504	0.94	1.6
	1985	1,268.0	82.7	1,184	990	172	818	27	963	0.84	0.8
	1986	1,093.2	71.0	1,451	950	128	822	568	382	0.65	0.9
	1987	1,126.6	75.3	1,429	720	79	641	435	285	0.50	0.6
	1988	1,173.7	84.1	1,486	827	136	691	545	282	0.56	0.7
	1989	1,196.3	85.9	1,721	900	143	757	616	284	0.52	0.8
	1990	1,148.9	77.8	2,186	1,028	183	845	713	315	0.47	0.9
	1991	1,044.5	73.2	1,722	509	107	402	292	217	0.30	0.5
	1992	960.8	68.0	2,413	1,157	168	989	754	403	0.48	1.2

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function		Person-rems (-cSv) per Personnel Type		Average Meas'ble Dose (rems or cSv)	Person rems (-cSv)/ MW-Yr
						Opera-tions	Maint. & Others	Contrac-tor	Station & Utility		
RANCHO SECO	1976	268.1	30.4	297	58	6	52	17	41	0.20	0.2
Docket 50-312; DPR-54	1977	706.4	77.1	515	391	61	329	248	142	0.76	0.6
1st commercial operation 4/75	1978	607.7	80.5	508	323	76	247	176	147	0.64	0.5
Type - PWR	1979	687.0	91.1	287	126	27	99	64	62	0.44	0.2
Capacity - 873 MWe	1980	530.9	60.4	890	412	110	302	281	131	0.46	0.8
	1981	321.2	40.2	772	402	83	319	266	136	0.52	1.3
	1982	409.5	53.3	766	337	49	288	217	120	0.44	0.8
	1983	347.9	46.8	1,338	787	158	629	604	183	0.59	2.3
	1984	460.0	58.3	802	222	73	149	115	107	0.28	0.5
	1985	238.7	30.8	1,764	756	183	573	583	173	0.43	3.2
	1986	0.0	0.0	1,513	402	36	366	277	125	0.27	---
	1987	0.0	0.0	1,533	300	52	248	216	84	0.20	---
	1988	355.8	63.1	693	78	13	65	33	45	0.11	0.2
	1989	179.9	54.7	603	81	9	72	19	62	0.13	0.5
	1990	0.0	0.0	111	13	4	9	2	11	0.12	---
	1991	0.0	0.0	101	9	5	4	1	8	0.09	---
	1992	0.0	0.0	70	7	4	3	0	7	0.10	---
RIVER BEND 1	1987	605.2	68.4	1,268	378	70	308	249	129	0.30	0.6
Docket 50-458; NPF-47	1988	880.7	94.3	513	107	30	77	34	73	0.21	0.1
1st commercial operation 6/86	1989	584.5	69.1	1,566	558	44	514	412	146	0.36	1.0
Type - BWR	1990	682.2	78.0	1,616	489	49	440	348	141	0.30	0.7
Capacity - 936 MWe	1991	814.7	87.2	780	144	38	106	54	90	0.18	0.2
	1992	336.1	39.7	2,022	710	77	633	580	130	0.35	2.1
ROBINSON 2	1972	580.0		245	215	42	173	137	78	0.88	0.4
Docket 50-261; DPR-23	1973	455.1		831	695					0.84	1.5
1st commercial operation 3/71	1974	578.1	83.3	853	672	185	487			0.79	1.2
Type - PWR	1975	501.8	72.7	849	1,142					1.35	2.3
Capacity - 665 MWe	1976	585.5	84.7	597	715	30	685	457	758	1.20	1.2
	1977	511.5	85.2	634	455	52	403	223	232	0.72	0.9
	1978	480.5	72.0	943	963	63	900	529	434	1.02	2.0
	1979	482.0	70.8	1,454	1,188	60	1,128	794	394	0.82	2.5
	1980	387.3	62.2	2,009	1,852	79	1,773	1,379	473	0.92	4.8
	1981	426.6	73.0	1,462	733	45	688	513	220	0.50	1.7
	1982	277.5	48.9	2,011	1,426	128	1,298	945	481	0.71	5.1
	1983	409.8	75.5	2,244	923	96	827	628	295	0.41	2.3
	1984	28.0	7.0	4,127	2,880	196	2,684	2,549	331	0.70	102.9
	1985	629.5	87.9	1,378	311	52	259	164	147	0.23	0.5
	1986	577.1	80.3	1,571	539	46	493	340	199	0.34	0.9
	1987	510.1	72.5	1,379	499	54	445	313	186	0.36	1.0

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function: Opera-tions	Person-rems (-cSv) per Work Function: Maint. & Others	Person-rems (-cSv) per Personnel Type: Contrac-tor	Person-rems (-cSv) per Personnel Type: Station & Utility	Average Meas'ble Dose (rems or cSv)	Person rems (-cSv)/ MW-Yr
ROBINSON 2 (Continued)	1988	385.0	65.9	1,351	564	44	520	370	194	0.42	1.5
	1989	336.6	48.7	1,098	195	31	164	88	107	0.18	0.6
	1990	400.3	64.8	1,626	437	33	404	356	81	0.27	1.1
	1991	575.1	81.4	885	193	31	162	139	54	0.22	0.3
	1992	487.2	66.8	1,267	352	51	301	260	92	0.28	0.7
SALEM 1,2	1978	546.4	55.6	574	122	28	94	32	90	0.21	0.2
Docket 50-272, -311; DPR-70, -75	1979	250.0	25.5	1,488	584	100	484	359	225	0.39	2.3
1st commercial operation 6/77	1980	680.6	69.2	1,704	449	55	394	281	168	0.26	0.7
Type - PWRs	1981	743.0	78.1	1,652	254	4	250	152	102	0.15	0.3
Capacity - 1106, 1106 MWe	1982	1,440.4	72.6	3,228	1,203	66	1,137	846	357	0.37	0.8
	1983	742.0	30.5	2,383	581	10	571	463	118	0.24	0.8
	1984	650.1	31.8	1,395	681	10	671	469	212	0.49	1.0
	1985	1,657.7	75.8	1,112	204	59	145	54	150	0.18	0.1
	1986	1,484.3	70.4	3,554	599	10	589	459	140	0.17	0.4
	1987	1,478.2	73.3	2,543	600	8	592	433	167	0.24	0.4
	1988	1,591.6	73.6	1,609	503	1	502	329	174	0.31	0.3
	1989	1,675.4	79.5	2,944	338	4	334	209	129	0.11	0.2
	1990	1,362.6	65.1	3,636	272	6	266	188	84	0.07	0.2
	1991	1,726.4	79.3	4,201	458	15	443	366	92	0.11	0.3
	1992	1,200.9	61.1	4,376	431	16	415	340	91	0.10	0.4
SAN ONOFRE 1,2,3	1969	314.1		123	42	10	32	5	37	0.34	0.1
Docket 50-206, -361, -362;	1970	365.9		251	155	13	142	59	96	0.62	0.4
DPR-13, NPF-10, NPF-15	1971	362.1		121	50	12	38	3	47	0.41	0.1
1st commercial operation 1/68, 8/83, 4/84	1972	338.5		326	256	29	227	117	139	0.79	0.8
Type - PWR	1973	273.7		570	353	40	313	168	185	0.62	1.3
Capacity - 436, 1070, 1080 MWe	1974	377.8	86.1	219	71					0.32	0.2
	1975	389.0	87.4	424	292					0.69	0.8
	1976	297.9	70.2	1,330	880	147	733	629	251	0.66	3.0
	1977	281.2	63.7	985	847	77	770	451	396	0.86	3.0
	1978	323.2	80.2	764	401	25	376	234	167	0.52	1.2
	1979	401.0	90.2	521	139	23	116	65	74	0.27	0.3
	1980	97.3	22.3	3,063	2,386	219	2,167	2,017	369	0.78	24.5
	1981	95.9	26.7	2,902	3,223	100	3,123	3,104	119	1.11	33.6
	1982	61.6	15.7	3,055	832	81	751	730	102	0.27	13.5
	1983	0.0	0.0	1,701	155	31	124	113	42	0.09	---
	1984	670.4	68.30	7,514	986	105	881	831	155	0.27	1.5
	1985	1,381.8	132.90	5,742	722	16	173	151	38	0.24	15.50
	1986	1,698.2	61.1	3,594	824	86	738	574	250	0.24	1.10
	1987	1,983.0	78.8	2,138	696	113	583	408	288	0.33	0.4
	1988	1,982.3	68.4	2,324	781	99	682	518	263	0.34	0.4

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function: Opera-tions	Person-rems (-cSv) per Work Function: Maint. & Others	Person-rems (-cSv) per Personnel Type: Contrac-tor	Person-rems (-cSv) per Personnel Type: Station & Utility	Average Meas'ble Dose (rems or cSv)	Person rems (-cSv)/ MW-Yr
SAN ONOFRE 1,2,3 (Continued)	1989	1,840.8	64.9	2,237	567	23	544	357	210	0.25	0.3
	1990	1,980.5	69.1	2,224	885	109	776	693	192	0.40	0.4
	1991	1,987.6	75.3	1,814	412	43	369	289	123	0.23	0.2
	1992	2,228.6	87.1	1,651	324	5	319	229	95	0.20	0.1
SEABROOK	1991	810.4	75.9	699	92	2	90	43	49	0.13	0.1
Docket 50-443; NPF-86	1992	932.4	81.3	806	147	0	147	128	19	0.18	0.2
1st commercial operation 8/90											
Type - PWR											
Capacity - 1150 MWe											
SEQUOYAH 1,2	1982	583.5	52.8	1,965	570	73	497	61	509	0.29	1.0
Docket 50-327, -328; DPR-77, -79	1983	1,663.7	75.1	1,772	491	74	417	46	445	0.28	0.3
1st commercial operation 7/81, 6/82	1984	1,481.9	69.0	2,373	1,117	152	965	111	1,006	0.47	0.8
Type - PWR	1985	1,151.3	51.3	1,854	1,071	118	953	243	828	0.58	0.9
Capacity - 1148, 1148 MWe	1986	0.0	0.0	1,735	526	101	425	70	456	0.30	---
	1987	0.0	0.0	2,080	420	55	365	101	319	0.20	---
	1988	490.8	31.8	2,439	678	73	605	115	563	0.28	1.4
	1989	1,851.7	85.7	2,007	657	71	586	140	517	0.33	0.4
	1990	1,662.6	77.2	2,934	1,678	102	1,576	352	1,326	0.57	1.0
	1991	1,965.4	88.0	1,928	698	39	659	299	399	0.36	0.4
	1992	1,849.0	85.4	1,714	465	32	433	343	122	0.27	0.3
SOUTH TEXAS 1, 2	1989	769.3	65.6	989	161	10	151	114	47	0.16	0.2
Docket 50-498, 50-499; NPF -76,-80	1990	1,504.1	65.9	1,136	206	18	188	126	80	0.18	0.1
1st commercial operation 8/88, 6/89	1991	1,741.5	72.4	1,144	257	38	219	172	85	0.22	0.1
Type - PWRs	1992	2,096.0	83.8	923	147	9	138	91	56	0.16	0.1
Capacity - 1251, 1251 MWe											
ST. LUCIE 1,2	1977	649.1	84.7	445	152	26	126	92	60	0.34	0.2
Docket 50-335, -389; DPR-67; NPF-16	1978	606.4	76.5	797	337	15	322	140	197	0.42	0.6
1st commercial operation 12/76, 8/83	1979	592.0	74.0	907	438	25	413	209	229	0.48	0.7
Type - PWRs	1980	627.9	77.5	1,074	532	82	450	195	337	0.50	0.8
Capacity - 839, 839 MWe	1981	599.1	72.7	1,473	929	20	909	556	373	0.63	1.6
	1982	816.8	94.0	1,045	272	17	255	105	167	0.26	0.3
	1983	290.3	15.4	2,211	1,204	5	1,199	924	280	0.54	4.1
	1984	1,183.0	69.6	2,090	1,263	40	1,223	807	456	0.60	1.1
	1985	1,445.8	82.5	1,971	1,344	294	1,050	810	534	0.68	0.9
	1986	1,588.6	89.1	1,279	491	81	410	322	169	0.38	0.3
	1987	1,407.9	81.9	2,012	951	1	950	560	391	0.47	0.7
	1988	1,639.7	93.0	1,448	611	54	557	371	240	0.42	0.4
	1989	1,493.1	85.1	1,414	495	24	471	298	197	0.35	0.3
	1990	1,188.4	70.0	1,876	777	83	694	482	295	0.41	0.7
	1991	1,592.8	90.8	1,282	479	38	441	303	176	0.37	0.3
	1992	1,511.9	87.3	1,251	264	29	235	153	111	0.21	0.2

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function: Opera-tions	Person-rems (-cSv) per Work Function: Maint. & Others	Person-rems (-cSv) per Personnel Type: Contrac-tor	Person-rems (-cSv) per Personnel Type: Station & Utility	Average Meas'ble Dose (rems or cSv)	Person rems (-cSv)/ MW-Yr
SUMMER 1	1984	504.6	61.1	1,120	295	29	266	202	93	0.26	0.6
Docket 50-395; NPF-12	1985	627.7	71.6	1,201	379	74	305	241	138	0.32	0.6
1st commercial operation 1/84	1986	853.7	95.3	392	23	5	18	12	11	0.06	0.03
Type - PWR	1987	618.7	71.0	1,075	560	34	526	454	106	0.52	0.9
Capacity - 885 MWe	1988	605.3	69.1	1,127	511	35	476	403	108	0.45	0.8
	1989	652.4	83.1	374	52	11	41	27	25	0.14	0.1
	1990	730.0	83.9	1,090	376	29	347	322	54	0.34	0.5
	1991	642.5	82.9	984	291	21	270	253	38	0.30	0.5
	1992	892.6	97.4	249	27	6	21	12	15	0.11	0.0
SURRY 1,2	1973	420.6		936	152						
Docket 50-280, 50-281; DPR-32, -37	1974	717.4	49.8	1,715	884	72	812			0.16	0.4
1st commercial operation 12/72, 5/73	1975	1,079.0	70.8	1,948	1,649	27	1,622	1,065	584	0.52	1.2
Type - PWRs	1976	930.7	60.4	2,753	3,165	444	2,721	1,873	1,292	0.85	1.5
Capacity - 781, 781 MWe	1977	1,139.0	72.2	1,860	2,307	348	1,959	1,380	927	1.15	3.4
	1978	1,210.6	77.2	2,203	1,837	530	1,307	1,248	589	1.24	2.0
	1979	343.0	42.3	5,065	3,584	173	3,411	2,975	609	0.83	1.5
	1980	568.2	40.3	5,317	3,836	353	3,483	3,117	719	0.71	10.4
	1981	907.6	59.3	3,753	4,244	428	3,816	3,040	1,204	0.72	6.8
	1982	1,323.3	88.5	1,878	1,490	399	1,091	506	984	1.13	4.7
	1983	916.2	61.3	2,754	3,220	571	2,649	1,786	1,434	0.79	1.1
	1984	1,026.7	71.0	3,198	2,247	536	1,711	1,575	672	1.17	3.5
	1985	1,166.4	78.2	3,206	1,815	509	1,306	1,232	583	0.70	2.2
	1986	1,080.5	69.0	3,763	2,356	430	1,926	1,677	679	0.57	1.6
	1987	1,132.7	72.7	2,675	712	192	520	325	387	0.63	2.2
	1988	750.4	50.0	3,184	1,542	68	1,474	1,117	425	0.27	0.6
	1989	489.3	33.0	3,100	836	27	809	530	306	0.48	2.1
	1990	1,276.4	83.9	1,947	575	53	522	389	186	0.27	1.7
	1991	1,271.9	84.5	1,547	510	45	465	311	199	0.30	0.5
	1992	1,396.3	88.9	1,660	539	108	431	383	156	0.33	0.4
										0.32	0.4
SUSQUEHANNA 1,2	1984	719.9	72.6	2,827	308	74	234	127	181	0.11	0.4
Docket 50-387, 50-388; NPF-14; NPF-22	1985	1,452.2	76.4	3,669	1,106	78	1,028	790	316	0.30	0.8
1st commercial operation 6/83, 2/85	1986	1,344.8	67.0	2,996	828	50	778	402	426	0.28	0.6
Type - BWR	1987	1,749.5	85.3	2,548	621	36	585	341	280	0.24	0.4
Capacity - 1033, 1039 MWe	1988	1,691.0	83.5	1,904	516	52	464	281	235	0.27	0.3
	1989	1,572.5	77.1	2,063	704	32	672	332	372	0.34	0.4
	1990	1,746.9	85.4	1,691	440	30	410	179	261	0.26	0.3
	1991	1,878.0	89.8	1,844	507	44	463	251	256	0.27	0.3
	1992	1,604.2	79.7	1,885	724	29	695	356	368	0.38	0.5

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function: Opera-tions	Person-rems (-cSv) per Work Function: Maint. & Others	Person-rems (-cSv) per Personnel Type: Contrac-tor	Person-rems (-cSv) per Personnel Type: Station & Utility	Average Meas'ble Dose (rems or cSv)	Person rems (-cSv)/ MW-Yr
THREE MILE ISLAND 1,2	1975	675.9	82.2	131	73			18	55	0.56	0.1
Docket 50-289, -320; DPR-50, -73	1976	530.0	65.4	819	286	23	263	69	217	0.35	0.5
1st commercial operation 9/74, 12/78	1977	664.5	80.9	1,122	360	15	344	128	231	0.32	0.5
Type - PWRs	1978	690.0	85.1	1,929	504	32	472	235	269	0.26	0.7
Capacity - 808, 880 MWe	1979	266.0	21.9	3,975	1,392	197	1,195	907	485	0.35	5.2
	1980	0.0	0.0	2,328	394	29	365	239	155	0.17	---
	1981	0.0	0.0	2,103	376	50	326	190	186	0.18	---
	1982	0.0	0.0	2,123	1,004	62	942	433	571	0.47	---
	1983	0.0	0.0	1,592	1,159	85	1,074	633	526	0.73	---
	1984	0.0	0.0	1,079	688	50	638	330	358	0.64	---
	1985	103.6	10.6	1,890	857	230	627	266	591	0.45	8.3
THREE MILE ISLAND 1*	1986	585.2	70.9	1,360	213	44	169	89	124	0.16	0.4
Docket 50-289; DPR-50	1987	610.7	73.6	1,259	149	40	109	50	99	0.12	0.2
1st commercial operation 9/74	1988	661.0	77.8	1,012	210	40	170	88	122	0.21	0.3
Type - PWR	1989	871.3	100.0	670	54	22	32	3	51	0.08	0.1
Capacity - 808 MWe	1990	645.5	84.6	1,319	264	53	211	121	143	0.20	0.4
	1991	688.7	86.4	1,542	198	47	151	99	99	0.13	0.3
	1992	836.8	100.0	558	34	15	19	5	29	0.06	0.0
THREE MILE ISLAND 2**	1986	0.0	0.0	1,497	915	97	818	615	300	0.61	---
Docket 50-320; DPR-73	1987	0.0	0.0	1,378	977	90	887	687	290	0.71	---
1st commercial operation 12/78	1988	0.0	0.0	1,247	917	26	891	691	226	0.74	---
Type - PWR	1989	0.0	0.0	1,014	639	88	551	382	257	0.63	---
Capacity - 880 MWE	1990	0.0	0.0	484	136	25	111	50	86	0.28	---
	1991	0.0	0.0	153	37	1	36	3	34	0.24	---
	1992	0.0	0.0	315	157	7	150	99	58	0.50	---
TROJAN	1977	792.0	92.6	591	174	30	144	105	69	0.29	0.2
Docket 50-344; NPF-1	1978	205.5	20.6	711	319	83	236	125	194	0.45	1.6
1st commercial operation 5/76	1979	631.0	58.1	736	258	74	184	113	145	0.35	0.4
Type - PWR	1980	727.5	72.5	1,159	421	77	344	305	116	0.36	0.6
Capacity - 1095 MWe	1981	775.6	74.1	1,311	609	113	496	363	246	0.46	0.8

* Three Mile Island 1 resumed commercial power generation 10/85 after being under regulatory restraint since 1979.

**Three Mile Island 2 has been shut down since the 1979 accident, but was still included in the count of reactors through 1988 since dose was still being accumulated to defuel and decontaminate the unit during this time period.

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function: Opera-tions	Person-rems (-cSv) per Work Function: Maint. & Others	Person-rems (-cSv) per Personnel Type: Contrac-tor	Person-rems (-cSv) per Personnel Type: Station & Utility	Average Meas'ble Dose (rems or cSv)	Person rems (-cSv)/ MW-Yr
TROJAN (Continued)	1982	579.5	60.8	977	419	76	343	168	251	0.43	0.7
	1983	494.2	62.4	969	307	35	272	129	178	0.32	0.6
	1984	567.0	54.4	1,042	433	41	392	230	203	0.42	0.8
	1985	829.1	76.7	852	363	31	332	210	153	0.43	0.4
	1986	852.4	79.7	1,321	381	46	335	274	107	0.29	0.4
	1987	525.5	54.0	1,209	363	66	297	266	97	0.30	0.7
	1988	758.6	67.5	1,408	401	108	293	311	90	0.28	0.5
	1989	666.8	61.9	1,360	421	37	384	317	104	0.31	0.6
	1990	732.4	66.3	1,169	258	9	249	185	73	0.22	0.4
	1991	181.6	16.1	1,496	567	17	550	475	92	0.38	3.1
	1992	553.9	68.4	567	84	8	76	52	32	0.15	0.2
TURKEY POINT 3,4	1973	401.9		444	78						
Docket 50-250, 50-251; DPR-31, -41	1974	953.6		794	454	88	366	202	252	0.18	0.2
1st commercial operation 12/72, 9/73	1975	1,003.7	74.9	1,176	876	270	606	559	317	0.57	0.5
Type - PWRs	1976	974.2	71.2	1,647	1,184	89	1,095	868	316	0.74	0.9
Capacity - 666, 666 MWe	1977	979.5	72.1	1,319	1,036	94	942	522	514	0.72	1.2
	1978	1,000.2	78.8	1,336	1,032	90	942	546	486	0.79	1.1
	1979	811.0	62.4	2,002	1,680	299	1,381	997	683	0.77	1.0
	1980	990.6	73.6	1,803	1,651	232	1,419	1,218	433	0.84	2.1
	1981	654.0	46.8	2,932	2,251	274	1,977	1,854	397	0.92	1.7
	1982	915.7	65.2	2,956	2,119	197	1,922	1,656	463	0.77	3.4
	1983	878.4	62.8	2,930	2,681	272	2,409	2,119	562	0.72	2.3
	1984	946.7	68.5	2,010	1,255	217	1,038	876	379	0.92	3.1
	1985	1,034.9	74.7	1,905	1,253	91	1,162	817	436	0.62	1.3
	1986	754.1	54.9	1,808	946	71	875	716	230	0.66	1.2
	1987	431.3	36.6	1,980	1,371	79	1,292	987	384	0.52	1.3
	1988	809.8	59.5	1,841	738	18	720	523	215	0.69	3.2
	1989	689.9	56.8	1,625	433	25	408	281	152	0.40	0.9
	1990	933.1	69.0	2,099	730	140	590	475	255	0.27	0.6
	1991	258.2	21.0	2,087	939	105	834	685	254	0.35	0.8
	1992	968.9	75.5	1,374	325	32	293	173	152	0.45	3.6
										0.24	0.3
VERMONT YANKEE	1973	222.1		244	85						
Docket 50-271; DPR-28	1974	303.5		357	216	24	192	103	113	0.35	0.4
1st commercial operation 11/72	1975	429.0	87.8	282	153	70	83	63	90	0.61	0.7
Type - BWR	1976	389.6	77.1	815	411	36	375	246	165	0.54	0.4
Capacity - 504 MWe	1977	423.5	85.1	641	258	83	175	90	168	0.50	1.1
	1978	387.5	75.9	934	339	78	261	158	181	0.40	0.6
	1979	414.0	82.1	1,220	1,170	546	624	642	528	0.36	0.9
	1980	357.8	71.5	1,443	1,338	141	1,197	926	412	0.96	2.8
	1981	429.1	84.6	1,264	731	121	610	408	323	0.93	3.7
										0.58	1.7

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function: Opera-tions	Person-rems (-cSv) per Work Function: Maint. & Others	Person-rems (-cSv) per Personnel Type: Contrac-tor	Person-rems (-cSv) per Personnel Type: Station & Utility	Average Meas'ble Dose (rems or cSv)	Person rems (-cSv)/ MW-Yr
VERMONT YANKEE (Continued)	1982	501.0	96.0	481	205	60	145	80	125	0.43	0.4
	1983	346.1	69.3	1,316	1,527	215	1,312	787	740	1.16	4.4
	1984	398.1	79.0	954	626	83	543	318	308	0.66	1.6
	1985	361.4	71.8	1,392	1,051	163	888	898	153	0.76	2.9
	1986	248.1	48.9	1,389	1,188	44	1,144	1,091	97	0.86	4.8
	1987	423.6	84.2	827	303	37	266	226	77	0.37	0.7
	1988	492.1	95.7	379	124	27	97	67	57	0.33	0.3
	1989	432.8	84.7	832	288	43	245	220	68	0.35	0.7
	1990	433.1	85.9	849	307	37	270	236	71	0.36	0.7
	1991	492.3	94.3	310	118	19	99	66	52	0.38	0.2
	1992	446.8	88.1	921	381	58	323	319	62	0.41	0.9
VOGTLE 1,2	1988	820.4	77.7	1,108	138	13	125	107	31	0.12	0.2
Docket 50-424, 50-425; NPF-68, -81	1989	1,045.8	96.0	427	32	7	25	14	18	0.07	0.0
1st commercial operation 6/87, 5/89	1990	1,710.9	82.7	1,602	466	89	377	323	143	0.29	0.3
Type - PWRs	1991	1,966.5	89.2	1,357	362	50	312	296	66	0.27	0.2
Capacity - 1079, 1110 MWe	1992	2,047.9	90.0	1,262	426	51	375	310	116	0.34	0.2
WASHINGTON NUCLEAR 2	1985	616.0	87.6	755	119	42	77	42	77	0.16	0.2
Docket 50-397; NPF-21	1986	616.0	74.4	1,013	222	56	166	70	152	0.22	0.4
1st commercial operation 12/84	1987	639.0	70.8	1,201	406	95	311	143	263	0.34	0.6
Type - BWR	1988	707.7	71.8	1,050	353	81	272	93	260	0.34	0.5
Capacity - 1095 MWe	1989	727.2	78.3	1,299	492	161	331	216	276	0.38	0.7
	1990	684.7	67.5	1,348	536	121	415	209	327	0.40	0.8
	1991	508.5	50.3	1,088	387	88	299	143	244	0.36	0.8
	1992	682.3	65.6	1,489	612	11	601	307	305	0.41	0.9
WATERFORD 3	1986	875.7	79.1	1,244	223	62	161	178	45	0.18	0.3
Docket 50-382; NPF-38	1987	891.8	82.5	959	156	33	123	106	50	0.16	0.2
1st commercial operation 9/85	1988	784.3	75.4	1,246	259	79	180	207	52	0.21	0.3
Type - PWR	1989	909.8	82.6	1,306	265	70	195	231	34	0.20	0.3
Capacity - 1075 MWe	1990	1,027.9	92.8	432	47	0	47	24	23	0.11	0.0
	1991	870.6	79.8	1,301	364	101	263	307	57	0.28	0.4
	1992	909.6	83.2	1,213	226	52	174	177	49	0.19	0.2
WOLF CREEK 1	1986	832.8	73.3	682	143	27	116	78	65	0.21	0.2
Docket 50-482; NPF-42	1987	778.8	71.1	675	138	26	112	82	56	0.20	0.2
1st commercial operation 9/85	1988	794.7	70.7	1,010	297	62	235	177	120	0.29	0.4
Type - PWR	1989	1,108.4	99.5	186	18	4	14	8	10	0.10	0.0
Capacity - 1135 MWe	1990	940.2	81.0	798	195	29	166	130	65	0.24	0.2
	1991	707.6	71.9	1,010	331	37	294	244	87	0.33	0.5
	1992	1,010.8	86.7	446	78	17	61	42	36	0.17	0.1

APPENDIX C
PERSONNEL, DOSE AND POWER GENERATION SUMMARY (Continued)

Reporting Organization	Year	Mega-watt-Years (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Collective Dose (person-rems or cSv)	Person-rems (-cSv) per Work Function: Opera-tions	Person-rems (-cSv) per Work Function: Maint. & Others	Person-rems (-cSv) per Personnel Type: Contrac-tor	Person-rems (-cSv) per Personnel Type: Station & Utility	Average Meas'ble Dose (rems or cSv)	Person rems (-cSv)/ MW-Yr
YANKEE ROWE*	1969	138.3		193	215	83	132	78	133	1.11	1.6
Docket 50-29; DPR-3	1970	146.1		355	255	90	165	158	97	0.72	1.7
1st commercial operation 7/61	1971	173.5		155	90	46	44	19	71	0.58	0.5
Type - PWR	1972	78.7		282	255	63	192	146	109	0.90	3.2
Capacity - 167 MWe	1973	127.1		133	99			47	52	0.74	0.8
	1974	111.3		243	205			99	106	0.84	1.8
	1975	145.1	82.4	249	116	52	64	66	50	0.47	0.8
	1976	152.2	89.8	152	59	17	42	4	55	0.39	0.4
	1977	124.6	73.9	725	356	28	328	174	182	0.49	2.9
	1978	145.0	81.0	565	282	24	258	95	187	0.50	1.9
	1979	149.0	81.6	441	127	16	111	52	75	0.29	0.9
	1980	35.6	22.0	502	213	6	207	90	123	0.42	6.0
	1981	109.0	74.4	515	302	8	294	136	166	0.59	2.8
	1982	108.6	73.4	814	474	7	467	215	259	0.58	4.4
	1983	163.5	91.4	395	68	18	50	7	61	0.17	0.4
	1984	124.8	71.4	654	348	15	333	141	207	0.53	2.8
	1985	144.3	85.3	653	211	17	194	81	130	0.32	1.5
	1986	169.7	95.0	384	45	20	25	2	43	0.12	0.3
	1987	138.7	82.7	593	217	37	180	126	91	0.37	1.6
	1988	136.4	85.2	738	227	35	192	148	79	0.31	1.7
	1989	159.4	92.9	496	62	20	42	19	43	0.12	0.4
	1990	101.1	61.5	702	246	32	214	170	76	0.35	2.4
	1991	121.2	72.3	162	40	11	29	16	24	0.25	0.3
	1992	0.0	0.0	324	94	10	84	59	35	0.29	---
ZION 1,2	1974	425.3	71.1	306	56			13	43	0.18	0.1
Docket 50-295, 50-304; DPR-39, -48	1975	1,181.5	74.9	436	127	17	110	49	78	0.29	0.1
1st commercial operation 12/73, 9/74	1976	1,134.9	61.9	774	571	64	507	257	314	0.74	0.5
Type - PWRs	1977	1,358.6	75.0	784	1,003	43	960	561	442	1.28	0.7
Capacity - 1040, 1040 MWe	1978	1,613.5	80.2	1,104	1,017	294	723	418	1,017	0.92	0.6
	1979	1,238.0	67.6	1,472	1,274	168	1,106	747	527	0.87	1.0
	1980	1,411.2	74.1	1,363	920	107	813	560	360	0.67	0.7
	1981	1,366.9	72.3	1,754	1,720	50	1,670	1,155	565	0.98	1.3
	1982	1,186.4	64.3	1,575	2,103	42	2,061	1,688	415	1.34	1.8
	1983	1,222.3	69.4	1,285	1,311	118	1,193	905	406	1.02	1.1
	1984	1,389.9	69.6	1,110	786	23	763	556	230	0.71	0.6
	1985	1,187.9	62.9	1,498	1,166	39	1,127	787	379	0.78	1.0
	1986	1,462.0	73.2	967	474	21	453	330	144	0.49	0.3
	1987	1,337.0	71.0	1,046	653	38	615	432	221	0.62	0.5
	1988	1,549.1	78.3	1,926	1,260	38	1,222	1,045	215	0.65	0.8
	1989	1,514.1	77.6	1,282	624	21	603	392	232	0.49	0.4
	1990	860.4	46.9	1,385	696	19	677	492	204	0.50	0.8
	1991	1,125.7	58.2	902	173	26	147	90	83	0.19	0.2
	1992	1,128.8	59.0	1,732	1,043	19	1,024	783	260	0.60	0.9

*YANKEE ROWE ended commercial operation as of 10/91 and will not be put in commercial operation again. It is no longer included in the count of commercial reactors.

APPENDIX D

Number of Personnel and Person-rem by Work and Job Function

1992

NOTE: Appendix D contains data on operating plants as well as plants which are no longer in commercial operation.

APPENDIX D

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *ARKANSAS 1,2 TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM) STATION	UTILITY	CONTRACT	TOTAL	TOTAL PERSON-REM STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	3	0	0	3	0.555	0.300	0.000	0.855
OPERATIONS PERSONNEL	65	0	0	65	15.975	0.000	0.000	15.975
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	1	0	0	1	0.150	0.000	0.000	0.150
TOTAL	69	0	0	69	16.680	0.300	0.000	16.980
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	131	1	331	463	32.227	0.111	88.769	121.107
OPERATIONS PERSONNEL	1	0	1	2	0.115	0.000	0.320	0.435
HEALTH PHYSICS PERSONNEL	61	0	152	213	21.183	0.000	51.825	73.008
SUPERVISORY PERSONNEL	9	0	2	11	2.075	0.000	0.745	2.820
ENGINEERING PERSONNEL	13	0	39	52	1.949	0.000	11.592	13.541
TOTAL	215	1	525	741	57.549	0.111	153.251	210.911
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	1	0	197	198	0.115	0.000	69.540	69.655
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	5	0	9	14	0.835	0.000	1.805	2.640
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	1	0	3	4	0.175	0.000	0.845	1.020
TOTAL	7	0	209	216	1.125	0.000	72.190	73.315
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	84	0	527	611	21.688	0.000	232.231	253.919
OPERATIONS PERSONNEL	2	0	0	2	0.212	0.000	0.000	0.212
HEALTH PHYSICS PERSONNEL	27	6	64	97	8.486	1.278	21.703	31.467
SUPERVISORY PERSONNEL	3	0	1	4	0.886	0.000	0.361	1.247
ENGINEERING PERSONNEL	2	0	45	47	0.565	0.000	13.773	14.338
TOTAL	118	6	637	761	31.837	1.278	268.068	301.183
WASTE PROCESSING								
MAINTENANCE PERSONNEL	2	0	3	5	0.240	0.000	0.488	0.728
OPERATIONS PERSONNEL	2	0	0	2	0.313	0.000	0.000	0.313
HEALTH PHYSICS PERSONNEL	10	0	7	17	2.385	0.000	2.190	4.575
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	2	2	0.000	0.000	0.237	0.237
TOTAL	14	0	12	26	2.938	0.000	2.915	5.853
REFUELING								
MAINTENANCE PERSONNEL	24	0	230	254	6.678	0.000	61.737	68.415
OPERATIONS PERSONNEL	25	0	1	26	4.002	0.000	0.460	4.462
HEALTH PHYSICS PERSONNEL	25	1	101	127	5.005	0.125	23.463	28.593
SUPERVISORY PERSONNEL	1	0	0	1	0.105	0.000	0.000	0.105
ENGINEERING PERSONNEL	1	1	17	19	0.305	0.124	5.087	5.516
TOTAL	76	2	349	427	16.095	0.249	90.747	107.091
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	245 (157)	1 (1)	1288 (881)	1534 (1039)	61.503	0.411	452.765	514.679
OPERATIONS PERSONNEL	95 (70)	0 (0)	2 (1)	97 (71)	20.617	0.000	0.780	21.397
HEALTH PHYSICS PERSONNEL	128 (69)	7 (6)	333 (206)	468 (281)	37.894	1.403	100.986	140.283
SUPERVISORY PERSONNEL	13 (10)	0 (0)	3 (3)	16 (13)	3.066	0.000	1.106	4.172
ENGINEERING PERSONNEL	18 (15)	1 (1)	106 (92)	125 (108)	3.144	0.124	31.534	34.802
GRAND TOTALS	499 (321)	9 (8)	1732 (1183)	2240 (1512)	126.224	1.938	587.171	715.333

*Workers may be counted in more than one category. Numbers in parentheses are total numbers of individuals.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *BEAVER VALLEY 1,2

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	2	0	13	15	0.540	0.000	3.365	3.905
OPERATIONS PERSONNEL	41	0	0	41	7.675	0.000	0.000	7.675
HEALTH PHYSICS PERSONNEL	18	0	16	34	4.150	0.000	4.655	8.805
SUPERVISORY PERSONNEL	11	0	8	19	1.730	0.000	1.490	3.220
ENGINEERING PERSONNEL	4	0	0	4	0.750	0.000	0.000	0.750
TOTAL	76	0	37	113	14.845	0.000	9.510	24.355
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	152	0	80	232	42.070	0.000	21.750	63.820
OPERATIONS PERSONNEL	1	0	0	1	0.295	0.000	0.000	0.295
HEALTH PHYSICS PERSONNEL	22	0	22	44	5.505	0.000	6.760	12.265
SUPERVISORY PERSONNEL	7	0	18	25	1.375	0.000	3.740	5.115
ENGINEERING PERSONNEL	1	0	0	1	0.085	0.000	0.000	0.085
TOTAL	183	0	120	303	49.330	0.000	32.250	81.580
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	150	150	0.060	0.000	57.965	58.025
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	1	0	43	44	0.210	0.000	12.175	12.385
SUPERVISORY PERSONNEL	5	0	22	27	1.580	0.000	9.935	11.515
ENGINEERING PERSONNEL	0	0	0	0	0.060	0.000	0.000	0.060
TOTAL	6	0	215	221	1.910	0.000	80.075	81.985
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	75	75	0.065	0.000	24.215	24.280
OPERATIONS PERSONNEL	1	0	0	1	0.155	0.000	0.000	0.155
HEALTH PHYSICS PERSONNEL	1	0	7	8	0.275	0.000	2.485	2.760
SUPERVISORY PERSONNEL	0	0	7	7	0.000	0.000	2.240	2.240
ENGINEERING PERSONNEL	0	0	0	0	0.015	0.000	0.000	0.015
TOTAL	2	0	89	91	0.510	0.000	28.940	29.450
WASTE PROCESSING								
MAINTENANCE PERSONNEL	2	0	2	4	0.315	0.000	0.325	0.640
OPERATIONS PERSONNEL	4	0	0	4	1.175	0.000	0.000	1.175
HEALTH PHYSICS PERSONNEL	2	0	8	10	0.665	0.000	2.020	2.685
SUPERVISORY PERSONNEL	0	0	0	0	0.305	0.000	0.000	0.305
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	8	0	10	18	2.460	0.000	2.345	4.805
REFUELING								
MAINTENANCE PERSONNEL	3	0	39	42	0.640	0.000	14.380	15.020
OPERATIONS PERSONNEL	1	0	0	1	0.345	0.000	0.000	0.345
HEALTH PHYSICS PERSONNEL	1	0	13	14	0.215	0.000	3.355	3.570
SUPERVISORY PERSONNEL	4	0	3	7	1.555	0.000	0.770	2.325
ENGINEERING PERSONNEL	2	0	0	2	0.910	0.000	0.000	0.910
TOTAL	11	0	55	66	3.665	0.000	18.505	22.170
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	159	0	359	518	43.690	0.000	122.000	165.690
OPERATIONS PERSONNEL	48	0	0	48	9.645	0.000	0.000	9.645
HEALTH PHYSICS PERSONNEL	45	0	109	154	11.020	0.000	31.450	42.470
SUPERVISORY PERSONNEL	27	0	58	85	6.545	0.000	18.175	24.720
ENGINEERING PERSONNEL	7	0	0	7	1.820	0.000	0.000	1.820
GRAND TOTALS	286	0	526	812	72.720	0.000	171.625	244.345

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *BELLEFONTE

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
REFUELING								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
GRAND TOTALS	0	0	0	0	0.000	0.000	0.000	0.000

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *BIG ROCK POINT

TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	4	0	0	4	1.151	0.104	0.000	1.255
OPERATIONS PERSONNEL	30	0	0	30	21.909	0.000	0.170	22.079
HEALTH PHYSICS PERSONNEL	12	0	3	15	5.816	0.000	1.546	7.362
SUPERVISORY PERSONNEL	6	0	2	8	1.104	0.000	0.928	2.032
ENGINEERING PERSONNEL	1	0	0	1	0.328	0.000	0.000	0.328
TOTAL	53	0	5	58	30.308	0.104	2.644	33.056
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	13	0	0	13	1.469	0.156	0.000	1.625
OPERATIONS PERSONNEL	0	0	0	0	0.195	0.000	0.030	0.225
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.049	0.000	0.030	0.079
SUPERVISORY PERSONNEL	0	0	0	0	0.002	0.023	0.000	0.025
ENGINEERING PERSONNEL	0	0	0	0	0.006	0.000	0.000	0.006
TOTAL	13	0	0	13	1.721	0.179	0.060	1.960
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	2	26	18	46	0.348	17.974	15.994	34.316
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	3	0	7	10	0.507	0.000	2.011	2.518
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	1	0	0	1	1.368	0.000	0.000	1.368
TOTAL	6	26	25	57	2.223	17.974	18.005	38.202
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	29	47	19	95	53.490	66.562	11.356	131.408
OPERATIONS PERSONNEL	31	0	4	35	10.851	0.000	2.402	13.253
HEALTH PHYSICS PERSONNEL	8	0	14	22	10.182	0.000	12.260	22.442
SUPERVISORY PERSONNEL	7	1	1	9	2.346	0.678	0.296	3.320
ENGINEERING PERSONNEL	8	0	0	8	4.443	0.000	0.000	4.443
TOTAL	83	48	38	169	81.312	67.240	26.314	174.866
WASTE PROCESSING								
MAINTENANCE PERSONNEL	2	0	0	2	0.918	0.124	0.016	1.058
OPERATIONS PERSONNEL	3	0	0	3	1.224	0.000	0.015	1.239
HEALTH PHYSICS PERSONNEL	4	0	0	4	0.868	0.000	0.148	1.016
SUPERVISORY PERSONNEL	0	0	0	0	0.037	0.000	0.008	0.045
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	9	0	0	9	3.047	0.124	0.187	3.358
REFUELING								
MAINTENANCE PERSONNEL	0	0	0	0	0.083	0.023	0.000	0.106
OPERATIONS PERSONNEL	19	0	0	19	4.940	0.000	0.000	4.940
HEALTH PHYSICS PERSONNEL	0	0	3	3	0.342	0.000	0.679	1.021
SUPERVISORY PERSONNEL	1	0	0	1	0.313	0.000	0.009	0.322
ENGINEERING PERSONNEL	0	0	0	0	0.083	0.000	0.000	0.083
TOTAL	20	0	3	23	5.761	0.023	0.688	6.472
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	50	73	37	160	57.459	84.943	27.366	169.768
OPERATIONS PERSONNEL	83	0	4	87	39.119	0.000	2.617	41.736
HEALTH PHYSICS PERSONNEL	27	0	27	54	17.764	0.000	16.674	34.438
SUPERVISORY PERSONNEL	14	1	3	18	3.802	0.701	1.241	5.744
ENGINEERING PERSONNEL	10	0	0	10	6.228	0.000	0.000	6.228
GRAND TOTALS	184	74	71	329	124.372	85.644	47.898	257.914

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *BRAIDWOOD 1,2 TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	9	14	55	78	1.726	0.024	6.029	7.779
OPERATIONS PERSONNEL	70	0	46	116	6.923	0.000	0.469	7.392
HEALTH PHYSICS PERSONNEL	25	0	7	32	8.817	0.000	1.458	10.275
SUPERVISORY PERSONNEL	43	3	1	47	1.063	0.005	0.258	1.326
ENGINEERING PERSONNEL	46	55	7	108	2.183	0.181	0.142	2.506
TOTAL	193	72	116	381	20.712	0.210	8.356	29.278
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	123	0	445	568	23.436	0.001	48.799	72.236
OPERATIONS PERSONNEL	100	0	0	100	9.858	0.000	0.002	9.860
HEALTH PHYSICS PERSONNEL	13	0	48	61	4.573	0.000	9.528	14.101
SUPERVISORY PERSONNEL	194	3	12	209	4.804	0.006	4.207	9.017
ENGINEERING PERSONNEL	36	127	28	191	1.724	0.417	0.553	2.694
TOTAL	466	130	533	1129	44.395	0.424	63.089	107.908
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	190	190	0.000	0.000	20.870	20.870
OPERATIONS PERSONNEL	0	0	0	0	0.019	0.000	0.000	0.019
HEALTH PHYSICS PERSONNEL	2	0	27	29	0.495	0.000	5.336	5.831
SUPERVISORY PERSONNEL	11	34	78	123	0.273	0.063	26.574	26.910
ENGINEERING PERSONNEL	10	60	0	70	0.494	0.196	0.000	0.690
TOTAL	23	94	295	412	1.281	0.259	52.780	54.320
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	9	1	47	57	1.731	0.001	5.208	6.940
OPERATIONS PERSONNEL	7	0	0	7	0.668	0.000	0.000	0.668
HEALTH PHYSICS PERSONNEL	3	0	1	4	1.191	0.000	0.204	1.395
SUPERVISORY PERSONNEL	9	0	0	9	0.233	0.000	0.018	0.251
ENGINEERING PERSONNEL	11	21	2	34	0.502	0.070	0.046	0.618
TOTAL	39	22	50	111	4.325	0.071	5.476	9.872
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	3	3	0.084	0.000	0.329	0.413
OPERATIONS PERSONNEL	13	0	215	228	1.305	0.000	2.187	3.492
HEALTH PHYSICS PERSONNEL	4	0	0	4	1.502	0.000	0.008	1.510
SUPERVISORY PERSONNEL	3	0	0	3	0.060	0.000	0.000	0.060
ENGINEERING PERSONNEL	0	0	0	0	0.002	0.000	0.000	0.002
TOTAL	20	0	218	238	2.953	0.000	2.524	5.477
REFUELING								
MAINTENANCE PERSONNEL	47	0	60	107	9.118	0.000	6.567	15.685
OPERATIONS PERSONNEL	11	0	0	11	1.083	0.000	0.000	1.083
HEALTH PHYSICS PERSONNEL	4	0	5	9	1.255	0.000	0.928	2.183
SUPERVISORY PERSONNEL	74	0	0	74	1.833	0.000	0.000	1.833
ENGINEERING PERSONNEL	3	5	0	8	0.120	0.015	0.000	0.135
TOTAL	139	5	65	209	13.409	0.015	7.495	20.919
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	188	15	800	1003	36.095	0.026	87.802	123.923
OPERATIONS PERSONNEL	201	0	261	462	19.856	0.000	2.658	22.514
HEALTH PHYSICS PERSONNEL	51	0	88	139	17.833	0.000	17.462	35.295
SUPERVISORY PERSONNEL	334	40	91	465	8.266	0.074	31.057	39.397
ENGINEERING PERSONNEL	106	268	37	411	5.025	0.879	0.741	6.645
GRAND TOTALS	880	323	1277	2480	87.075	0.979	139.720	227.774

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *BROWNS FERRY 1,2,3 TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	350	7	478	835	5.771	0.050	11.276	17.097
OPERATIONS PERSONNEL	126	0	1	127	26.507	0.000	0.066	26.573
HEALTH PHYSICS PERSONNEL	84	0	33	117	10.299	0.000	2.886	13.185
SUPERVISORY PERSONNEL	36	2	21	59	3.439	0.141	0.863	4.443
ENGINEERING PERSONNEL	68	9	116	193	5.521	0.219	26.085	31.825
TOTAL	664	18	649	1331	51.537	0.410	41.176	93.123
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	467	7	695	1169	96.309	1.013	135.656	232.978
OPERATIONS PERSONNEL	100	0	1	101	3.711	0.000	0.033	3.744
HEALTH PHYSICS PERSONNEL	94	0	45	139	21.262	0.000	3.641	24.903
SUPERVISORY PERSONNEL	36	1	29	66	1.881	0.302	2.968	5.151
ENGINEERING PERSONNEL	58	7	77	142	6.699	0.722	7.103	14.524
TOTAL	755	15	847	1617	129.862	2.037	149.401	281.300
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	144	1	211	356	10.098	0.170	7.857	18.125
OPERATIONS PERSONNEL	8	0	0	8	0.084	0.000	0.000	0.084
HEALTH PHYSICS PERSONNEL	40	0	30	70	1.491	0.000	0.982	2.473
SUPERVISORY PERSONNEL	6	1	10	17	0.039	0.003	0.126	0.168
ENGINEERING PERSONNEL	16	5	32	53	0.601	1.277	5.994	7.872
TOTAL	214	7	283	504	12.313	1.450	14.959	28.722
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	260	4	555	819	34.216	0.030	94.634	128.880
OPERATIONS PERSONNEL	22	0	2	24	0.733	0.000	0.186	0.919
HEALTH PHYSICS PERSONNEL	32	0	31	63	1.148	0.000	3.719	4.867
SUPERVISORY PERSONNEL	10	0	26	36	0.123	0.000	9.379	9.502
ENGINEERING PERSONNEL	20	5	53	78	1.015	0.087	10.482	11.584
TOTAL	344	9	667	1020	37.235	0.117	118.400	155.752
WASTE PROCESSING								
MAINTENANCE PERSONNEL	41	1	38	80	0.302	0.006	1.900	2.208
OPERATIONS PERSONNEL	9	0	1	10	0.084	0.000	0.338	0.422
HEALTH PHYSICS PERSONNEL	47	0	10	57	3.180	0.000	2.513	5.693
SUPERVISORY PERSONNEL	1	0	2	3	0.001	0.000	0.000	0.001
ENGINEERING PERSONNEL	3	0	4	7	0.000	0.000	0.065	0.065
TOTAL	101	1	55	157	3.567	0.006	4.816	8.389
REFUELING								
MAINTENANCE PERSONNEL	17	0	30	47	0.273	0.000	0.744	1.017
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	16	0	7	23	0.135	0.000	0.097	0.232
SUPERVISORY PERSONNEL	3	0	2	5	0.001	0.000	0.000	0.001
ENGINEERING PERSONNEL	1	1	2	4	0.000	0.000	0.010	0.010
TOTAL	37	1	41	79	0.409	0.000	0.851	1.260
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	1279	20	2007	3306	146.969	1.269	252.067	400.305
OPERATIONS PERSONNEL	265	0	5	270	31.119	0.000	0.623	31.742
HEALTH PHYSICS PERSONNEL	313	0	156	469	37.515	0.000	13.838	51.353
SUPERVISORY PERSONNEL	92	4	90	186	5.484	0.446	13.336	19.266
ENGINEERING PERSONNEL	166	27	284	477	13.836	2.305	49.739	65.880
GRAND TOTALS	2115	51	2542	4708	234.923	4.020	329.603	568.546

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *BRUNSWICK 1,2 TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	6	0	30	36	2.089	0.518	8.555	11.162
OPERATIONS PERSONNEL	85	0	13	98	37.749	0.000	2.676	40.425
HEALTH PHYSICS PERSONNEL	50	0	71	121	20.383	0.120	35.119	55.622
SUPERVISORY PERSONNEL	15	0	0	15	4.162	0.040	0.025	4.227
ENGINEERING PERSONNEL	5	0	1	6	2.346	0.204	1.719	4.269
TOTAL	161	0	115	276	66.729	0.882	48.094	115.705
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	138	53	465	656	63.643	19.434	216.404	299.481
OPERATIONS PERSONNEL	0	0	27	27	0.165	0.000	8.293	8.458
HEALTH PHYSICS PERSONNEL	6	0	13	19	2.054	0.110	3.659	5.823
SUPERVISORY PERSONNEL	12	1	11	24	4.283	0.360	3.526	8.169
ENGINEERING PERSONNEL	36	4	145	185	14.465	1.788	103.213	119.466
TOTAL	192	58	661	911	84.610	21.692	335.095	441.397
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	4	4	0.240	0.722	2.482	3.444
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	3	0	14	17	0.799	0.000	5.642	6.441
TOTAL	3	0	18	21	1.039	0.722	8.124	9.885
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	25	0	310	335	6.799	0.615	137.133	144.547
OPERATIONS PERSONNEL	0	0	4	4	0.000	0.000	1.195	1.195
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.020	0.000	0.320	0.340
SUPERVISORY PERSONNEL	1	0	16	17	0.355	0.015	4.490	4.860
ENGINEERING PERSONNEL	0	1	33	34	1.095	0.602	11.796	13.493
TOTAL	26	1	363	390	8.269	1.232	154.934	164.435
WASTE PROCESSING								
MAINTENANCE PERSONNEL	15	0	30	45	4.665	0.070	9.450	14.185
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	7	0	1	8	3.988	0.015	0.503	4.506
SUPERVISORY PERSONNEL	0	0	0	0	0.005	0.000	0.045	0.050
ENGINEERING PERSONNEL	0	0	11	11	0.095	0.080	8.498	8.673
TOTAL	22	0	42	64	8.753	0.165	18.496	27.414
REFUELING								
MAINTENANCE PERSONNEL	0	0	0	0	0.165	0.000	0.070	0.235
OPERATIONS PERSONNEL	0	0	0	0	0.052	0.000	0.000	0.052
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.010	0.000	0.025	0.035
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	1	3	4	0.035	0.170	0.800	1.005
TOTAL	0	1	3	4	0.262	0.170	0.895	1.327
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	184	53	839	1076	77.601	21.359	374.094	473.054
OPERATIONS PERSONNEL	85	0	44	129	37.966	0.000	12.164	50.130
HEALTH PHYSICS PERSONNEL	63	0	85	148	26.455	0.245	39.626	66.326
SUPERVISORY PERSONNEL	28	1	27	56	8.805	0.415	8.086	17.306
ENGINEERING PERSONNEL	44	6	207	257	18.835	2.844	131.668	153.347
GRAND TOTALS	404	60	1202	1666	169.662	24.863	565.638	760.163

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *BYRON 1,2 TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM) STATION	UTILITY	CONTRACT	TOTAL	TOTAL PERSON-REM STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	5	12	52	69	0.948	0.000	5.003	5.951
OPERATIONS PERSONNEL	88	0	99	187	9.769	0.000	0.790	10.559
HEALTH PHYSICS PERSONNEL	47	0	71	118	11.606	0.000	9.689	21.295
SUPERVISORY PERSONNEL	110	0	6	116	2.518	0.000	0.181	2.699
ENGINEERING PERSONNEL	35	39	8	82	2.047	0.267	0.496	2.810
TOTAL	285	51	236	572	26.888	0.267	16.159	43.314
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	119	9	493	621	25.087	0.000	47.259	72.346
OPERATIONS PERSONNEL	51	0	1	52	5.654	0.000	0.009	5.663
HEALTH PHYSICS PERSONNEL	3	0	0	3	0.724	0.000	0.022	0.746
SUPERVISORY PERSONNEL	169	0	143	312	3.853	0.000	4.114	7.967
ENGINEERING PERSONNEL	20	122	27	169	1.169	0.844	1.634	3.647
TOTAL	362	131	664	1157	36.487	0.844	53.038	90.369
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	144	144	0.069	0.000	13.830	13.899
OPERATIONS PERSONNEL	1	0	0	1	0.066	0.000	0.000	0.066
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.107	0.000	0.028	0.135
SUPERVISORY PERSONNEL	11	0	1	12	0.242	0.000	0.016	0.258
ENGINEERING PERSONNEL	13	25	4	42	0.733	0.172	0.274	1.179
TOTAL	25	25	149	199	1.217	0.172	14.148	15.537
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	6	0	328	334	1.317	0.000	31.424	32.741
OPERATIONS PERSONNEL	4	0	0	4	0.480	0.000	0.000	0.480
HEALTH PHYSICS PERSONNEL	2	0	0	2	0.471	0.000	0.008	0.479
SUPERVISORY PERSONNEL	29	0	14	43	0.649	0.000	0.408	1.057
ENGINEERING PERSONNEL	3	20	7	30	0.149	0.142	0.426	0.717
TOTAL	44	20	349	413	3.066	0.142	32.266	35.474
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.007	0.000	0.037	0.044
OPERATIONS PERSONNEL	6	0	143	149	0.645	0.000	1.135	1.780
HEALTH PHYSICS PERSONNEL	1	0	0	1	0.276	0.000	0.000	0.276
SUPERVISORY PERSONNEL	2	0	0	2	0.040	0.000	0.000	0.040
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	9	0	143	152	0.968	0.000	1.172	2.140
REFUELING								
MAINTENANCE PERSONNEL	39	0	12	51	8.313	0.000	1.082	9.395
OPERATIONS PERSONNEL	7	0	26	33	0.824	0.000	0.211	1.035
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.025	0.000	0.000	0.025
SUPERVISORY PERSONNEL	83	0	2	85	1.877	0.000	0.050	1.927
ENGINEERING PERSONNEL	1	2	0	3	0.057	0.013	0.024	0.094
TOTAL	130	2	40	172	11.096	0.013	1.367	12.476
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	169	21	1029	1219	35.741	0.000	98.635	134.376
OPERATIONS PERSONNEL	157	0	269	426	17.438	0.000	2.145	19.583
HEALTH PHYSICS PERSONNEL	53	0	71	124	13.209	0.000	9.747	22.956
SUPERVISORY PERSONNEL	404	0	166	570	9.179	0.000	4.769	13.948
ENGINEERING PERSONNEL	72	208	46	326	4.155	1.438	2.854	8.447
GRAND TOTALS	855	229	1581	2665	79.722	1.438	118.150	199.310

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *CALLAWAY 1 TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM) STATION	UTILITY	CONTRACT	TOTAL	TOTAL PERSON-REM STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	3	0	16	19	0.773	0.000	5.738	6.511
OPERATIONS PERSONNEL	81	0	3	84	21.134	0.148	0.807	22.089
HEALTH PHYSICS PERSONNEL	19	0	41	60	6.047	0.000	10.465	16.512
SUPERVISORY PERSONNEL	9	0	0	9	3.132	0.095	0.000	3.227
ENGINEERING PERSONNEL	3	0	15	18	0.820	0.000	2.867	3.687
TOTAL	115	0	75	190	31.906	0.243	19.877	52.026
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	99	0	217	316	27.533	0.000	79.674	107.207
OPERATIONS PERSONNEL	4	0	0	4	2.138	0.000	0.176	2.314
HEALTH PHYSICS PERSONNEL	0	0	1	1	0.341	0.000	0.370	0.711
SUPERVISORY PERSONNEL	0	1	0	1	0.347	0.480	0.000	0.827
ENGINEERING PERSONNEL	0	0	1	1	0.391	0.000	0.471	0.862
TOTAL	103	1	219	323	30.750	0.480	80.691	111.921
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	7	0	120	127	2.712	0.000	78.205	80.917
OPERATIONS PERSONNEL	12	0	1	13	5.377	0.000	0.217	5.594
HEALTH PHYSICS PERSONNEL	4	0	25	29	1.510	0.000	10.528	12.038
SUPERVISORY PERSONNEL	2	0	0	2	0.676	0.000	0.000	0.676
ENGINEERING PERSONNEL	8	0	39	47	3.225	0.016	18.611	21.852
TOTAL	33	0	185	218	13.500	0.016	107.561	121.077
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	4	0	6	10	1.019	0.000	1.656	2.675
OPERATIONS PERSONNEL	0	0	0	0	0.053	0.000	0.000	0.053
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	15	15	0.000	0.000	3.652	3.652
TOTAL	4	0	21	25	1.072	0.000	5.308	6.380
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	5	5	0.024	0.000	1.208	1.232
OPERATIONS PERSONNEL	15	0	1	16	6.937	0.000	0.289	7.226
HEALTH PHYSICS PERSONNEL	1	0	1	2	0.634	0.000	0.482	1.116
SUPERVISORY PERSONNEL	4	0	0	4	0.784	0.000	0.000	0.784
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.023	0.023
TOTAL	20	0	7	27	8.379	0.000	2.002	10.381
REFUELING								
MAINTENANCE PERSONNEL	7	0	26	33	1.737	0.000	17.731	19.468
OPERATIONS PERSONNEL	5	1	0	6	1.745	0.330	0.056	2.131
HEALTH PHYSICS PERSONNEL	0	0	21	21	0.304	0.000	10.328	10.632
SUPERVISORY PERSONNEL	0	0	0	0	0.131	0.044	0.000	0.175
ENGINEERING PERSONNEL	4	0	2	6	1.372	0.000	0.653	2.025
TOTAL	16	1	49	66	5.289	0.374	28.768	34.431
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	120 (114)	0 (0)	390 (342)	510 (456)	33.798	0.000	184.212	218.010
OPERATIONS PERSONNEL	117 (109)	1 (1)	5 (7)	123 (117)	37.384	0.478	1.545	39.407
HEALTH PHYSICS PERSONNEL	24 (23)	0 (0)	89 (74)	113 (97)	8.836	0.000	32.173	41.009
SUPERVISORY PERSONNEL	15 (17)	1 (2)	0 (0)	16 (19)	5.070	0.619	0.000	5.689
ENGINEERING PERSONNEL	15 (18)	0 (0)	72 (69)	87 (87)	5.808	0.016	26.277	32.101
GRAND TOTALS	291 (281)	2 (3)	556 (492)	849 (776)	90.896	1.113	244.207	336.216

*Workers may be counted in more than one category. Numbers in parentheses are total numbers of individuals.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *CALVERT CLIFFS 1,2

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM) STATION	UTILITY	CONTRACT	TOTAL	TOTAL PERSON-REM STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	1	0	0	1	0.133	0.000	0.000	0.133
OPERATIONS PERSONNEL	51	0	0	51	10.148	0.000	0.000	10.148
HEALTH PHYSICS PERSONNEL	22	1	45	68	5.871	0.221	9.756	15.848
SUPERVISORY PERSONNEL	1	0	0	1	0.103	0.000	0.000	0.103
ENGINEERING PERSONNEL	1	0	0	1	0.108	0.000	0.000	0.108
TOTAL	76	1	45	122	16.363	0.221	9.756	26.340
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	31	0	45	76	4.395	0.000	12.081	16.476
OPERATIONS PERSONNEL	2	0	0	2	0.304	0.000	0.000	0.304
HEALTH PHYSICS PERSONNEL	0	0	2	2	0.000	0.000	0.287	0.287
SUPERVISORY PERSONNEL	0	0	1	1	0.000	0.000	0.188	0.188
ENGINEERING PERSONNEL	4	0	1	5	0.764	0.000	0.323	1.087
TOTAL	37	0	49	86	5.463	0.000	12.879	18.342
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	5	18	109	132	1.359	7.947	59.009	68.315
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	4	0	19	23	0.959	0.000	6.527	7.486
SUPERVISORY PERSONNEL	0	0	2	2	0.000	0.000	1.273	1.273
ENGINEERING PERSONNEL	1	0	2	3	0.339	0.000	0.997	1.336
TOTAL	10	18	132	160	2.657	7.947	67.806	78.410
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	63	32	128	223	13.710	16.872	33.613	64.195
OPERATIONS PERSONNEL	1	0	0	1	0.570	0.000	0.000	0.570
HEALTH PHYSICS PERSONNEL	10	0	25	35	2.452	0.000	4.103	6.555
SUPERVISORY PERSONNEL	0	1	1	2	0.000	0.160	0.107	0.267
ENGINEERING PERSONNEL	3	1	4	8	0.645	0.243	1.079	1.967
TOTAL	77	34	158	269	17.377	17.275	38.902	73.554
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	3	3	0.000	0.000	1.311	1.311
OPERATIONS PERSONNEL	0	0	1	1	0.000	0.000	0.210	0.210
HEALTH PHYSICS PERSONNEL	12	0	27	39	4.389	0.000	8.156	12.545
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	12	0	31	43	4.389	0.000	9.677	14.066
REFUELING								
MAINTENANCE PERSONNEL	11	0	38	49	3.073	0.000	25.735	28.808
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	11	0	33	44	2.181	0.000	7.547	9.728
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	5	5	0.000	0.000	0.807	0.807
TOTAL	22	0	76	98	5.254	0.000	34.089	39.343
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	111 (146)	50 (45)	323 (315)	484 (506)	22.670	24.819	131.749	179.238
OPERATIONS PERSONNEL	54 (58)	0 (0)	1 (4)	55 (62)	11.022	0.000	0.210	11.232
HEALTH PHYSICS PERSONNEL	59 (50)	1 (1)	151 (95)	211 (146)	15.852	0.221	36.376	52.449
SUPERVISORY PERSONNEL	1 (1)	1 (1)	4 (7)	6 (9)	0.103	0.160	1.568	1.831
ENGINEERING PERSONNEL	9 (17)	1 (1)	12 (15)	22 (33)	1.856	0.243	3.206	5.305
GRAND TOTALS	234 (272)	53 (48)	491 (436)	778 (756)	51.503	25.443	173.109	250.055

*Workers may be counted in more than one category. Numbers in parentheses are total numbers of individuals.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *CATAWBA 1,2 TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM) STATION	UTILITY	CONTRACT	TOTAL	TOTAL PERSON-REM STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	219	334	48	601	4.640	9.785	0.685	15.110
OPERATIONS PERSONNEL	85	3	38	126	23.765	0.700	0.660	25.125
HEALTH PHYSICS PERSONNEL	37	0	80	117	7.765	0.000	8.240	16.005
SUPERVISORY PERSONNEL	0	3	0	3	0.030	0.195	0.000	0.225
ENGINEERING PERSONNEL	4	9	28	41	0.110	0.025	0.220	0.355
TOTAL	345	349	194	888	36.310	10.705	9.805	56.820
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	218	328	50	596	53.430	47.970	11.220	112.620
OPERATIONS PERSONNEL	66	2	36	104	3.210	0.160	14.070	17.440
HEALTH PHYSICS PERSONNEL	37	1	72	110	5.505	0.000	5.925	11.430
SUPERVISORY PERSONNEL	1	2	0	3	0.635	0.170	0.000	0.805
ENGINEERING PERSONNEL	4	3	49	56	0.465	0.355	13.825	14.645
TOTAL	326	336	207	869	63.245	48.655	45.040	156.940
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	114	211	29	354	16.665	68.315	6.365	91.345
OPERATIONS PERSONNEL	24	2	7	33	1.905	0.750	0.080	2.735
HEALTH PHYSICS PERSONNEL	13	0	52	65	1.515	0.000	7.475	8.990
SUPERVISORY PERSONNEL	0	1	0	1	0.000	0.200	0.000	0.200
ENGINEERING PERSONNEL	2	2	59	63	0.030	0.655	11.425	12.110
TOTAL	153	216	147	516	20.115	69.920	25.345	115.380
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	156	251	24	431	8.610	45.735	1.025	55.370
OPERATIONS PERSONNEL	28	0	23	51	0.205	0.000	2.340	2.545
HEALTH PHYSICS PERSONNEL	27	1	43	71	1.975	0.000	2.260	4.235
SUPERVISORY PERSONNEL	0	1	0	1	0.590	0.035	0.000	0.625
ENGINEERING PERSONNEL	2	7	11	20	0.225	0.395	1.265	1.885
TOTAL	213	260	101	574	11.605	46.165	6.890	64.660
WASTE PROCESSING								
MAINTENANCE PERSONNEL	32	11	1	44	0.485	0.285	0.000	0.770
OPERATIONS PERSONNEL	16	0	36	52	1.495	0.000	3.075	4.570
HEALTH PHYSICS PERSONNEL	24	1	16	41	3.100	0.001	1.990	5.091
SUPERVISORY PERSONNEL	1	0	0	1	0.120	0.000	0.000	0.120
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	73	12	53	138	5.200	0.286	5.065	10.551
REFUELING								
MAINTENANCE PERSONNEL	186	232	36	454	8.800	30.135	1.015	39.950
OPERATIONS PERSONNEL	75	3	34	112	0.695	0.005	3.755	4.455
HEALTH PHYSICS PERSONNEL	21	0	39	60	1.690	0.000	4.625	6.315
SUPERVISORY PERSONNEL	0	1	0	1	0.010	0.000	0.000	0.010
ENGINEERING PERSONNEL	3	3	21	27	0.020	0.160	0.020	0.200
TOTAL	285	239	130	654	11.215	30.300	9.415	50.930
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	925 (228)	1367 (388)	188 (61)	2480 (677)	92.630	202.225	20.310	315.165
OPERATIONS PERSONNEL	294 (85)	10 (4)	174 (38)	478 (127)	31.275	1.615	23.980	56.870
HEALTH PHYSICS PERSONNEL	159 (37)	3 (0)	302 (80)	464 (117)	21.550	0.001	30.515	52.066
SUPERVISORY PERSONNEL	2 (1)	8 (3)	0 (0)	10 (4)	1.385	0.600	0.000	1.985
ENGINEERING PERSONNEL	15 (6)	24 (6)	168 (75)	207 (87)	0.850	1.590	26.755	29.195
GRAND TOTALS	1395 (357)	1412 (401)	832 (254)	3639(1012)	147.690	206.031	101.560	455.281

*Workers may be counted in more than one category. Numbers in parentheses are total numbers of individuals.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *CLINTON

TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	136	3	270	409	6.215	0.238	5.949	12.402
OPERATIONS PERSONNEL	45	0	11	56	10.111	0.000	0.157	10.268
HEALTH PHYSICS PERSONNEL	46	0	58	104	15.326	0.000	15.596	30.922
SUPERVISORY PERSONNEL	14	0	12	26	1.099	0.000	0.437	1.536
ENGINEERING PERSONNEL	14	0	13	27	0.975	0.000	0.323	1.298
TOTAL	255	3	364	622	33.726	0.238	22.462	56.426
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	115	2	82	199	5.046	0.159	1.979	7.184
OPERATIONS PERSONNEL	31	0	2	33	1.015	0.000	0.030	1.045
HEALTH PHYSICS PERSONNEL	24	0	5	29	0.692	0.000	0.150	0.842
SUPERVISORY PERSONNEL	4	0	2	6	0.067	0.000	0.059	0.126
ENGINEERING PERSONNEL	9	0	0	9	0.227	0.000	0.000	0.227
TOTAL	183	2	91	276	7.047	0.159	2.218	9.424
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	10	0	171	181	0.387	0.000	40.604	40.991
OPERATIONS PERSONNEL	3	0	3	6	0.064	0.000	0.970	1.034
HEALTH PHYSICS PERSONNEL	5	0	14	19	0.172	0.000	0.704	0.876
SUPERVISORY PERSONNEL	1	0	1	2	0.056	0.000	0.275	0.331
ENGINEERING PERSONNEL	4	0	11	15	0.094	0.000	4.416	4.510
TOTAL	23	0	200	223	0.773	0.000	46.969	47.742
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	154	3	362	519	57.703	0.914	147.004	205.621
OPERATIONS PERSONNEL	45	0	12	57	9.602	0.000	2.262	11.864
HEALTH PHYSICS PERSONNEL	39	0	44	83	8.837	0.000	3.867	12.704
SUPERVISORY PERSONNEL	13	0	9	22	2.632	0.000	2.744	5.376
ENGINEERING PERSONNEL	12	0	13	25	2.382	0.000	0.876	3.258
TOTAL	263	3	440	706	81.156	0.914	156.753	238.823
WASTE PROCESSING								
MAINTENANCE PERSONNEL	8	0	2	10	0.684	0.000	0.651	1.335
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	7	0	1	8	0.462	0.000	0.060	0.522
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	15	0	3	18	1.146	0.000	0.711	1.857
REFUELING								
MAINTENANCE PERSONNEL	48	0	158	206	1.157	0.000	21.069	22.226
OPERATIONS PERSONNEL	17	0	2	19	0.206	0.000	0.025	0.231
HEALTH PHYSICS PERSONNEL	14	0	26	40	1.603	0.000	2.495	4.098
SUPERVISORY PERSONNEL	7	0	8	15	0.109	0.000	2.174	2.283
ENGINEERING PERSONNEL	5	0	6	11	0.124	0.000	1.908	2.032
TOTAL	91	0	200	291	3.199	0.000	27.671	30.870
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	471	8	1045	1524	71.192	1.311	217.256	289.759
OPERATIONS PERSONNEL	141	0	30	171	20.998	0.000	3.444	24.442
HEALTH PHYSICS PERSONNEL	135	0	148	283	27.092	0.000	22.872	49.964
SUPERVISORY PERSONNEL	39	0	32	71	3.963	0.000	5.689	9.652
ENGINEERING PERSONNEL	44	0	43	87	3.802	0.000	7.523	11.325
GRAND TOTALS	830	8	1298	2136	127.047	1.311	256.784	385.142

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *COMANCHE PEAK

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)								TOTAL PERSON-REM			
	STATION		UTILITY		CONTRACT		TOTAL		STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV												
MAINTENANCE PERSONNEL	8		0		53		61		2.481	0.000	17.912	20.393
OPERATIONS PERSONNEL	0		0		4		4		0.629	0.000	1.908	2.537
HEALTH PHYSICS PERSONNEL	2		0		5		7		0.964	0.000	1.397	2.361
SUPERVISORY PERSONNEL	0		1		0		1		0.052	0.132	0.035	0.219
ENGINEERING PERSONNEL	0		0		1		1		0.055	0.000	0.531	0.586
TOTAL	10		1		63		74		4.181	0.132	21.783	26.096
ROUTINE MAINTENANCE												
MAINTENANCE PERSONNEL	0		0		15		15		0.128	0.000	5.040	5.168
OPERATIONS PERSONNEL	2		0		4		6		2.041	0.039	1.409	3.489
HEALTH PHYSICS PERSONNEL	0		0		5		5		0.186	0.000	2.574	2.760
SUPERVISORY PERSONNEL	0		0		0		0		0.167	0.010	0.022	0.199
ENGINEERING PERSONNEL	0		0		3		3		0.050	0.005	0.655	0.710
TOTAL	2		0		27		29		2.572	0.054	9.700	12.326
IN-SERVICE INSPECTION												
MAINTENANCE PERSONNEL	1		0		37		38		1.573	0.000	13.429	15.002
OPERATIONS PERSONNEL	0		0		4		4		1.800	0.039	1.841	3.680
HEALTH PHYSICS PERSONNEL	1		0		8		9		0.645	0.000	3.534	4.179
SUPERVISORY PERSONNEL	0		0		0		0		0.133	0.000	0.039	0.172
ENGINEERING PERSONNEL	0		0		1		1		0.118	0.005	0.733	0.856
TOTAL	2		0		50		52		4.269	0.044	19.576	23.889
SPECIAL MAINTENANCE												
MAINTENANCE PERSONNEL	6		0		66		72		2.238	0.000	20.941	23.179
OPERATIONS PERSONNEL	1		0		7		8		2.139	0.039	3.192	5.370
HEALTH PHYSICS PERSONNEL	5		0		17		22		1.720	0.000	7.603	9.323
SUPERVISORY PERSONNEL	0		0		0		0		0.200	0.000	0.039	0.239
ENGINEERING PERSONNEL	0		0		1		1		0.164	0.005	0.645	0.814
TOTAL	12		0		91		103		6.461	0.044	32.420	38.925
WASTE PROCESSING												
MAINTENANCE PERSONNEL	5		0		105		110		2.269	0.000	36.869	39.138
OPERATIONS PERSONNEL	1		0		10		11		2.088	0.039	3.566	5.693
HEALTH PHYSICS PERSONNEL	5		0		16		21		2.628	0.000	5.577	8.205
SUPERVISORY PERSONNEL	0		0		0		0		0.167	0.000	0.039	0.206
ENGINEERING PERSONNEL	0		0		3		3		0.170	0.000	1.066	1.236
TOTAL	11		0		134		145		7.322	0.039	47.117	54.478
REFUELING												
MAINTENANCE PERSONNEL	1		0		19		20		0.646	0.000	12.111	12.757
OPERATIONS PERSONNEL	1		0		2		3		1.014	0.039	1.001	2.054
HEALTH PHYSICS PERSONNEL	0		0		5		5		0.352	0.000	2.506	2.858
SUPERVISORY PERSONNEL	0		0		0		0		0.092	0.000	0.018	0.110
ENGINEERING PERSONNEL	0		0		0		0		0.093	0.005	0.281	0.379
TOTAL	2		0		26		28		2.197	0.044	15.917	18.158
TOTAL BY JOB FUNCTION												
MAINTENANCE PERSONNEL	21	(32)	0	(0)	295	(282)	316	(314)	9.335	0.000	106.302	115.637
OPERATIONS PERSONNEL	5	(35)	0	(1)	31	(24)	36	(60)	9.711	0.195	12.917	22.823
HEALTH PHYSICS PERSONNEL	13	(16)	0	(0)	56	(76)	69	(92)	6.495	0.000	23.191	29.686
SUPERVISORY PERSONNEL	0	(1)	1	(1)	0	(0)	1	(2)	0.811	0.142	0.192	1.145
ENGINEERING PERSONNEL	0	(1)	0	(0)	9	(8)	9	(9)	0.650	0.020	3.911	4.581
GRAND TOTALS	39	(85)	1	(2)	391	(390)	431	(477)	27.002	0.357	146.513	173.872

*Workers may be counted in more than one category. Numbers in parentheses are total numbers of individuals.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *COOK 1,2

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM) STATION	UTILITY	CONTRACT	TOTAL	TOTAL PERSON-REM STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	2	0	8	10	0.477	0.000	1.262	1.739
OPERATIONS PERSONNEL	46	2	6	54	10.275	0.580	1.163	12.018
HEALTH PHYSICS PERSONNEL	31	0	70	101	7.956	0.000	24.259	32.215
SUPERVISORY PERSONNEL	1	0	0	1	0.202	0.000	0.000	0.202
ENGINEERING PERSONNEL	0	0	2	2	0.000	0.000	0.325	0.325
TOTAL	80	2	86	168	18.910	0.580	27.009	46.499
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	83	1	298	382	24.006	0.238	118.059	142.303
OPERATIONS PERSONNEL	9	1	54	64	2.483	0.118	29.311	31.912
HEALTH PHYSICS PERSONNEL	9	0	32	41	1.730	0.000	5.886	7.616
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	9	0	2	11	2.054	0.000	0.744	2.798
TOTAL	110	2	386	498	30.273	0.356	154.000	184.629
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	3	0	76	79	0.377	0.000	27.172	27.549
OPERATIONS PERSONNEL	3	0	19	22	0.632	0.000	6.341	6.973
HEALTH PHYSICS PERSONNEL	1	0	16	17	0.131	0.000	3.326	3.457
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	1	0	6	7	0.117	0.000	1.890	2.007
TOTAL	8	0	117	125	1.257	0.000	38.729	39.986
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	13	0	166	179	2.124	0.000	51.826	53.950
OPERATIONS PERSONNEL	0	0	10	10	0.000	0.000	2.897	2.897
HEALTH PHYSICS PERSONNEL	2	0	18	20	0.217	0.000	2.691	2.908
SUPERVISORY PERSONNEL	1	0	7	8	0.112	0.000	0.000	0.112
ENGINEERING PERSONNEL	1	1	7	9	0.102	0.367	2.616	3.085
TOTAL	17	1	208	226	2.555	0.367	60.030	62.952
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	3	3	0.000	0.000	1.296	1.296
OPERATIONS PERSONNEL	0	0	4	4	0.000	0.000	1.162	1.162
HEALTH PHYSICS PERSONNEL	4	0	66	70	0.600	0.000	12.730	13.330
SUPERVISORY PERSONNEL	1	0	0	1	0.206	0.000	0.000	0.206
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	5	0	73	78	0.806	0.000	15.188	15.994
REFUELING								
MAINTENANCE PERSONNEL	4	0	31	35	0.558	0.000	6.158	6.716
OPERATIONS PERSONNEL	6	0	38	44	1.955	0.000	13.789	15.744
HEALTH PHYSICS PERSONNEL	0	0	32	32	0.000	0.000	5.049	5.049
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	2	0	1	3	0.495	0.000	0.158	0.653
TOTAL	12	0	102	114	3.008	0.000	25.154	28.162
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	105 (89)	1 (1)	582 (461)	688 (551)	27.542	0.238	205.773	233.553
OPERATIONS PERSONNEL	64 (59)	3 (3)	131 (104)	198 (166)	15.345	0.698	54.663	70.706
HEALTH PHYSICS PERSONNEL	47 (32)	0 (0)	234 (150)	281 (182)	10.634	0.000	53.941	64.575
SUPERVISORY PERSONNEL	3 (2)	0 (0)	7 (0)	10 (2)	0.520	0.000	0.000	0.520
ENGINEERING PERSONNEL	13 (10)	1 (1)	18 (16)	32 (27)	2.768	0.367	5.733	8.868
GRAND TOTALS	232 (192)	5 (5)	972 (731)	1209 (928)	56.809	1.303	320.110	378.222

*Workers may be counted in more than one category. Numbers in parentheses are total numbers of individuals.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *COOPER STATION

TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM) STATION	UTILITY	CONTRACT	TOTAL	TOTAL PERSON-REM STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	3	0	1	4	0.178	0.000	0.006	0.184
OPERATIONS PERSONNEL	32	0	0	32	8.343	0.000	0.000	8.343
HEALTH PHYSICS PERSONNEL	17	0	9	26	2.029	0.000	0.676	2.705
SUPERVISORY PERSONNEL	2	0	0	2	0.143	0.000	0.000	0.143
ENGINEERING PERSONNEL	4	2	4	10	0.843	0.121	0.019	0.983
TOTAL	58	2	14	74	11.536	0.121	0.701	12.358
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	58	0	10	68	17.904	0.000	3.318	21.222
OPERATIONS PERSONNEL	6	0	0	6	0.084	0.000	0.000	0.084
HEALTH PHYSICS PERSONNEL	27	0	14	41	15.756	0.000	5.805	21.561
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	2	11	3	16	0.008	2.084	2.314	4.406
TOTAL	93	11	27	131	33.752	2.084	11.437	47.273
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	1	1	0.000	0.000	0.264	0.264
OPERATIONS PERSONNEL	1	0	0	1	0.025	0.000	0.000	0.025
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	1	0	0	1	0.048	0.000	0.000	0.048
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	2	0	1	3	0.073	0.000	0.264	0.337
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	1	0	0	1	0.018	0.000	0.000	0.018
OPERATIONS PERSONNEL	5	0	0	5	0.430	0.000	0.000	0.430
HEALTH PHYSICS PERSONNEL	2	0	0	2	0.119	0.000	0.000	0.119
SUPERVISORY PERSONNEL	1	0	0	1	0.132	0.000	0.000	0.132
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	9	0	0	9	0.699	0.000	0.000	0.699
WASTE PROCESSING								
MAINTENANCE PERSONNEL	2	0	0	2	0.026	0.000	0.000	0.026
OPERATIONS PERSONNEL	4	0	0	4	1.894	0.000	0.000	1.894
HEALTH PHYSICS PERSONNEL	4	0	2	6	1.547	0.000	0.104	1.651
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	10	0	2	12	3.467	0.000	0.104	3.571
REFUELING								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	64 (59)	0 (0)	12 (11)	76 (70)	18.126	0.000	3.588	21.714
OPERATIONS PERSONNEL	48 (36)	0 (0)	0 (0)	48 (36)	10.776	0.000	0.000	10.776
HEALTH PHYSICS PERSONNEL	50 (29)	0 (0)	25 (14)	75 (43)	19.451	0.000	6.585	26.036
SUPERVISORY PERSONNEL	4 (2)	0 (0)	0 (0)	4 (2)	0.323	0.000	0.000	0.323
ENGINEERING PERSONNEL	6 (4)	13 (11)	7 (3)	26 (18)	0.851	2.205	2.333	5.389
GRAND TOTALS	172 (130)	13 (11)	44 (28)	229 (169)	49.527	2.205	12.506	64.238

*Workers may be counted in more than one category. Numbers in parentheses are total numbers of individuals.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *CRYSTAL RIVER 3

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	0	0	0	0	0.012	0.074	0.012	0.098
OPERATIONS PERSONNEL	26	0	0	26	7.007	0.005	0.000	7.012
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.032	0.005	0.037
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.100	0.000	0.100
TOTAL	26	0	0	26	7.019	0.211	0.017	7.247
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	100	35	254	389	37.402	11.846	134.977	184.225
OPERATIONS PERSONNEL	8	4	65	77	2.498	1.059	25.275	28.832
HEALTH PHYSICS PERSONNEL	48	1	67	116	14.618	1.010	31.537	47.165
SUPERVISORY PERSONNEL	0	0	146	146	0.147	0.574	74.435	75.156
ENGINEERING PERSONNEL	0	4	11	15	0.000	2.069	5.148	7.217
TOTAL	156	44	543	743	54.665	16.558	271.372	342.595
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	40	40	0.014	0.016	16.928	16.958
OPERATIONS PERSONNEL	0	0	9	9	0.000	0.000	2.343	2.343
HEALTH PHYSICS PERSONNEL	0	0	8	8	0.111	0.000	2.638	2.749
SUPERVISORY PERSONNEL	0	0	26	26	0.000	0.000	8.720	8.720
ENGINEERING PERSONNEL	0	0	1	1	0.000	0.089	0.208	0.297
TOTAL	0	0	84	84	0.125	0.105	30.837	31.067
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
WASTE PROCESSING								
MAINTENANCE PERSONNEL	8	0	0	8	2.116	0.000	0.064	2.180
OPERATIONS PERSONNEL	1	0	1	2	0.245	0.000	0.251	0.496
HEALTH PHYSICS PERSONNEL	15	0	0	15	8.344	0.000	0.166	8.510
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.003	0.003
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	24	0	1	25	10.705	0.000	0.484	11.189
REFUELING								
MAINTENANCE PERSONNEL	0	0	34	34	0.515	0.235	18.735	19.485
OPERATIONS PERSONNEL	0	0	11	11	0.084	0.038	2.387	2.509
HEALTH PHYSICS PERSONNEL	1	0	6	7	0.379	0.000	1.376	1.755
SUPERVISORY PERSONNEL	0	0	16	16	0.000	0.007	8.543	8.550
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.052	0.000	0.052
TOTAL	1	0	67	68	0.978	0.332	31.041	32.351
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	108	35	328	471	40.059	12.171	170.716	222.946
OPERATIONS PERSONNEL	35	4	86	125	9.834	1.102	30.256	41.192
HEALTH PHYSICS PERSONNEL	64	1	81	146	23.452	1.010	35.717	60.179
SUPERVISORY PERSONNEL	0	0	188	188	0.147	0.613	91.706	92.466
ENGINEERING PERSONNEL	0	4	12	16	0.000	2.310	5.356	7.666
GRAND TOTALS	207	44	695	946	73.492	17.206	333.751	424.449

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *DAVIS-BESSE

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	5	0	0	5	0.351	0.000	0.000	0.351
OPERATIONS PERSONNEL	21	0	0	21	4.196	0.000	0.000	4.196
HEALTH PHYSICS PERSONNEL	38	0	0	38	9.072	0.000	0.000	9.072
SUPERVISORY PERSONNEL	1	0	0	1	0.235	0.000	0.000	0.235
ENGINEERING PERSONNEL	5	0	0	5	0.397	0.000	0.000	0.397
TOTAL	70	0	0	70	14.251	0.000	0.000	14.251
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	29	0	0	29	1.877	0.000	0.000	1.877
OPERATIONS PERSONNEL	2	0	0	2	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	16	0	0	16	0.414	0.000	0.000	0.414
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	2	0	0	2	0.069	0.000	0.000	0.069
TOTAL	49	0	0	49	2.360	0.000	0.000	2.360
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	4	0	0	4	0.581	0.000	0.000	0.581
OPERATIONS PERSONNEL	3	0	0	3	0.907	0.000	0.000	0.907
HEALTH PHYSICS PERSONNEL	15	0	0	15	1.421	0.000	0.000	1.421
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	1	0	0	1	0.000	0.000	0.000	0.000
TOTAL	23	0	0	23	2.909	0.000	0.000	2.909
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	28	0	0	28	1.582	0.000	0.000	1.582
OPERATIONS PERSONNEL	10	0	0	10	0.251	0.000	0.000	0.251
HEALTH PHYSICS PERSONNEL	33	0	0	33	3.822	0.000	0.000	3.822
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	5	0	0	5	0.428	0.000	0.000	0.428
TOTAL	76	0	0	76	6.083	0.000	0.000	6.083
WASTE PROCESSING								
MAINTENANCE PERSONNEL	9	0	0	9	0.025	0.000	0.000	0.025
OPERATIONS PERSONNEL	3	0	0	3	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	35	0	0	35	2.480	0.000	0.000	2.480
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	47	0	0	47	2.505	0.000	0.000	2.505
REFUELING								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	75	0	0	75	4.416	0.000	0.000	4.416
OPERATIONS PERSONNEL	39	0	0	39	5.354	0.000	0.000	5.354
HEALTH PHYSICS PERSONNEL	137	0	0	137	17.209	0.000	0.000	17.209
SUPERVISORY PERSONNEL	1	0	0	1	0.235	0.000	0.000	0.235
ENGINEERING PERSONNEL	13	0	0	13	0.894	0.000	0.000	0.894
GRAND TOTALS	265	0	0	265	28.108	0.000	0.000	28.108

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *DIABLO CANYON 1,2

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	1	0	0	1	0.110	0.000	0.000	0.110
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	1	0	0	1	0.110	0.000	0.000	0.110
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	1	4	6	11	0.152	0.583	0.978	1.713
OPERATIONS PERSONNEL	0	0	1	1	0.000	0.000	0.114	0.114
HEALTH PHYSICS PERSONNEL	17	2	3	22	2.400	0.225	0.325	2.950
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	2	2	0.000	0.000	0.519	0.519
TOTAL	18	6	12	36	2.552	0.808	1.936	5.296
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	10	6	15	31	2.130	1.125	4.770	8.025
OPERATIONS PERSONNEL	3	1	3	7	0.720	0.290	0.360	1.370
HEALTH PHYSICS PERSONNEL	1	3	2	6	0.175	0.465	0.310	0.950
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	14	10	20	44	3.025	1.880	5.440	10.345
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	10	19	148	177	2.870	6.260	104.763	113.893
OPERATIONS PERSONNEL	1	0	2	3	0.200	0.000	0.335	0.535
HEALTH PHYSICS PERSONNEL	14	50	28	92	6.332	20.465	11.064	37.861
SUPERVISORY PERSONNEL	0	1	2	3	0.000	0.540	2.935	3.475
ENGINEERING PERSONNEL	0	0	5	5	0.000	0.000	1.218	1.218
TOTAL	25	70	185	280	9.402	27.265	120.315	156.982
WASTE PROCESSING								
MAINTENANCE PERSONNEL	1	1	1	3	0.200	0.315	0.235	0.750
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	11	3	2	16	5.745	0.820	1.470	8.035
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	12	4	3	19	5.945	1.135	1.705	8.785
REFUELING								
MAINTENANCE PERSONNEL	48	59	318	425	21.359	16.593	89.426	127.378
OPERATIONS PERSONNEL	19	4	4	27	2.845	1.235	1.175	5.255
HEALTH PHYSICS PERSONNEL	26	51	39	116	9.151	17.658	15.557	42.366
SUPERVISORY PERSONNEL	1	1	3	5	0.135	0.210	1.155	1.500
ENGINEERING PERSONNEL	6	2	11	19	1.174	0.817	2.480	4.471
TOTAL	100	117	375	592	34.664	36.513	109.793	180.970
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	70	89	488	647	26.711	24.876	200.172	251.759
OPERATIONS PERSONNEL	24	5	10	39	3.875	1.525	1.984	7.384
HEALTH PHYSICS PERSONNEL	69	109	74	252	23.803	39.633	28.726	92.162
SUPERVISORY PERSONNEL	1	2	5	8	0.135	0.750	4.090	4.975
ENGINEERING PERSONNEL	6	2	18	26	1.174	0.817	4.217	6.208
GRAND TOTALS	170	207	595	972	55.698	67.601	239.189	362.488

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *DRESDEN 2,3 TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	51	8	41	100	26.153	0.483	6.103	32.739
OPERATIONS PERSONNEL	159	0	39	198	44.591	0.000	3.909	48.500
HEALTH PHYSICS PERSONNEL	25	0	6	31	15.181	0.000	0.939	16.120
SUPERVISORY PERSONNEL	94	153	0	247	16.113	0.386	0.000	16.499
ENGINEERING PERSONNEL	59	160	156	375	8.086	1.879	4.532	14.497
TOTAL	388	321	242	951	110.124	2.748	15.483	128.355
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	238	35	1064	1337	121.589	2.096	158.813	282.498
OPERATIONS PERSONNEL	78	0	23	101	21.871	0.000	2.341	24.212
HEALTH PHYSICS PERSONNEL	32	0	28	60	19.766	0.000	5.916	25.682
SUPERVISORY PERSONNEL	185	147	0	332	31.683	0.370	0.000	32.053
ENGINEERING PERSONNEL	72	196	163	431	9.738	2.301	4.760	16.799
TOTAL	605	378	1278	2261	204.647	4.767	171.830	381.244
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	4	4	0.000	0.000	0.578	0.578
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.146	0.000	0.000	0.146
SUPERVISORY PERSONNEL	0	0	0	0	0.005	0.000	0.000	0.005
ENGINEERING PERSONNEL	0	0	1	1	0.010	0.003	0.024	0.037
TOTAL	0	0	5	5	0.161	0.003	0.602	0.766
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	36	380	416	0.000	2.122	56.747	58.869
OPERATIONS PERSONNEL	0	0	5	5	0.056	0.000	0.506	0.562
HEALTH PHYSICS PERSONNEL	2	0	4	6	1.395	0.000	1.076	2.471
SUPERVISORY PERSONNEL	1	0	0	1	0.100	0.000	0.000	0.100
ENGINEERING PERSONNEL	0	16	6	22	0.065	0.184	0.176	0.425
TOTAL	3	52	395	450	1.616	2.306	58.505	62.427
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	74	74	0.044	0.000	11.005	11.049
OPERATIONS PERSONNEL	5	0	136	141	1.489	0.000	13.637	15.126
HEALTH PHYSICS PERSONNEL	5	0	6	11	3.162	0.000	0.933	4.095
SUPERVISORY PERSONNEL	5	3	0	8	0.803	0.008	0.000	0.811
ENGINEERING PERSONNEL	0	1	0	1	0.009	0.012	0.000	0.021
TOTAL	15	4	216	235	5.507	0.020	25.575	31.102
REFUELING								
MAINTENANCE PERSONNEL	18	0	1	19	9.067	0.000	0.112	9.179
OPERATIONS PERSONNEL	14	0	0	14	3.903	0.000	0.000	3.903
HEALTH PHYSICS PERSONNEL	1	0	0	1	0.386	0.000	0.000	0.386
SUPERVISORY PERSONNEL	9	3	0	12	1.550	0.008	0.000	1.558
ENGINEERING PERSONNEL	0	1	0	1	0.067	0.012	0.005	0.084
TOTAL	42	4	1	47	14.973	0.020	0.117	15.110
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	307	79	1564	1950	156.853	4.701	233.358	394.912
OPERATIONS PERSONNEL	256	0	203	459	71.910	0.000	20.393	92.303
HEALTH PHYSICS PERSONNEL	65	0	44	109	40.036	0.000	8.864	48.900
SUPERVISORY PERSONNEL	294	306	0	600	50.254	0.772	0.000	51.026
ENGINEERING PERSONNEL	131	374	326	831	17.975	4.391	9.497	31.863
GRAND TOTALS	1053	759	2137	3949	337.028	9.864	272.112	619.004

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *DUANE ARNOLD

TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	11	0	1	12	8.952	0.000	0.373	9.325
OPERATIONS PERSONNEL	30	0	0	30	24.427	0.000	0.000	24.427
HEALTH PHYSICS PERSONNEL	5	0	13	18	4.449	0.000	5.595	10.044
SUPERVISORY PERSONNEL	3	1	2	6	0.602	0.517	0.632	1.751
ENGINEERING PERSONNEL	7	0	1	8	1.972	0.000	0.216	2.188
TOTAL	56	1	17	74	40.402	0.517	6.816	47.735
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	95	1	166	262	3.738	1.090	0.000	4.828
OPERATIONS PERSONNEL	6	0	0	6	2.260	0.000	0.000	2.260
HEALTH PHYSICS PERSONNEL	6	0	12	18	9.597	0.000	6.512	16.109
SUPERVISORY PERSONNEL	7	0	5	12	0.000	0.000	3.362	3.362
ENGINEERING PERSONNEL	22	1	20	43	0.000	0.601	25.637	26.238
TOTAL	136	2	203	341	15.595	1.691	35.511	52.797
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	2	2	1	5	0.609	0.540	1.324	2.473
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	1	0	13	14	0.551	0.000	0.028	0.579
SUPERVISORY PERSONNEL	0	0	2	2	0.000	0.000	0.033	0.033
ENGINEERING PERSONNEL	2	0	1	3	0.000	0.000	0.376	0.376
TOTAL	5	2	17	24	1.160	0.540	1.761	3.461
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	4	0	166	170	2.115	0.000	16.472	18.587
OPERATIONS PERSONNEL	0	0	0	0	0.117	0.000	0.000	0.117
HEALTH PHYSICS PERSONNEL	1	0	12	13	0.709	0.000	1.825	2.534
SUPERVISORY PERSONNEL	4	0	5	9	1.987	0.000	0.318	2.305
ENGINEERING PERSONNEL	4	0	20	24	1.144	0.000	0.396	1.540
TOTAL	13	0	203	216	6.072	0.000	19.011	25.083
WASTE PROCESSING								
MAINTENANCE PERSONNEL	8	0	2	10	5.955	0.000	0.000	5.955
OPERATIONS PERSONNEL	5	0	0	5	2.133	0.000	0.948	3.081
HEALTH PHYSICS PERSONNEL	3	0	0	3	2.638	0.000	4.553	7.191
SUPERVISORY PERSONNEL	0	0	0	0	0.023	0.000	0.005	0.028
ENGINEERING PERSONNEL	1	0	1	2	0.249	0.000	0.000	0.249
TOTAL	17	0	3	20	10.998	0.000	5.506	16.504
REFUELING								
MAINTENANCE PERSONNEL	3	0	24	27	4.005	0.033	16.562	20.600
OPERATIONS PERSONNEL	2	0	0	2	1.898	0.000	0.000	1.898
HEALTH PHYSICS PERSONNEL	3	0	0	3	4.157	0.000	18.874	23.031
SUPERVISORY PERSONNEL	0	0	0	0	0.089	0.000	0.080	0.169
ENGINEERING PERSONNEL	2	0	0	2	0.663	0.000	2.876	3.539
TOTAL	10	0	24	34	10.812	0.033	38.392	49.237
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	123 (123)	3 (3)	360 (222)	486 (348)	25.374	1.663	34.731	61.768
OPERATIONS PERSONNEL	43 (44)	0 (0)	0 (1)	43 (45)	30.835	0.000	0.948	31.783
HEALTH PHYSICS PERSONNEL	19 (18)	0 (0)	50 (54)	69 (72)	22.101	0.000	37.387	59.488
SUPERVISORY PERSONNEL	14 (14)	1 (1)	14 (9)	29 (24)	2.701	0.517	4.430	7.648
ENGINEERING PERSONNEL	38 (39)	1 (1)	43 (29)	82 (69)	4.028	0.601	29.501	34.130
GRAND TOTALS	237 (238)	5 (5)	467 (315)	709 (558)	85.039	2.781	106.997	194.817

*Workers may be counted in more than one category. Numbers in parentheses are total numbers of individuals.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *FARLEY 1,2 TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	33	0	172	205	0.457	0.000	10.758	11.215
OPERATIONS PERSONNEL	155	2	8	165	28.968	0.028	0.124	29.120
HEALTH PHYSICS PERSONNEL	82	0	169	251	23.215	0.000	51.581	74.796
SUPERVISORY PERSONNEL	21	10	14	45	0.827	0.159	0.317	1.303
ENGINEERING PERSONNEL	35	6	46	87	1.571	0.108	3.231	4.910
TOTAL	326	18	409	753	55.038	0.295	66.011	121.344
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	198	1	342	541	42.129	0.005	40.814	82.948
OPERATIONS PERSONNEL	29	0	1	30	2.823	0.000	0.001	2.824
HEALTH PHYSICS PERSONNEL	74	0	110	184	18.239	0.000	3.801	22.040
SUPERVISORY PERSONNEL	7	4	6	17	0.165	0.050	0.097	0.312
ENGINEERING PERSONNEL	9	1	28	38	0.338	0.040	1.197	1.575
TOTAL	317	6	487	810	63.694	0.095	45.910	109.699
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	30	0	286	316	1.408	0.000	131.516	132.924
OPERATIONS PERSONNEL	8	0	4	12	0.199	0.000	0.467	0.666
HEALTH PHYSICS PERSONNEL	31	0	27	58	0.349	0.000	0.412	0.761
SUPERVISORY PERSONNEL	0	2	3	5	0.000	0.043	0.127	0.170
ENGINEERING PERSONNEL	14	1	29	44	1.092	0.030	3.565	4.687
TOTAL	83	3	349	435	3.048	0.073	136.087	139.208
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	189	3	859	1051	60.570	0.058	264.829	325.457
OPERATIONS PERSONNEL	82	0	13	95	3.213	0.000	2.048	5.261
HEALTH PHYSICS PERSONNEL	85	0	151	236	15.523	0.000	18.886	34.409
SUPERVISORY PERSONNEL	8	6	5	19	0.361	1.502	0.242	2.105
ENGINEERING PERSONNEL	15	2	118	135	0.821	0.182	21.269	22.272
TOTAL	379	11	1146	1536	80.488	1.742	307.274	389.504
WASTE PROCESSING								
MAINTENANCE PERSONNEL	57	0	12	69	0.755	0.000	0.154	0.909
OPERATIONS PERSONNEL	50	0	3	53	0.731	0.000	0.132	0.863
HEALTH PHYSICS PERSONNEL	80	0	63	143	15.677	0.000	5.087	20.764
SUPERVISORY PERSONNEL	4	0	0	4	0.151	0.000	0.000	0.151
ENGINEERING PERSONNEL	1	1	1	3	0.004	0.010	0.002	0.016
TOTAL	192	1	79	272	17.318	0.010	5.375	22.703
REFUELING								
MAINTENANCE PERSONNEL	112	1	30	143	11.066	0.008	1.715	12.789
OPERATIONS PERSONNEL	56	1	27	84	1.034	0.002	4.005	5.041
HEALTH PHYSICS PERSONNEL	31	0	59	90	1.001	0.000	2.892	3.893
SUPERVISORY PERSONNEL	5	1	2	8	0.294	0.016	0.022	0.332
ENGINEERING PERSONNEL	7	1	3	11	0.284	0.010	0.353	0.647
TOTAL	211	4	121	336	13.679	0.036	8.987	22.702
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	619	5	1701	2325	116.385	0.071	449.786	566.242
OPERATIONS PERSONNEL	380	3	56	439	36.968	0.030	6.777	43.775
HEALTH PHYSICS PERSONNEL	383	0	579	962	74.004	0.000	82.659	156.663
SUPERVISORY PERSONNEL	45	23	30	98	1.798	1.770	0.805	4.373
ENGINEERING PERSONNEL	81	12	225	318	4.110	0.380	29.617	34.107
GRAND TOTALS	1508	43	2591	4142	233.265	2.251	569.644	805.160

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *FERMI 2 TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM) STATION	UTILITY	CONTRACT	TOTAL	TOTAL PERSON-REM STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	11	0	3	14	4.233	0.012	2.805	7.050
OPERATIONS PERSONNEL	63	0	10	73	15.115	0.000	2.349	17.464
HEALTH PHYSICS PERSONNEL	27	0	39	66	5.601	0.000	11.552	17.153
SUPERVISORY PERSONNEL	1	0	1	2	1.660	0.000	0.572	2.232
ENGINEERING PERSONNEL	7	0	0	7	2.470	0.057	0.077	2.604
TOTAL	109	0	53	162	29.079	0.069	17.355	46.503
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	42	0	94	136	10.896	0.009	37.351	48.256
OPERATIONS PERSONNEL	29	0	1	30	5.957	0.000	0.871	6.828
HEALTH PHYSICS PERSONNEL	3	0	2	5	1.016	0.000	1.684	2.700
SUPERVISORY PERSONNEL	2	0	0	2	1.385	0.014	0.169	1.568
ENGINEERING PERSONNEL	6	0	1	7	2.690	0.000	0.314	3.004
TOTAL	82	0	98	180	21.944	0.023	40.389	62.356
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	2	0	38	40	0.394	0.000	10.975	11.369
OPERATIONS PERSONNEL	6	0	0	6	1.822	0.000	0.005	1.827
HEALTH PHYSICS PERSONNEL	1	0	0	1	0.343	0.000	0.311	0.654
SUPERVISORY PERSONNEL	6	0	0	6	2.316	0.000	0.101	2.417
ENGINEERING PERSONNEL	13	0	17	30	3.157	0.000	6.076	9.233
TOTAL	28	0	55	83	8.032	0.000	17.468	25.500
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	47	0	94	141	14.592	0.000	35.247	49.839
OPERATIONS PERSONNEL	8	0	4	12	2.371	0.000	1.330	3.701
HEALTH PHYSICS PERSONNEL	18	0	28	46	5.192	0.000	11.499	16.691
SUPERVISORY PERSONNEL	5	0	1	6	1.525	0.000	0.197	1.722
ENGINEERING PERSONNEL	3	0	4	7	1.042	0.000	4.173	5.215
TOTAL	81	0	131	212	24.722	0.000	52.446	77.168
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	4	4	0.009	0.000	0.769	0.778
OPERATIONS PERSONNEL	0	0	2	2	0.135	0.000	1.129	1.264
HEALTH PHYSICS PERSONNEL	0	0	7	7	0.216	0.000	1.941	2.157
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.014	0.000	0.000	0.014
TOTAL	0	0	13	13	0.374	0.000	3.839	4.213
REFUELING								
MAINTENANCE PERSONNEL	9	0	8	17	2.363	0.000	2.735	5.098
OPERATIONS PERSONNEL	2	0	15	17	0.466	0.000	4.150	4.616
HEALTH PHYSICS PERSONNEL	2	0	9	11	0.449	0.000	2.604	3.053
SUPERVISORY PERSONNEL	1	0	0	1	0.214	0.000	0.000	0.214
ENGINEERING PERSONNEL	0	0	1	1	0.175	0.000	0.358	0.533
TOTAL	14	0	33	47	3.667	0.000	9.847	13.514
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	111	0	241	352	32.487	0.021	89.882	122.390
OPERATIONS PERSONNEL	108	0	32	140	25.866	0.000	9.834	35.700
HEALTH PHYSICS PERSONNEL	51	0	85	136	12.817	0.000	29.591	42.408
SUPERVISORY PERSONNEL	15	0	2	17	7.100	0.014	1.039	8.153
ENGINEERING PERSONNEL	29	0	23	52	9.548	0.057	10.998	20.603
GRAND TOTALS	314	0	383	697	87.818	0.092	141.344	229.254

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *FITZPATRICK TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	104	53	214	371	6.971	0.050	3.278	10.299
OPERATIONS PERSONNEL	124	182	15	321	37.855	0.010	0.419	38.284
HEALTH PHYSICS PERSONNEL	50	5	99	154	5.303	0.010	13.551	18.864
SUPERVISORY PERSONNEL	23	5	68	96	0.488	0.020	0.484	0.992
ENGINEERING PERSONNEL	14	3	18	35	0.623	0.010	0.239	0.872
TOTAL	315	248	414	977	51.240	0.100	17.971	69.311
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	120	33	735	888	48.451	0.011	142.971	191.433
OPERATIONS PERSONNEL	65	23	18	106	4.909	0.000	0.694	5.603
HEALTH PHYSICS PERSONNEL	37	6	123	166	3.508	0.000	12.273	15.781
SUPERVISORY PERSONNEL	22	7	126	155	1.066	0.024	14.951	16.041
ENGINEERING PERSONNEL	32	17	77	126	1.120	0.198	3.574	4.892
TOTAL	276	86	1079	1441	59.054	0.233	174.463	233.750
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	139	68	594	801	6.024	0.110	23.479	29.613
OPERATIONS PERSONNEL	143	186	42	371	19.902	0.016	1.327	21.245
HEALTH PHYSICS PERSONNEL	62	13	152	227	5.285	0.000	12.130	17.415
SUPERVISORY PERSONNEL	75	35	225	335	1.096	0.093	8.645	9.834
ENGINEERING PERSONNEL	47	47	194	288	1.768	0.721	5.176	7.665
TOTAL	466	349	1207	2022	34.075	0.940	50.757	85.772
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	96	24	747	867	9.936	0.020	163.392	173.348
OPERATIONS PERSONNEL	46	53	13	112	1.173	0.004	0.082	1.259
HEALTH PHYSICS PERSONNEL	43	5	121	169	2.599	0.000	15.429	18.028
SUPERVISORY PERSONNEL	18	7	102	127	0.277	0.051	11.332	11.660
ENGINEERING PERSONNEL	26	19	79	124	0.261	0.372	5.576	6.209
TOTAL	229	108	1062	1399	14.246	0.447	195.811	210.504
WASTE PROCESSING								
MAINTENANCE PERSONNEL	61	91	174	326	13.714	0.000	8.940	22.654
OPERATIONS PERSONNEL	31	26	3	60	7.516	0.000	2.169	9.685
HEALTH PHYSICS PERSONNEL	30	5	98	133	2.421	0.000	5.973	8.394
SUPERVISORY PERSONNEL	5	2	16	23	0.216	0.000	0.307	0.523
ENGINEERING PERSONNEL	3	1	2	6	0.023	0.000	0.084	0.107
TOTAL	130	125	293	548	23.890	0.000	17.473	41.363
REFUELING								
MAINTENANCE PERSONNEL	60	9	113	182	5.412	0.000	5.941	11.353
OPERATIONS PERSONNEL	83	19	9	111	3.400	0.011	1.528	4.939
HEALTH PHYSICS PERSONNEL	27	3	51	81	1.654	0.000	2.811	4.465
SUPERVISORY PERSONNEL	15	3	35	53	0.089	0.020	0.636	0.745
ENGINEERING PERSONNEL	8	3	12	23	0.136	0.080	1.097	1.313
TOTAL	193	37	220	450	10.691	0.111	12.013	22.815
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	580	278	2577	3435	90.508	0.191	348.001	438.700
OPERATIONS PERSONNEL	492	489	100	1081	74.755	0.041	6.219	81.015
HEALTH PHYSICS PERSONNEL	249	37	644	930	20.770	0.010	62.167	82.947
SUPERVISORY PERSONNEL	158	59	572	789	3.232	0.208	36.355	39.795
ENGINEERING PERSONNEL	130	90	382	602	3.931	1.381	15.746	21.058
GRAND TOTALS	1609	953	4275	6837	193.196	1.831	468.488	663.515

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *FORT CALHOUN

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM) STATION	UTILITY	CONTRACT	TOTAL	TOTAL PERSON-REM STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	4	2	2	8	2.300	1.422	0.595	4.317
OPERATIONS PERSONNEL	30	0	0	30	10.065	0.000	0.000	10.065
HEALTH PHYSICS PERSONNEL	10	0	17	27	8.538	0.000	9.397	17.935
SUPERVISORY PERSONNEL	2	0	0	2	0.820	0.000	0.000	0.820
ENGINEERING PERSONNEL	7	0	7	14	3.314	0.000	27.235	30.549
TOTAL	53	2	26	81	25.037	1.422	37.227	63.686
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	18	10	27	55	9.317	6.040	13.055	28.412
OPERATIONS PERSONNEL	1	0	0	1	0.310	0.000	0.000	0.310
HEALTH PHYSICS PERSONNEL	4	0	24	28	1.868	0.000	11.789	13.657
SUPERVISORY PERSONNEL	3	0	0	3	0.478	0.000	0.000	0.478
ENGINEERING PERSONNEL	7	0	7	14	1.890	0.005	2.180	4.075
TOTAL	33	10	58	101	13.863	6.045	27.024	46.932
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	22	2	17	41	1.720	1.375	7.281	10.376
OPERATIONS PERSONNEL	2	0	0	2	0.055	0.000	0.000	0.055
HEALTH PHYSICS PERSONNEL	5	0	7	12	1.110	0.000	4.641	5.751
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	5	0	24	29	1.500	0.000	25.505	27.005
TOTAL	34	2	48	84	4.385	1.375	37.427	43.187
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	1	14	55	70	13.838	7.915	32.651	54.404
OPERATIONS PERSONNEL	1	0	0	1	0.780	0.000	0.000	0.780
HEALTH PHYSICS PERSONNEL	7	0	15	22	4.879	0.000	8.649	13.528
SUPERVISORY PERSONNEL	0	0	0	0	0.140	0.000	0.000	0.140
ENGINEERING PERSONNEL	0	0	8	8	2.400	0.000	2.148	4.548
TOTAL	9	14	78	101	22.037	7.915	43.448	73.400
WASTE PROCESSING								
MAINTENANCE PERSONNEL	21	1	0	22	0.350	0.805	0.050	1.205
OPERATIONS PERSONNEL	5	0	0	5	0.360	0.000	0.000	0.360
HEALTH PHYSICS PERSONNEL	1	0	6	7	8.373	0.000	2.798	11.171
SUPERVISORY PERSONNEL	1	0	0	1	0.045	0.000	0.000	0.045
ENGINEERING PERSONNEL	4	0	0	4	0.000	0.000	0.005	0.005
TOTAL	32	1	6	39	9.128	0.805	2.853	12.786
REFUELING								
MAINTENANCE PERSONNEL	70	23	15	108	13.660	15.331	12.056	41.047
OPERATIONS PERSONNEL	39	0	0	39	1.119	0.000	0.000	1.119
HEALTH PHYSICS PERSONNEL	28	0	8	36	1.295	0.000	5.232	6.527
SUPERVISORY PERSONNEL	7	0	0	7	0.425	0.000	0.000	0.425
ENGINEERING PERSONNEL	27	1	4	32	2.715	0.340	1.185	4.240
TOTAL	171	24	27	222	19.214	15.671	18.473	53.358
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	136 (70)	52 (52)	116 (116)	304 (238)	41.185	32.888	65.688	139.761
OPERATIONS PERSONNEL	78 (39)	0 (0)	0 (0)	78 (39)	12.689	0.000	0.000	12.689
HEALTH PHYSICS PERSONNEL	55 (28)	0 (0)	77 (77)	132 (105)	26.063	0.000	42.506	68.569
SUPERVISORY PERSONNEL	13 (7)	0 (0)	0 (0)	13 (7)	1.908	0.000	0.000	1.908
ENGINEERING PERSONNEL	50 (27)	1 (1)	50 (49)	101 (77)	11.819	0.345	58.258	70.422
GRAND TOTALS	332 (171)	53 (53)	243 (242)	628 (466)	93.664	33.233	166.452	293.349

*Workers may be counted in more than one category. Numbers in parentheses are total numbers of individuals.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *FORT ST. VRAIN TYPE: HTGR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM) STATION	UTILITY	CONTRACT	TOTAL	TOTAL PERSON-REM STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	0	0	19	19	0.000	0.000	7.120	7.120
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	18	18	0.000	0.000	7.350	7.350
SUPERVISORY PERSONNEL	0	0	2	2	0.000	0.000	0.830	0.830
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.100	0.100
TOTAL	0	0	39	39	0.000	0.000	15.400	15.400
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	25	0	0	25	8.740	0.000	0.000	8.740
OPERATIONS PERSONNEL	0	0	0	0	0.050	0.000	0.000	0.050
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	2	0	0	2	0.580	0.000	0.000	0.580
ENGINEERING PERSONNEL	1	0	0	1	0.330	0.000	0.000	0.330
TOTAL	28	0	0	28	9.700	0.000	0.000	9.700
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
REFUELING								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	25	0	19	44	8.740	0.000	7.120	15.860
OPERATIONS PERSONNEL	0	0	0	0	0.050	0.000	0.000	0.050
HEALTH PHYSICS PERSONNEL	0	0	18	18	0.000	0.000	7.350	7.350
SUPERVISORY PERSONNEL	2	0	2	4	0.580	0.000	0.830	1.410
ENGINEERING PERSONNEL	1	0	0	1	0.330	0.000	0.100	0.430
GRAND TOTALS	28	0	39	67	9.700	0.000	15.400	25.100

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *GINNA

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	47	64	121	232	1.874	0.182	0.598	2.654
OPERATIONS PERSONNEL	30	1	3	34	5.382	0.019	0.048	5.449
HEALTH PHYSICS PERSONNEL	15	1	43	59	3.174	0.000	8.756	11.930
SUPERVISORY PERSONNEL	16	18	17	51	3.521	1.577	0.704	5.802
ENGINEERING PERSONNEL	2	6	9	17	0.015	0.169	0.118	0.302
TOTAL	110	90	193	393	13.966	1.947	10.224	26.137
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	47	135	208	390	8.944	9.146	20.626	38.716
OPERATIONS PERSONNEL	26	0	0	26	0.352	0.000	0.000	0.352
HEALTH PHYSICS PERSONNEL	15	2	35	52	3.585	0.238	5.552	9.375
SUPERVISORY PERSONNEL	16	17	16	49	0.898	1.619	1.183	3.700
ENGINEERING PERSONNEL	2	5	13	20	0.563	2.804	2.612	5.979
TOTAL	106	159	272	537	14.342	13.807	29.973	58.122
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	8	18	70	96	0.240	0.953	19.346	20.539
OPERATIONS PERSONNEL	1	0	0	1	0.012	0.000	0.000	0.012
HEALTH PHYSICS PERSONNEL	1	0	5	6	0.020	0.000	0.155	0.175
SUPERVISORY PERSONNEL	7	6	10	23	0.451	0.471	1.112	2.034
ENGINEERING PERSONNEL	1	0	0	1	0.000	0.000	0.000	0.000
TOTAL	18	24	85	127	0.723	1.424	20.613	22.760
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	49	142	265	456	4.835	46.328	62.121	113.284
OPERATIONS PERSONNEL	27	0	0	27	1.954	0.000	0.000	1.954
HEALTH PHYSICS PERSONNEL	11	0	20	31	2.110	0.238	1.122	3.470
SUPERVISORY PERSONNEL	16	22	19	57	1.648	1.640	2.796	6.084
ENGINEERING PERSONNEL	1	7	4	12	0.225	0.095	1.290	1.610
TOTAL	104	171	308	583	10.772	48.301	67.329	126.402
WASTE PROCESSING								
MAINTENANCE PERSONNEL	2	2	22	26	0.000	0.000	0.169	0.169
OPERATIONS PERSONNEL	1	0	0	1	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	1	1	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	3	2	23	28	0.000	0.000	0.169	0.169
REFUELING								
MAINTENANCE PERSONNEL	21	22	56	99	0.883	2.408	8.893	12.184
OPERATIONS PERSONNEL	9	0	0	9	2.522	0.000	0.000	2.522
HEALTH PHYSICS PERSONNEL	2	0	2	4	0.164	0.000	0.009	0.173
SUPERVISORY PERSONNEL	3	5	2	10	0.420	0.065	0.005	0.490
ENGINEERING PERSONNEL	2	0	1	3	0.308	0.000	0.000	0.308
TOTAL	37	27	61	125	4.297	2.473	8.907	15.677
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	174 (48)	383 (139)	742 (221)	1299 (408)	16.776	59.017	111.753	187.546
OPERATIONS PERSONNEL	94 (30)	1 (1)	3 (3)	98 (34)	10.222	0.019	0.048	10.289
HEALTH PHYSICS PERSONNEL	44 (15)	3 (2)	106 (44)	153 (61)	9.053	0.476	15.594	25.123
SUPERVISORY PERSONNEL	58 (17)	68 (18)	64 (18)	190 (53)	6.938	5.372	5.800	18.110
ENGINEERING PERSONNEL	8 (2)	18 (6)	27 (14)	53 (22)	1.111	3.068	4.020	8.199
GRAND TOTALS	378 (112)	473 (166)	942 (300)	1793 (578)	44.100	67.952	137.215	249.267

*Workers may be counted in more than one category. Numbers in parentheses are total numbers of individuals.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *GRAND GULF TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM) STATION	UTILITY	CONTRACT	TOTAL	TOTAL PERSON-REM STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	17	0	62	79	0.242	0.000	1.537	1.779
OPERATIONS PERSONNEL	63	0	45	108	24.736	0.000	2.100	26.836
HEALTH PHYSICS PERSONNEL	35	0	57	92	13.350	0.000	20.220	33.570
SUPERVISORY PERSONNEL	13	0	44	57	0.321	0.000	0.624	0.945
ENGINEERING PERSONNEL	21	0	14	35	1.782	0.000	0.254	2.036
TOTAL	149	0	222	371	40.431	0.000	24.735	65.166
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	147	0	588	735	66.781	0.000	189.582	256.363
OPERATIONS PERSONNEL	23	1	45	69	1.175	0.107	23.600	24.882
HEALTH PHYSICS PERSONNEL	36	0	37	73	5.343	0.000	6.812	12.155
SUPERVISORY PERSONNEL	12	0	41	53	2.715	0.000	2.653	5.368
ENGINEERING PERSONNEL	21	2	46	69	2.499	0.244	9.091	11.834
TOTAL	239	3	757	999	78.513	0.351	231.738	310.602
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	3	0	86	89	0.028	0.000	31.643	31.671
OPERATIONS PERSONNEL	0	0	7	7	0.000	0.000	3.786	3.786
HEALTH PHYSICS PERSONNEL	2	0	1	3	0.004	0.000	0.004	0.008
SUPERVISORY PERSONNEL	9	0	55	64	0.789	0.000	21.239	22.028
ENGINEERING PERSONNEL	2	0	12	14	0.436	0.000	0.261	0.697
TOTAL	16	0	161	177	1.257	0.000	56.933	58.190
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
WASTE PROCESSING								
MAINTENANCE PERSONNEL	74	0	48	122	1.537	0.000	1.841	3.378
OPERATIONS PERSONNEL	1	0	1	2	0.009	0.000	1.579	1.588
HEALTH PHYSICS PERSONNEL	8	0	6	14	2.772	0.000	0.318	3.090
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	83	0	55	138	4.318	0.000	3.738	8.056
REFUELING								
MAINTENANCE PERSONNEL	62	0	106	168	0.971	0.000	6.992	7.963
OPERATIONS PERSONNEL	7	1	32	40	0.403	0.116	5.854	6.373
HEALTH PHYSICS PERSONNEL	19	0	14	33	1.484	0.000	2.122	3.606
SUPERVISORY PERSONNEL	2	0	6	8	0.191	0.000	0.418	0.609
ENGINEERING PERSONNEL	5	0	5	10	0.395	0.000	1.037	1.432
TOTAL	95	1	163	259	3.444	0.116	16.423	19.983
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	303	0	890	1193	69.559	0.000	231.595	301.154
OPERATIONS PERSONNEL	94	2	130	226	26.323	0.223	36.919	63.465
HEALTH PHYSICS PERSONNEL	100	0	115	215	22.953	0.000	29.476	52.429
SUPERVISORY PERSONNEL	36	0	146	182	4.016	0.000	24.934	28.950
ENGINEERING PERSONNEL	49	2	77	128	5.112	0.244	10.643	15.999
GRAND TOTALS	582	4	1358	1944	127.963	0.467	333.567	461.997

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *HADDAM NECK

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	1	0	0	1	0.330	0.060	0.230	0.620
OPERATIONS PERSONNEL	36	1	1	38	15.400	0.440	0.540	16.380
HEALTH PHYSICS PERSONNEL	10	0	20	30	4.380	0.130	6.640	11.150
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.100	0.100	0.060	0.260
TOTAL	47	1	21	69	20.210	0.730	7.470	28.410
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	39	32	177	248	20.220	9.720	73.630	103.570
OPERATIONS PERSONNEL	0	0	4	4	0.370	0.050	1.080	1.500
HEALTH PHYSICS PERSONNEL	7	0	11	18	1.760	0.110	3.580	5.450
SUPERVISORY PERSONNEL	1	0	0	1	0.180	0.000	0.010	0.190
ENGINEERING PERSONNEL	2	6	14	22	0.700	3.270	5.160	9.130
TOTAL	49	38	206	293	23.230	13.150	83.460	119.840
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	4	0	16	20	3.430	0.190	5.160	8.780
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.180	0.010	0.170	0.360
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	2	0	5	7	0.670	0.160	1.680	2.510
TOTAL	6	0	21	27	4.280	0.360	7.010	11.650
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	2	0	14	16	0.400	0.000	3.880	4.280
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.010	0.010
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.040	0.000	0.030	0.070
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.010	0.010
ENGINEERING PERSONNEL	0	0	1	1	0.010	0.270	0.210	0.490
TOTAL	2	0	15	17	0.450	0.270	4.140	4.860
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.060	0.060
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	12	0	20	32	7.950	0.000	6.270	14.220
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.020	0.000	0.020
TOTAL	12	0	20	32	7.950	0.020	6.330	14.300
REFUELING								
MAINTENANCE PERSONNEL	7	1	39	47	2.450	0.470	20.860	23.780
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.010	0.010
HEALTH PHYSICS PERSONNEL	4	0	7	11	0.720	0.000	1.610	2.330
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	1	1	3	5	0.140	0.260	0.790	1.190
TOTAL	12	2	49	63	3.310	0.730	23.270	27.310
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	53	33	246	332	26.830	10.440	103.820	141.090
OPERATIONS PERSONNEL	36	1	5	42	15.770	0.490	1.640	17.900
HEALTH PHYSICS PERSONNEL	33	0	58	91	15.030	0.250	18.300	33.580
SUPERVISORY PERSONNEL	1	0	0	1	0.180	0.000	0.020	0.200
ENGINEERING PERSONNEL	5	7	23	35	1.620	4.080	7.900	13.600
GRAND TOTALS	128	41	332	501	59.430	15.260	131.680	206.370

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *HARRIS

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	3	0	1	4	2.264	0.000	0.603	2.867
OPERATIONS PERSONNEL	40	0	0	40	12.746	0.000	1.026	13.772
HEALTH PHYSICS PERSONNEL	27	0	33	60	8.425	0.010	9.812	18.247
SUPERVISORY PERSONNEL	0	0	1	1	0.258	0.050	0.415	0.723
ENGINEERING PERSONNEL	4	0	2	6	1.986	0.340	0.966	3.292
TOTAL	74	0	37	111	25.679	0.400	12.822	38.901
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	55	7	190	252	27.253	3.060	72.749	103.062
OPERATIONS PERSONNEL	2	0	2	4	1.876	0.000	0.499	2.375
HEALTH PHYSICS PERSONNEL	16	0	34	50	5.746	0.000	10.460	16.206
SUPERVISORY PERSONNEL	1	0	0	1	0.440	0.070	0.010	0.520
ENGINEERING PERSONNEL	6	0	48	54	3.542	0.430	22.692	26.664
TOTAL	80	7	274	361	38.857	3.560	106.410	148.827
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	6	2	28	36	2.106	0.440	9.745	12.291
OPERATIONS PERSONNEL	0	0	0	0	0.448	0.000	0.195	0.643
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.530	0.000	0.300	0.830
SUPERVISORY PERSONNEL	0	0	0	0	0.055	0.000	0.000	0.055
ENGINEERING PERSONNEL	4	0	28	32	1.461	0.010	8.215	9.686
TOTAL	10	2	56	68	4.600	0.450	18.455	23.505
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	23	0	27	50	6.111	0.034	8.929	15.074
OPERATIONS PERSONNEL	2	0	0	2	0.518	0.000	0.045	0.563
HEALTH PHYSICS PERSONNEL	15	0	1	16	5.250	0.000	0.425	5.675
SUPERVISORY PERSONNEL	0	0	0	0	0.056	0.000	0.025	0.081
ENGINEERING PERSONNEL	4	0	3	7	1.078	0.118	1.111	2.307
TOTAL	44	0	31	75	13.013	0.152	10.535	23.700
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.385	0.000	0.270	0.655
OPERATIONS PERSONNEL	0	0	0	0	0.045	0.000	0.000	0.045
HEALTH PHYSICS PERSONNEL	3	0	0	3	1.475	0.000	0.375	1.850
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	1	1	0.015	0.000	0.675	0.690
TOTAL	3	0	1	4	1.920	0.000	1.320	3.240
REFUELING								
MAINTENANCE PERSONNEL	1	0	4	5	0.350	0.000	2.260	2.610
OPERATIONS PERSONNEL	0	0	0	0	0.495	0.000	0.000	0.495
HEALTH PHYSICS PERSONNEL	0	0	1	1	0.090	0.000	0.310	0.400
SUPERVISORY PERSONNEL	0	0	0	0	0.025	0.000	0.000	0.025
ENGINEERING PERSONNEL	0	1	0	1	0.115	0.230	0.290	0.635
TOTAL	1	1	5	7	1.075	0.230	2.860	4.165
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	88	9	250	347	38.469	3.534	94.556	136.559
OPERATIONS PERSONNEL	44	0	2	46	16.128	0.000	1.765	17.893
HEALTH PHYSICS PERSONNEL	61	0	69	130	21.516	0.010	21.682	43.208
SUPERVISORY PERSONNEL	1	0	1	2	0.834	0.120	0.450	1.404
ENGINEERING PERSONNEL	18	1	82	101	8.197	1.128	33.949	43.274
GRAND TOTALS	212	10	404	626	85.144	4.792	152.402	242.338

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *HATCH 1,2

TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	67	2	44	113	33.613	0.680	17.801	52.094
OPERATIONS PERSONNEL	45	1	1	47	25.890	0.185	0.230	26.305
HEALTH PHYSICS PERSONNEL	43	1	21	65	17.372	0.206	8.145	25.723
SUPERVISORY PERSONNEL	17	0	3	20	6.379	0.089	1.763	8.231
ENGINEERING PERSONNEL	15	0	3	18	4.905	0.150	1.648	6.703
TOTAL	187	4	72	263	88.159	1.310	29.587	119.056
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	105	3	119	227	40.590	0.946	44.943	86.479
OPERATIONS PERSONNEL	34	1	1	36	16.077	0.929	0.216	17.222
HEALTH PHYSICS PERSONNEL	23	2	22	47	12.777	0.348	10.762	23.887
SUPERVISORY PERSONNEL	9	0	4	13	2.823	0.048	1.638	4.509
ENGINEERING PERSONNEL	5	1	9	15	2.287	0.455	4.185	6.927
TOTAL	176	7	155	338	74.554	2.726	61.744	139.024
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	8	0	98	106	4.661	0.026	36.845	41.532
OPERATIONS PERSONNEL	2	0	1	3	0.584	0.000	0.216	0.800
HEALTH PHYSICS PERSONNEL	4	1	6	11	1.584	0.339	1.811	3.734
SUPERVISORY PERSONNEL	2	0	2	4	0.388	0.002	0.511	0.901
ENGINEERING PERSONNEL	4	0	12	16	1.239	0.055	4.381	5.675
TOTAL	20	1	119	140	8.456	0.422	43.764	52.642
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	99	2	187	288	41.304	0.463	86.654	128.421
OPERATIONS PERSONNEL	6	0	1	7	2.183	0.000	0.216	2.399
HEALTH PHYSICS PERSONNEL	23	2	12	37	11.328	0.442	6.300	18.070
SUPERVISORY PERSONNEL	8	0	3	11	3.081	0.002	1.246	4.329
ENGINEERING PERSONNEL	4	0	5	9	1.281	0.178	2.276	3.735
TOTAL	140	4	208	352	59.177	1.085	96.692	156.954
WASTE PROCESSING								
MAINTENANCE PERSONNEL	13	0	46	59	6.003	0.026	15.460	21.489
OPERATIONS PERSONNEL	3	0	1	4	0.789	0.000	0.216	1.005
HEALTH PHYSICS PERSONNEL	6	0	7	13	2.235	0.000	2.249	4.484
SUPERVISORY PERSONNEL	3	0	1	4	0.643	0.002	0.686	1.331
ENGINEERING PERSONNEL	0	0	2	2	0.050	0.005	0.618	0.673
TOTAL	25	0	57	82	9.720	0.033	19.229	28.982
REFUELING								
MAINTENANCE PERSONNEL	13	0	102	115	4.312	0.026	37.558	41.896
OPERATIONS PERSONNEL	9	0	1	10	3.292	0.000	0.216	3.508
HEALTH PHYSICS PERSONNEL	2	0	10	12	0.990	0.000	3.056	4.046
SUPERVISORY PERSONNEL	3	0	0	3	1.175	0.002	0.224	1.401
ENGINEERING PERSONNEL	0	0	7	7	0.141	0.028	2.060	2.229
TOTAL	27	0	120	147	9.910	0.056	43.114	53.080
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	305	7	596	908	130.483	2.167	239.261	371.911
OPERATIONS PERSONNEL	99	2	6	107	48.815	1.114	1.310	51.239
HEALTH PHYSICS PERSONNEL	101	6	78	185	46.286	1.335	32.323	79.944
SUPERVISORY PERSONNEL	42	0	13	55	14.489	0.145	6.068	20.702
ENGINEERING PERSONNEL	28	1	38	67	9.903	0.871	15.168	25.942
GRAND TOTALS	575	16	731	1322	249.976	5.632	294.130	549.738

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *HOPE CREEK 1 TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	1	0	0	1	1.828	0.132	0.895	2.855
OPERATIONS PERSONNEL	4	0	0	4	2.416	0.100	0.214	2.730
HEALTH PHYSICS PERSONNEL	1	0	1	2	1.612	0.093	0.978	2.683
SUPERVISORY PERSONNEL	0	0	0	0	0.059	0.001	0.030	0.090
ENGINEERING PERSONNEL	0	0	0	0	0.364	0.067	0.044	0.475
TOTAL	6	0	1	7	6.279	0.393	2.161	8.833
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	1	1	1.662	0.000	1.534	3.196
OPERATIONS PERSONNEL	0	0	0	0	0.015	0.000	0.006	0.021
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.002	0.005	0.063	0.070
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.084	0.019	0.034	0.137
TOTAL	0	0	1	1	1.763	0.024	1.637	3.424
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	15	1	153	169	4.684	0.678	94.039	99.401
OPERATIONS PERSONNEL	4	0	0	4	1.299	0.000	0.000	1.299
HEALTH PHYSICS PERSONNEL	4	0	9	13	1.024	0.000	4.649	5.673
SUPERVISORY PERSONNEL	0	0	0	0	0.137	0.000	0.079	0.216
ENGINEERING PERSONNEL	3	0	0	3	1.177	0.042	0.003	1.222
TOTAL	26	1	162	189	8.321	0.720	98.770	107.811
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	77	2	126	205	25.538	0.744	58.718	85.000
OPERATIONS PERSONNEL	47	2	3	52	15.610	0.690	1.867	18.167
HEALTH PHYSICS PERSONNEL	32	1	33	66	12.126	0.298	9.202	21.626
SUPERVISORY PERSONNEL	1	0	0	1	0.439	0.024	0.039	0.502
ENGINEERING PERSONNEL	5	2	1	8	1.905	0.897	0.414	3.216
TOTAL	162	7	163	332	55.618	2.653	70.240	128.511
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.158	0.000	0.008	0.166
OPERATIONS PERSONNEL	0	0	0	0	0.101	0.000	0.028	0.129
HEALTH PHYSICS PERSONNEL	3	0	2	5	0.516	0.000	0.409	0.925
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.233	0.000	0.000	0.233
TOTAL	3	0	2	5	1.008	0.000	0.445	1.453
REFUELING								
MAINTENANCE PERSONNEL	99	4	215	318	36.634	1.009	115.285	152.928
OPERATIONS PERSONNEL	23	1	4	28	5.873	0.178	1.196	7.247
HEALTH PHYSICS PERSONNEL	22	1	44	67	9.702	0.179	17.060	26.941
SUPERVISORY PERSONNEL	4	2	0	6	0.790	0.242	0.074	1.106
ENGINEERING PERSONNEL	2	2	4	8	0.792	0.742	0.895	2.429
TOTAL	150	10	267	427	53.791	2.350	134.510	190.651
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	192	7	495	694	70.504	2.563	270.479	343.546
OPERATIONS PERSONNEL	78	3	7	88	25.314	0.968	3.311	29.593
HEALTH PHYSICS PERSONNEL	62	2	89	153	24.982	0.575	32.361	57.918
SUPERVISORY PERSONNEL	5	2	0	7	1.425	0.267	0.222	1.914
ENGINEERING PERSONNEL	10	4	5	19	4.555	1.767	1.390	7.712
GRAND TOTALS	347	18	596	961	126.780	6.140	307.763	440.683

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *HUMBOLDT BAY

TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
REFUELING								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
GRAND TOTALS	0	0	0	0	0.000	0.000	0.000	0.000

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *INDIAN POINT 2 TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	29	6	21	56	6.414	3.903	3.748	14.065
OPERATIONS PERSONNEL	19	0	0	19	4.313	0.000	0.000	4.313
HEALTH PHYSICS PERSONNEL	14	0	1	15	2.395	0.000	0.020	2.415
SUPERVISORY PERSONNEL	2	0	0	2	0.130	0.000	0.000	0.130
ENGINEERING PERSONNEL	4	0	0	4	0.203	0.000	0.000	0.203
TOTAL	68	6	22	96	13.455	3.903	3.768	21.126
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	19	1	8	28	0.952	0.170	0.297	1.419
OPERATIONS PERSONNEL	1	0	0	1	0.020	0.000	0.000	0.020
HEALTH PHYSICS PERSONNEL	1	0	0	1	0.237	0.000	0.000	0.237
SUPERVISORY PERSONNEL	0	0	1	1	0.000	0.000	0.013	0.013
ENGINEERING PERSONNEL	2	1	0	3	0.030	0.212	0.000	0.242
TOTAL	23	2	9	34	1.239	0.382	0.310	1.931
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	13	9	6	28	0.285	0.472	0.250	1.007
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	1	0	0	1	0.005	0.000	0.000	0.005
SUPERVISORY PERSONNEL	0	1	1	2	0.000	0.084	0.079	0.163
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	14	10	7	31	0.290	0.556	0.329	1.175
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	55	18	42	115	10.331	4.635	10.727	25.693
OPERATIONS PERSONNEL	14	0	0	14	1.883	0.000	0.000	1.883
HEALTH PHYSICS PERSONNEL	14	0	3	17	1.425	0.000	0.294	1.719
SUPERVISORY PERSONNEL	2	1	1	4	0.010	0.039	0.189	0.238
ENGINEERING PERSONNEL	3	0	0	3	0.196	0.000	0.000	0.196
TOTAL	88	19	46	153	13.845	4.674	11.210	29.729
WASTE PROCESSING								
MAINTENANCE PERSONNEL	10	1	43	54	0.571	0.015	10.440	11.026
OPERATIONS PERSONNEL	4	0	0	4	0.211	0.000	0.000	0.211
HEALTH PHYSICS PERSONNEL	10	0	3	13	0.555	0.000	0.835	1.390
SUPERVISORY PERSONNEL	3	0	0	3	0.296	0.000	0.000	0.296
ENGINEERING PERSONNEL	4	0	0	4	0.585	0.000	0.000	0.585
TOTAL	31	1	46	78	2.218	0.015	11.275	13.508
REFUELING								
MAINTENANCE PERSONNEL	17	3	13	33	1.929	0.027	2.545	4.501
OPERATIONS PERSONNEL	5	0	0	5	0.437	0.000	0.000	0.437
HEALTH PHYSICS PERSONNEL	12	0	3	15	1.644	0.000	0.430	2.074
SUPERVISORY PERSONNEL	2	0	0	2	0.097	0.000	0.000	0.097
ENGINEERING PERSONNEL	1	0	0	1	0.122	0.000	0.000	0.122
TOTAL	37	3	16	56	4.229	0.027	2.975	7.231
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	143	38	133	314	20.482	9.222	28.007	57.711
OPERATIONS PERSONNEL	43	0	0	43	6.864	0.000	0.000	6.864
HEALTH PHYSICS PERSONNEL	52	0	10	62	6.261	0.000	1.579	7.840
SUPERVISORY PERSONNEL	9	2	3	14	0.533	0.123	0.281	0.937
ENGINEERING PERSONNEL	14	1	0	15	1.136	0.212	0.000	1.348
GRAND TOTALS	261	41	146	448	35.276	9.557	29.867	74.700

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *INDIAN POINT 3

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	0	0	1	1	0.000	0.000	0.150	0.150
OPERATIONS PERSONNEL	49	2	19	70	11.570	0.190	2.600	14.360
HEALTH PHYSICS PERSONNEL	25	0	40	65	12.440	0.000	11.470	23.910
SUPERVISORY PERSONNEL	6	0	0	6	1.360	0.000	0.000	1.360
ENGINEERING PERSONNEL	4	1	3	8	1.210	0.140	0.280	1.630
TOTAL	84	3	63	150	26.580	0.330	14.500	41.410
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	3	0	3	6	0.310	0.000	0.340	0.650
OPERATIONS PERSONNEL	4	0	6	10	0.520	0.000	0.670	1.190
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	1	0	0	1	0.100	0.000	0.000	0.100
ENGINEERING PERSONNEL	0	1	2	3	0.000	0.100	0.200	0.300
TOTAL	8	1	11	20	0.930	0.100	1.210	2.240
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	14	14	0.000	0.000	2.050	2.050
OPERATIONS PERSONNEL	2	0	11	13	0.390	0.000	1.760	2.150
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	2	0	25	27	0.390	0.000	3.810	4.200
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	58	0	243	301	15.750	0.000	55.350	71.100
OPERATIONS PERSONNEL	17	0	1	18	3.190	0.000	0.190	3.380
HEALTH PHYSICS PERSONNEL	2	3	0	5	0.550	0.350	0.000	0.900
SUPERVISORY PERSONNEL	7	0	1	8	2.390	0.000	0.200	2.590
ENGINEERING PERSONNEL	4	0	0	4	0.970	0.000	0.000	0.970
TOTAL	88	3	245	336	22.850	0.350	55.740	78.940
WASTE PROCESSING								
MAINTENANCE PERSONNEL	13	0	55	68	5.200	0.000	20.460	25.660
OPERATIONS PERSONNEL	1	0	0	1	0.310	0.000	0.000	0.310
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	3	0	0	3	0.680	0.000	0.000	0.680
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	17	0	55	72	6.190	0.000	20.460	26.650
REFUELING								
MAINTENANCE PERSONNEL	0	0	26	26	0.000	0.000	6.760	6.760
OPERATIONS PERSONNEL	12	0	1	13	3.430	0.000	0.500	3.930
HEALTH PHYSICS PERSONNEL	0	1	1	2	0.000	0.280	0.100	0.380
SUPERVISORY PERSONNEL	3	0	0	3	1.330	0.000	0.000	1.330
ENGINEERING PERSONNEL	0	0	1	1	0.000	0.000	0.120	0.120
TOTAL	15	1	29	45	4.760	0.280	7.480	12.520
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	74	0	342	416	21.260	0.000	85.110	106.370
OPERATIONS PERSONNEL	85	2	38	125	19.410	0.190	5.720	25.320
HEALTH PHYSICS PERSONNEL	27	4	41	72	12.990	0.630	11.570	25.190
SUPERVISORY PERSONNEL	20	0	1	21	5.860	0.000	0.200	6.060
ENGINEERING PERSONNEL	8	2	6	16	2.180	0.240	0.600	3.020
GRAND TOTALS	214	8	428	650	61.700	1.060	103.200	165.960

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *KEWAUNEE TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	0	0	1	1	0.022	0.000	0.732	0.754
OPERATIONS PERSONNEL	5	0	0	5	2.017	0.000	0.000	2.017
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.078	0.001	0.000	0.079
ENGINEERING PERSONNEL	1	0	0	1	0.146	0.000	0.000	0.146
TOTAL	6	0	1	7	2.263	0.001	0.732	2.996
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	12	1	25	38	5.177	0.639	8.180	13.996
OPERATIONS PERSONNEL	3	0	2	5	1.491	0.062	0.350	1.903
HEALTH PHYSICS PERSONNEL	8	0	28	36	4.045	0.000	7.630	11.675
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	1	1	0.046	0.000	0.487	0.533
TOTAL	23	1	56	80	10.759	0.701	16.647	28.107
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	25	25	0.136	0.000	8.003	8.139
OPERATIONS PERSONNEL	0	0	7	7	0.000	0.039	3.841	3.880
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	32	32	0.136	0.039	11.844	12.019
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	8	0	75	83	4.319	0.120	45.449	49.888
OPERATIONS PERSONNEL	1	0	0	1	0.341	0.000	0.036	0.377
HEALTH PHYSICS PERSONNEL	1	0	0	1	0.302	0.000	0.000	0.302
SUPERVISORY PERSONNEL	4	2	0	6	1.318	0.367	0.000	1.685
ENGINEERING PERSONNEL	5	2	1	8	1.597	0.423	0.134	2.154
TOTAL	19	4	76	99	7.877	0.910	45.619	54.406
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.091	0.000	0.042	0.133
OPERATIONS PERSONNEL	1	0	0	1	0.361	0.000	0.000	0.361
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.278	0.000	0.000	0.278
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	1	0	0	1	0.730	0.000	0.042	0.772
REFUELING								
MAINTENANCE PERSONNEL	10	1	5	16	5.220	0.448	2.901	8.569
OPERATIONS PERSONNEL	1	0	0	1	0.203	0.000	0.000	0.203
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	1	0	0	1	0.417	0.000	0.000	0.417
ENGINEERING PERSONNEL	1	0	0	1	0.439	0.000	0.000	0.439
TOTAL	13	1	5	19	6.279	0.448	2.901	9.628
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	30	2	131	163	14.965	1.207	65.307	81.479
OPERATIONS PERSONNEL	11	0	9	20	4.413	0.101	4.227	8.741
HEALTH PHYSICS PERSONNEL	9	0	28	37	4.625	0.000	7.630	12.255
SUPERVISORY PERSONNEL	5	2	0	7	1.813	0.368	0.000	2.181
ENGINEERING PERSONNEL	7	2	2	11	2.228	0.423	0.621	3.272
GRAND TOTALS	62	6	170	238	28.044	2.099	77.785	107.928

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *LACROSSE

TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
REFUELING								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
GRAND TOTALS	0	0	0	0	0.000	0.000	0.000	0.000

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *LASALLE 1,2 TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	19	32	37	88	23.608	0.352	12.170	36.130
OPERATIONS PERSONNEL	143	0	113	256	62.000	0.000	10.446	72.446
HEALTH PHYSICS PERSONNEL	37	0	43	80	25.030	0.000	17.266	42.296
SUPERVISORY PERSONNEL	66	73	53	192	14.074	0.582	4.470	19.126
ENGINEERING PERSONNEL	61	76	44	181	20.071	3.681	1.629	25.381
TOTAL	326	181	290	797	144.783	4.615	45.981	195.379
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	174	30	1273	1477	220.725	0.325	425.786	646.836
OPERATIONS PERSONNEL	34	0	0	34	14.853	0.000	0.003	14.856
HEALTH PHYSICS PERSONNEL	45	0	35	80	29.703	0.000	14.062	43.765
SUPERVISORY PERSONNEL	162	25	21	208	34.409	0.198	1.719	36.326
ENGINEERING PERSONNEL	38	91	82	211	12.586	4.412	3.052	20.050
TOTAL	453	146	1411	2010	312.276	4.935	444.622	761.833
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	34	55	89	0.061	0.365	18.438	18.864
OPERATIONS PERSONNEL	1	0	0	1	0.321	0.000	0.000	0.321
HEALTH PHYSICS PERSONNEL	1	0	1	2	0.614	0.000	0.298	0.912
SUPERVISORY PERSONNEL	0	10	2	12	0.067	0.082	0.188	0.337
ENGINEERING PERSONNEL	15	65	3	83	4.959	3.163	0.092	8.214
TOTAL	17	109	61	187	6.022	3.610	19.016	28.648
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	4	5	346	355	4.825	0.053	115.975	120.853
OPERATIONS PERSONNEL	0	0	0	0	0.300	0.000	0.001	0.301
HEALTH PHYSICS PERSONNEL	1	0	7	8	0.731	0.000	2.615	3.346
SUPERVISORY PERSONNEL	9	2	27	38	1.840	0.011	2.268	4.119
ENGINEERING PERSONNEL	3	37	17	57	0.942	1.815	0.619	3.376
TOTAL	17	44	397	458	8.638	1.879	121.478	131.995
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	1	13	14	0.407	0.011	4.536	4.954
OPERATIONS PERSONNEL	30	0	71	101	12.930	0.000	6.547	19.477
HEALTH PHYSICS PERSONNEL	6	0	0	6	3.863	0.000	0.003	3.866
SUPERVISORY PERSONNEL	14	0	0	14	2.940	0.001	0.001	2.942
ENGINEERING PERSONNEL	0	1	0	1	0.049	0.030	0.000	0.079
TOTAL	50	2	84	136	20.189	0.042	11.087	31.318
REFUELING								
MAINTENANCE PERSONNEL	5	0	18	23	5.916	0.000	5.874	11.790
OPERATIONS PERSONNEL	8	0	0	8	3.432	0.000	0.000	3.432
HEALTH PHYSICS PERSONNEL	1	0	0	1	0.919	0.000	0.002	0.921
SUPERVISORY PERSONNEL	6	2	0	8	1.174	0.015	0.000	1.189
ENGINEERING PERSONNEL	0	1	0	1	0.101	0.086	0.012	0.199
TOTAL	20	3	18	41	11.542	0.101	5.888	17.531
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	202	102	1742	2046	255.542	1.106	582.779	839.427
OPERATIONS PERSONNEL	216	0	184	400	93.836	0.000	16.997	110.833
HEALTH PHYSICS PERSONNEL	91	0	86	177	60.860	0.000	34.246	95.106
SUPERVISORY PERSONNEL	257	112	103	472	54.504	0.889	8.646	64.039
ENGINEERING PERSONNEL	117	271	146	534	38.708	13.187	5.404	57.299
GRAND TOTALS	883	485	2261	3629	503.450	15.182	648.072	1166.704

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *LIMERICK 1,2

TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	89	71	117	277	2.343	1.653	1.810	5.806
OPERATIONS PERSONNEL	141	13	31	185	8.836	0.374	0.775	9.985
HEALTH PHYSICS PERSONNEL	34	1	28	63	4.054	0.010	1.270	5.334
SUPERVISORY PERSONNEL	1	2	1	4	0.031	0.141	0.015	0.187
ENGINEERING PERSONNEL	34	21	25	80	0.704	0.261	0.559	1.524
TOTAL	299	108	202	609	15.968	2.439	4.429	22.836
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	61	59	85	205	7.551	1.955	2.253	11.759
OPERATIONS PERSONNEL	40	7	19	66	1.638	0.160	0.760	2.558
HEALTH PHYSICS PERSONNEL	19	0	23	42	0.996	0.000	0.679	1.675
SUPERVISORY PERSONNEL	1	3	0	4	0.026	0.077	0.000	0.103
ENGINEERING PERSONNEL	10	7	8	25	0.137	0.251	0.449	0.837
TOTAL	131	76	135	342	10.348	2.443	4.141	16.932
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	5	0	4	9	0.473	0.000	1.677	2.150
OPERATIONS PERSONNEL	8	1	0	9	0.538	0.167	0.000	0.705
HEALTH PHYSICS PERSONNEL	5	0	2	7	0.198	0.000	0.237	0.435
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	1	1	0	2	0.030	0.010	0.000	0.040
TOTAL	19	2	6	27	1.239	0.177	1.914	3.330
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	81	45	177	303	5.863	0.925	13.407	20.195
OPERATIONS PERSONNEL	56	9	15	80	2.050	0.333	0.337	2.720
HEALTH PHYSICS PERSONNEL	21	0	28	49	0.758	0.000	0.771	1.529
SUPERVISORY PERSONNEL	3	1	7	11	0.045	0.009	0.178	0.232
ENGINEERING PERSONNEL	18	6	30	54	0.828	0.162	1.325	2.315
TOTAL	179	61	257	497	9.544	1.429	16.018	26.991
WASTE PROCESSING								
MAINTENANCE PERSONNEL	21	5	24	50	0.269	0.036	0.884	1.189
OPERATIONS PERSONNEL	46	1	11	58	0.639	0.025	0.131	0.795
HEALTH PHYSICS PERSONNEL	18	0	11	29	0.912	0.000	0.063	0.975
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	4	1	6	11	0.115	0.565	0.000	0.680
TOTAL	89	7	52	148	1.935	0.626	1.078	3.639
REFUELING								
MAINTENANCE PERSONNEL	174	132	510	816	34.058	37.395	110.247	181.700
OPERATIONS PERSONNEL	167	23	46	236	13.529	2.846	10.077	26.452
HEALTH PHYSICS PERSONNEL	40	3	57	100	5.994	0.293	12.693	18.980
SUPERVISORY PERSONNEL	6	10	23	39	0.125	1.664	3.657	5.446
ENGINEERING PERSONNEL	53	37	72	162	2.021	4.130	17.482	23.633
TOTAL	440	205	708	1353	55.727	46.328	154.156	256.211
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	431 (281)	312 (330)	917 (989)	1660(1600)	50.557	41.964	130.278	222.799
OPERATIONS PERSONNEL	458 (383)	54 (123)	122 (309)	634 (815)	27.230	3.905	12.080	43.215
HEALTH PHYSICS PERSONNEL	137 (68)	4 (14)	149 (87)	290 (169)	12.912	0.303	15.713	28.928
SUPERVISORY PERSONNEL	11 (26)	16 (39)	31 (117)	58 (182)	0.227	1.891	3.850	5.968
ENGINEERING PERSONNEL	120 (174)	73 (249)	141 (269)	334 (692)	3.835	5.379	19.815	29.029
GRAND TOTALS	1157 (932)	459 (755)	1360 (1771)	2976(3458)	94.761	53.442	181.736	329.939

*Workers may be counted in more than one category. Numbers in parentheses are total numbers of individuals.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *MAINE YANKEE TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM) STATION	UTILITY	CONTRACT	TOTAL	TOTAL PERSON-REM STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	6	0	3	9	2.179	0.000	1.697	3.876
OPERATIONS PERSONNEL	44	0	11	55	21.508	0.002	4.023	25.533
HEALTH PHYSICS PERSONNEL	24	0	73	97	15.127	0.000	37.346	52.473
SUPERVISORY PERSONNEL	2	0	7	9	1.338	0.000	2.327	3.665
ENGINEERING PERSONNEL	16	0	8	24	6.243	0.000	2.415	8.658
TOTAL	92	0	102	194	46.395	0.002	47.808	94.205
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	42	0	197	239	19.426	0.000	80.694	100.120
OPERATIONS PERSONNEL	12	1	17	30	5.822	0.371	5.018	11.211
HEALTH PHYSICS PERSONNEL	6	0	5	11	2.329	0.000	2.549	4.878
SUPERVISORY PERSONNEL	4	0	14	18	1.490	0.000	7.729	9.219
ENGINEERING PERSONNEL	5	0	79	84	2.051	0.000	42.241	44.292
TOTAL	69	1	312	382	31.118	0.371	138.231	169.720
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	8	8	0.000	0.000	3.841	3.841
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	4	4	0.000	0.000	2.640	2.640
SUPERVISORY PERSONNEL	0	0	2	2	0.000	0.000	2.743	2.743
ENGINEERING PERSONNEL	1	0	27	28	0.450	0.000	25.088	25.538
TOTAL	1	0	41	42	0.450	0.000	34.312	34.762
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	20	0	50	70	7.140	0.080	23.121	30.341
OPERATIONS PERSONNEL	4	0	12	16	0.941	0.010	3.609	4.560
HEALTH PHYSICS PERSONNEL	4	0	5	9	0.945	0.000	1.647	2.592
SUPERVISORY PERSONNEL	1	0	13	14	0.383	0.000	5.340	5.723
ENGINEERING PERSONNEL	6	0	116	122	1.911	0.000	65.177	67.088
TOTAL	35	0	196	231	11.320	0.090	98.894	110.304
WASTE PROCESSING								
MAINTENANCE PERSONNEL	6	0	2	8	2.695	0.000	0.448	3.143
OPERATIONS PERSONNEL	3	0	5	8	1.252	0.101	0.832	2.185
HEALTH PHYSICS PERSONNEL	8	0	3	11	3.665	0.000	0.970	4.635
SUPERVISORY PERSONNEL	1	0	1	2	0.145	0.000	0.378	0.523
ENGINEERING PERSONNEL	1	0	0	1	0.125	0.000	0.097	0.222
TOTAL	19	0	11	30	7.882	0.101	2.725	10.708
REFUELING								
MAINTENANCE PERSONNEL	20	0	71	91	7.169	0.000	31.213	38.382
OPERATIONS PERSONNEL	10	0	5	15	2.738	0.000	1.007	3.745
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.175	0.000	0.208	0.383
SUPERVISORY PERSONNEL	0	0	6	6	0.080	0.000	2.340	2.420
ENGINEERING PERSONNEL	2	0	57	59	0.745	0.000	32.342	33.087
TOTAL	32	0	139	171	10.907	0.000	67.110	78.017
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	94	0	331	425	38.609	0.080	141.014	179.703
OPERATIONS PERSONNEL	73	1	50	124	32.261	0.484	14.489	47.234
HEALTH PHYSICS PERSONNEL	42	0	90	132	22.241	0.000	45.360	67.601
SUPERVISORY PERSONNEL	8	0	43	51	3.436	0.000	20.857	24.293
ENGINEERING PERSONNEL	31	0	287	318	11.525	0.000	167.360	178.885
GRAND TOTALS	248	1	801	1050	108.072	0.564	389.080	497.716

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *MCGUIRE 1,2 TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM) STATION	UTILITY	CONTRACT	TOTAL	TOTAL PERSON-REM STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	182	325	44	551	1.850	0.490	0.075	2.415
OPERATIONS PERSONNEL	73	2	47	122	11.405	0.115	2.260	13.780
HEALTH PHYSICS PERSONNEL	29	0	103	132	5.410	0.000	18.970	24.380
SUPERVISORY PERSONNEL	0	2	0	2	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	6	7	37	50	0.000	0.110	0.150	0.260
TOTAL	290	336	231	857	18.665	0.715	21.455	40.835
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	193	384	66	643	40.115	151.055	13.075	204.245
OPERATIONS PERSONNEL	46	1	49	96	0.920	0.540	15.610	17.070
HEALTH PHYSICS PERSONNEL	29	0	101	130	4.420	0.000	11.360	15.780
SUPERVISORY PERSONNEL	0	1	0	1	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	4	10	96	110	0.265	1.100	34.100	35.465
TOTAL	272	396	312	980	45.720	152.695	74.145	272.560
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	92	235	30	357	7.890	36.005	2.265	46.160
OPERATIONS PERSONNEL	19	1	10	30	0.980	0.000	0.145	1.125
HEALTH PHYSICS PERSONNEL	15	0	57	72	0.250	0.000	1.550	1.800
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	1	24	25	0.000	0.105	3.215	3.320
TOTAL	126	237	121	484	9.120	36.110	7.175	52.405
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	133	250	35	418	7.495	44.520	4.670	56.685
OPERATIONS PERSONNEL	2	0	23	25	0.030	0.000	2.120	2.150
HEALTH PHYSICS PERSONNEL	22	0	47	69	1.195	0.000	2.575	3.770
SUPERVISORY PERSONNEL	0	3	0	3	0.000	0.835	0.000	0.835
ENGINEERING PERSONNEL	5	7	40	52	0.595	1.150	7.130	8.875
TOTAL	162	260	145	567	9.315	46.505	16.495	72.315
WASTE PROCESSING								
MAINTENANCE PERSONNEL	23	9	2	34	0.145	0.000	0.000	0.145
OPERATIONS PERSONNEL	8	0	42	50	0.870	0.000	1.835	2.705
HEALTH PHYSICS PERSONNEL	20	0	20	40	0.360	0.000	0.290	0.650
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	51	9	64	124	1.375	0.000	2.125	3.500
REFUELING								
MAINTENANCE PERSONNEL	43	56	10	109	1.215	8.060	0.340	9.615
OPERATIONS PERSONNEL	2	0	21	23	0.000	0.000	0.775	0.775
HEALTH PHYSICS PERSONNEL	9	0	35	44	0.085	0.000	1.775	1.860
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	1	1	2	0.000	0.115	0.015	0.130
TOTAL	54	57	67	178	1.300	8.175	2.905	12.380
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	666 (197)	1259 (393)	187 (68)	2112 (658)	58.710	240.130	20.425	319.265
OPERATIONS PERSONNEL	150 (73)	4 (2)	192 (50)	346 (125)	14.205	0.655	22.745	37.605
HEALTH PHYSICS PERSONNEL	124 (29)	0 (0)	363 (103)	487 (132)	11.720	0.000	36.520	48.240
SUPERVISORY PERSONNEL	0 (0)	6 (3)	0 (0)	6 (3)	0.000	0.835	0.000	0.835
ENGINEERING PERSONNEL	15 (5)	26 (9)	198 (100)	239 (114)	0.860	2.580	44.610	48.050
GRAND TOTALS	955 (304)	1295 (407)	940 (321)	3190(1032)	85.495	244.200	124.300	453.995

*Workers may be counted in more than one category. Numbers in parentheses are total numbers of individuals.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *MILLSTONE POINT 1 TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	14	1	1	16	3.230	0.140	0.930	4.300
OPERATIONS PERSONNEL	16	0	1	17	4.800	0.010	1.810	6.620
HEALTH PHYSICS PERSONNEL	12	0	10	22	3.510	0.000	4.180	7.690
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.020	0.020
ENGINEERING PERSONNEL	0	0	0	0	0.100	0.000	0.080	0.180
TOTAL	42	1	12	55	11.640	0.150	7.020	18.810
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	2	2	0.330	0.000	0.590	0.920
OPERATIONS PERSONNEL	0	0	0	0	0.060	0.000	0.140	0.200
HEALTH PHYSICS PERSONNEL	0	0	3	3	0.210	0.000	1.180	1.390
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.010	0.010
TOTAL	0	0	5	5	0.600	0.000	1.920	2.520
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	0	0	0.060	0.000	0.860	0.920
OPERATIONS PERSONNEL	0	0	0	0	0.010	0.000	0.010	0.020
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.100	0.000	0.070	0.170
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.130	0.280	0.410	0.820
TOTAL	0	0	0	0	0.300	0.280	1.350	1.930
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	23	2	61	86	6.280	0.420	24.640	31.340
OPERATIONS PERSONNEL	0	0	3	3	0.580	0.420	1.560	2.560
HEALTH PHYSICS PERSONNEL	13	0	14	27	3.720	0.000	3.610	7.330
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.050	0.050
ENGINEERING PERSONNEL	1	2	1	4	0.330	0.650	0.900	1.880
TOTAL	37	4	79	120	10.910	1.490	30.760	43.160
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	17	17	0.210	0.000	8.000	8.210
OPERATIONS PERSONNEL	1	0	1	2	0.630	0.000	0.270	0.900
HEALTH PHYSICS PERSONNEL	4	0	9	13	1.890	0.000	3.610	5.500
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.090	0.080	0.100	0.270
TOTAL	5	0	27	32	2.820	0.080	11.980	14.880
REFUELING								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.560	0.000	0.560
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.010	0.000	0.010
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	1.020	0.000	1.020
TOTAL	0	0	0	0	0.000	1.590	0.000	1.590
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	37	3	81	121	10.110	1.120	35.020	46.250
OPERATIONS PERSONNEL	17	0	5	22	6.080	0.440	3.790	10.310
HEALTH PHYSICS PERSONNEL	29	0	36	65	9.430	0.000	12.650	22.080
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.070	0.070
ENGINEERING PERSONNEL	1	2	1	4	0.650	2.030	1.500	4.180
GRAND TOTALS	84	5	123	212	26.270	3.590	53.030	82.890

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *MILLSTONE POINT 2,3

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	7	1	13	21	2.980	0.540	7.500	11.020
OPERATIONS PERSONNEL	27	0	0	27	6.670	0.020	0.250	6.940
HEALTH PHYSICS PERSONNEL	5	0	31	36	2.530	0.030	7.640	10.200
SUPERVISORY PERSONNEL	0	0	0	0	0.030	0.000	0.010	0.040
ENGINEERING PERSONNEL	1	0	0	1	0.480	0.250	0.570	1.300
TOTAL	40	1	44	85	12.690	0.840	15.970	29.500
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	10	1	59	70	4.110	1.380	17.820	23.310
OPERATIONS PERSONNEL	0	0	1	1	0.410	0.000	0.270	0.680
HEALTH PHYSICS PERSONNEL	2	0	7	9	0.940	0.000	2.070	3.010
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	1	0	2	3	0.230	0.060	1.050	1.340
TOTAL	13	1	69	83	5.690	1.440	21.210	28.340
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	1	1	0.000	0.000	0.440	0.440
OPERATIONS PERSONNEL	0	0	0	0	0.110	0.000	0.020	0.130
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.030	0.000	0.030	0.060
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	1	1	0.010	0.030	0.310	0.350
TOTAL	0	0	2	2	0.150	0.030	0.800	0.980
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	32	2	1025	1059	11.240	0.550	715.210	727.000
OPERATIONS PERSONNEL	7	0	10	17	2.620	0.020	4.670	7.310
HEALTH PHYSICS PERSONNEL	19	0	24	43	5.670	0.000	8.680	14.350
SUPERVISORY PERSONNEL	1	0	0	1	0.200	0.010	0.120	0.330
ENGINEERING PERSONNEL	5	10	88	103	1.650	3.890	40.800	46.340
TOTAL	64	12	1147	1223	21.380	4.470	769.480	795.330
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	9	9	0.100	0.000	3.470	3.570
OPERATIONS PERSONNEL	1	0	0	1	1.300	0.000	0.000	1.300
HEALTH PHYSICS PERSONNEL	11	0	20	31	3.280	0.150	5.930	9.360
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.120	0.080	0.200
TOTAL	12	0	29	41	4.680	0.270	9.480	14.430
REFUELING								
MAINTENANCE PERSONNEL	39	2	314	355	21.970	0.880	130.180	153.030
OPERATIONS PERSONNEL	25	0	3	28	9.150	0.010	1.410	10.570
HEALTH PHYSICS PERSONNEL	13	0	71	84	4.960	0.020	28.340	33.320
SUPERVISORY PERSONNEL	0	0	0	0	0.100	0.000	0.160	0.260
ENGINEERING PERSONNEL	1	1	40	42	0.760	0.870	15.370	17.000
TOTAL	78	3	428	509	36.940	1.780	175.460	214.180
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	88	6	1421	1515	40.400	3.350	874.620	918.370
OPERATIONS PERSONNEL	60	0	14	74	20.260	0.050	6.620	26.930
HEALTH PHYSICS PERSONNEL	50	0	153	203	17.410	0.200	52.690	70.300
SUPERVISORY PERSONNEL	1	0	0	1	0.330	0.010	0.290	0.630
ENGINEERING PERSONNEL	8	11	131	150	3.130	5.220	58.180	66.530
GRAND TOTALS	207	17	1719	1943	81.530	8.830	992.400	1082.760

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *NINE MILE POINT 1,2 TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM) STATION	UTILITY	CONTRACT	TOTAL	TOTAL PERSON-REM STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	1254	3	332	1589	12.776	0.400	2.914	16.090
OPERATIONS PERSONNEL	2694	0	530	3224	28.180	0.000	1.997	30.177
HEALTH PHYSICS PERSONNEL	1443	0	41	1484	10.799	0.000	0.520	11.319
SUPERVISORY PERSONNEL	166	1	58	225	1.466	0.670	0.329	2.465
ENGINEERING PERSONNEL	753	7	171	931	5.093	0.500	1.596	7.189
TOTAL	6310	11	1132	7453	58.314	1.570	7.356	67.240
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	3286	4	7637	10927	88.067	0.320	21.993	110.380
OPERATIONS PERSONNEL	1137	0	42	1179	15.824	0.000	0.644	16.468
HEALTH PHYSICS PERSONNEL	2266	1	972	3239	28.548	0.500	6.436	35.484
SUPERVISORY PERSONNEL	286	8	187	481	5.330	0.720	0.927	6.977
ENGINEERING PERSONNEL	855	12	634	1501	11.709	0.880	16.970	29.559
TOTAL	7830	25	9472	17327	149.478	2.420	46.970	198.868
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	11	0	1108	1119	0.232	0.000	0.330	0.562
OPERATIONS PERSONNEL	9	0	2	11	0.221	0.000	0.000	0.221
HEALTH PHYSICS PERSONNEL	34	0	13	47	0.438	0.000	0.000	0.438
SUPERVISORY PERSONNEL	1	0	57	58	0.150	0.000	0.600	0.750
ENGINEERING PERSONNEL	26	0	233	259	0.558	0.000	1.348	1.906
TOTAL	81	0	1413	1494	1.599	0.000	2.278	3.877
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	200	0	2905	3105	2.998	0.000	51.790	54.788
OPERATIONS PERSONNEL	103	0	12	115	1.765	0.000	0.340	2.105
HEALTH PHYSICS PERSONNEL	212	0	87	299	2.192	0.000	1.035	3.227
SUPERVISORY PERSONNEL	7	0	108	115	0.650	0.000	1.575	2.225
ENGINEERING PERSONNEL	103	1	369	473	2.251	0.500	7.178	9.929
TOTAL	625	1	3481	4107	9.856	0.500	61.918	72.274
WASTE PROCESSING								
MAINTENANCE PERSONNEL	162	0	109	271	0.940	0.000	0.588	1.528
OPERATIONS PERSONNEL	1692	0	79	1771	11.949	0.000	0.292	12.241
HEALTH PHYSICS PERSONNEL	378	0	30	408	3.536	0.000	0.280	3.816
SUPERVISORY PERSONNEL	23	0	5	28	0.125	0.000	0.300	0.425
ENGINEERING PERSONNEL	27	1	65	93	0.189	0.100	0.468	0.757
TOTAL	2282	1	288	2571	16.739	0.100	1.928	18.767
REFUELING								
MAINTENANCE PERSONNEL	213	0	1450	1663	3.730	0.000	0.407	4.137
OPERATIONS PERSONNEL	149	0	24	173	0.767	0.000	0.000	0.767
HEALTH PHYSICS PERSONNEL	289	0	99	388	2.663	0.000	0.000	2.663
SUPERVISORY PERSONNEL	17	2	10	29	0.122	0.150	0.000	0.272
ENGINEERING PERSONNEL	333	0	49	382	2.419	0.000	0.250	2.669
TOTAL	1001	2	1632	2635	9.701	0.150	0.657	10.508
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	5126 (262)	7	(7)13541	(1008)18674(1277)	108.743	0.720	78.022	187.485
OPERATIONS PERSONNEL	5784 (195)	0	(0) 689	(58) 6473 (253)	58.706	0.000	3.273	61.979
HEALTH PHYSICS PERSONNEL	4622 (136)	1	(1) 1242	(65) 5865 (202)	48.176	0.500	8.271	56.947
SUPERVISORY PERSONNEL	500 (64)	11	(4) 425	(57) 936 (125)	7.843	1.540	3.731	13.114
ENGINEERING PERSONNEL	2097 (386)	21	(15) 1521	(247) 3639 (648)	22.219	1.980	27.810	52.009
GRAND TOTALS	18129 (1043)	40	(27)17418	(1435)35587(2505)	245.687	4.740	121.107	371.534

*Workers may be counted in more than one category. Numbers in parentheses are total numbers of individuals.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *NORTH ANNA 1,2

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	128	0	77	205	3.307	0.000	2.089	5.396
OPERATIONS PERSONNEL	108	3	6	117	9.234	0.003	0.015	9.252
HEALTH PHYSICS PERSONNEL	26	0	21	47	0.322	0.000	0.350	0.672
SUPERVISORY PERSONNEL	33	4	0	37	0.305	0.000	0.000	0.305
ENGINEERING PERSONNEL	13	0	1	14	0.155	0.000	0.003	0.158
TOTAL	308	7	105	420	13.323	0.003	2.457	15.783
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	258	3	851	1112	79.696	0.007	221.589	301.292
OPERATIONS PERSONNEL	228	17	45	290	20.225	0.127	0.785	21.137
HEALTH PHYSICS PERSONNEL	112	22	286	420	29.744	0.022	75.682	105.448
SUPERVISORY PERSONNEL	103	18	15	136	5.220	0.079	0.492	5.791
ENGINEERING PERSONNEL	124	77	75	276	4.203	0.526	4.277	9.006
TOTAL	825	137	1272	2234	139.088	0.761	302.825	442.674
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	25	0	132	157	1.999	0.000	48.484	50.483
OPERATIONS PERSONNEL	12	0	2	14	1.705	0.000	0.042	1.747
HEALTH PHYSICS PERSONNEL	10	0	75	85	0.279	0.000	6.444	6.723
SUPERVISORY PERSONNEL	1	0	0	1	0.045	0.000	0.000	0.045
ENGINEERING PERSONNEL	14	0	17	31	1.802	0.000	9.513	11.315
TOTAL	62	0	226	288	5.830	0.000	64.483	70.313
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	9	0	352	361	0.082	0.000	18.938	19.020
OPERATIONS PERSONNEL	11	0	3	14	0.127	0.000	0.289	0.416
HEALTH PHYSICS PERSONNEL	23	0	89	112	0.241	0.000	1.585	1.826
SUPERVISORY PERSONNEL	4	0	2	6	0.310	0.000	0.074	0.384
ENGINEERING PERSONNEL	20	5	17	42	0.097	0.006	2.350	2.453
TOTAL	67	5	463	535	0.857	0.006	23.236	24.099
WASTE PROCESSING								
MAINTENANCE PERSONNEL	53	0	40	93	0.251	0.000	0.034	0.285
OPERATIONS PERSONNEL	26	0	2	28	0.249	0.000	0.000	0.249
HEALTH PHYSICS PERSONNEL	37	1	16	54	2.133	0.000	0.123	2.256
SUPERVISORY PERSONNEL	12	0	0	12	0.200	0.001	0.000	0.201
ENGINEERING PERSONNEL	2	0	0	2	0.002	0.000	0.000	0.002
TOTAL	130	1	58	189	2.835	0.001	0.157	2.993
REFUELING								
MAINTENANCE PERSONNEL	42	0	68	110	1.685	0.000	27.529	29.214
OPERATIONS PERSONNEL	25	2	2	29	1.335	0.050	0.171	1.556
HEALTH PHYSICS PERSONNEL	17	0	78	95	0.316	0.000	2.373	2.689
SUPERVISORY PERSONNEL	14	1	0	15	0.418	0.012	0.000	0.430
ENGINEERING PERSONNEL	6	5	2	13	0.164	0.260	0.002	0.426
TOTAL	104	8	150	262	3.918	0.322	30.075	34.315
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	515	3	1520	2038	87.020	0.007	318.663	405.690
OPERATIONS PERSONNEL	410	22	60	492	32.875	0.180	1.302	34.357
HEALTH PHYSICS PERSONNEL	225	23	565	813	33.035	0.022	86.557	119.614
SUPERVISORY PERSONNEL	167	23	17	207	6.498	0.092	0.566	7.156
ENGINEERING PERSONNEL	179	87	112	378	6.423	0.792	16.145	23.360
GRAND TOTALS	1496	158	2274	3928	165.851	1.093	423.233	590.177

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *MONTICELLO

TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	36	21	2	59	8.742	5.393	1.257	15.392
OPERATIONS PERSONNEL	38	0	1	39	13.495	0.000	0.680	14.175
HEALTH PHYSICS PERSONNEL	23	0	1	24	8.225	0.000	0.256	8.481
SUPERVISORY PERSONNEL	11	1	1	13	3.681	0.374	1.257	5.312
ENGINEERING PERSONNEL	9	0	0	9	2.607	0.013	0.000	2.620
TOTAL	117	22	5	144	36.750	5.780	3.450	45.980
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	34	32	1	67	10.599	18.137	0.787	29.523
OPERATIONS PERSONNEL	1	0	0	1	0.729	0.000	0.000	0.729
HEALTH PHYSICS PERSONNEL	9	0	3	12	3.197	0.000	0.424	3.621
SUPERVISORY PERSONNEL	1	0	0	1	0.551	0.061	0.320	0.932
ENGINEERING PERSONNEL	0	0	0	0	0.328	0.000	0.000	0.328
TOTAL	45	32	4	81	15.404	18.198	1.531	35.133
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	4	2	6	0.000	1.257	0.262	1.519
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.091	0.091
SUPERVISORY PERSONNEL	0	0	2	2	0.000	0.017	0.494	0.511
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	4	4	8	0.000	1.274	0.847	2.121
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	15	23	0	38	3.951	5.837	0.402	10.190
OPERATIONS PERSONNEL	6	0	0	6	2.056	0.000	0.000	2.056
HEALTH PHYSICS PERSONNEL	8	0	0	8	2.199	0.000	0.061	2.260
SUPERVISORY PERSONNEL	8	1	0	9	1.639	0.124	0.302	2.065
ENGINEERING PERSONNEL	2	0	0	2	0.373	0.000	0.000	0.373
TOTAL	39	24	0	63	10.218	5.961	0.765	16.944
WASTE PROCESSING								
MAINTENANCE PERSONNEL	17	1	0	18	4.839	0.432	0.000	5.271
OPERATIONS PERSONNEL	3	0	0	3	1.762	0.000	0.000	1.762
HEALTH PHYSICS PERSONNEL	9	0	0	9	2.303	0.000	0.004	2.307
SUPERVISORY PERSONNEL	1	0	5	6	0.217	0.005	3.453	3.675
ENGINEERING PERSONNEL	0	0	0	0	0.004	0.000	0.000	0.004
TOTAL	30	1	5	36	9.125	0.437	3.457	13.019
REFUELING								
MAINTENANCE PERSONNEL	0	0	0	0	0.065	0.000	0.000	0.065
OPERATIONS PERSONNEL	0	0	0	0	0.417	0.000	0.000	0.417
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.015	0.000	0.000	0.015
SUPERVISORY PERSONNEL	0	0	0	0	0.187	0.035	0.000	0.222
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.684	0.035	0.000	0.719
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	102	81	5	188	28.196	31.056	2.708	61.960
OPERATIONS PERSONNEL	48	0	1	49	18.459	0.000	0.680	19.139
HEALTH PHYSICS PERSONNEL	49	0	4	53	15.939	0.000	0.836	16.775
SUPERVISORY PERSONNEL	21	2	8	31	6.275	0.616	5.826	12.717
ENGINEERING PERSONNEL	11	0	0	11	3.312	0.013	0.000	3.325
GRAND TOTALS	231	83	18	332	72.181	31.685	10.050	113.916

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *OCONEE 1,2,3

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM) STATION	UTILITY	CONTRACT	TOTAL	TOTAL PERSON-REM STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	303	524	208	1035	5.676	2.467	1.270	9.413
OPERATIONS PERSONNEL	114	1	59	174	28.364	0.000	0.190	28.554
HEALTH PHYSICS PERSONNEL	53	0	148	201	5.926	0.000	29.630	35.556
SUPERVISORY PERSONNEL	6	1	1	8	0.585	0.000	0.000	0.585
ENGINEERING PERSONNEL	13	3	5	21	0.155	0.155	0.125	0.435
TOTAL	489	529	421	1439	40.706	2.622	31.215	74.543
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	346	480	216	1042	172.693	203.095	60.744	436.532
OPERATIONS PERSONNEL	94	1	64	159	13.848	0.705	36.967	51.520
HEALTH PHYSICS PERSONNEL	54	0	145	199	6.085	0.000	37.537	43.622
SUPERVISORY PERSONNEL	9	0	1	10	1.066	0.080	0.155	1.301
ENGINEERING PERSONNEL	14	2	7	23	2.938	0.060	0.850	3.848
TOTAL	517	483	433	1433	196.630	203.940	136.253	536.823
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	92	134	52	278	8.185	14.217	1.922	24.324
OPERATIONS PERSONNEL	1	0	0	1	0.015	0.010	0.000	0.025
HEALTH PHYSICS PERSONNEL	13	0	72	85	0.150	0.000	2.131	2.281
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	1	0	2	3	0.000	0.000	0.000	0.000
TOTAL	107	134	126	367	8.350	14.227	4.053	26.630
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	223	281	76	580	20.320	47.117	7.881	75.318
OPERATIONS PERSONNEL	37	0	70	107	0.660	0.000	12.998	13.658
HEALTH PHYSICS PERSONNEL	23	0	102	125	0.780	0.000	7.661	8.441
SUPERVISORY PERSONNEL	0	1	0	1	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	8	1	1	10	0.220	0.165	0.285	0.670
TOTAL	291	283	249	823	21.980	47.282	28.825	98.087
WASTE PROCESSING								
MAINTENANCE PERSONNEL	37	12	1	50	0.605	0.118	0.000	0.723
OPERATIONS PERSONNEL	38	0	45	83	4.795	0.000	2.368	7.163
HEALTH PHYSICS PERSONNEL	36	0	10	46	2.790	0.000	0.130	2.920
SUPERVISORY PERSONNEL	2	1	1	4	0.240	0.290	0.000	0.530
ENGINEERING PERSONNEL	0	0	1	1	0.000	0.000	0.000	0.000
TOTAL	113	13	58	184	8.430	0.408	2.498	11.336
REFUELING								
MAINTENANCE PERSONNEL	78	69	31	178	4.138	2.215	4.045	10.398
OPERATIONS PERSONNEL	65	0	10	75	5.660	0.000	0.240	5.900
HEALTH PHYSICS PERSONNEL	23	0	40	63	0.795	0.000	1.243	2.038
SUPERVISORY PERSONNEL	2	0	0	2	0.010	0.000	0.000	0.010
ENGINEERING PERSONNEL	3	0	4	7	0.405	0.000	0.000	0.405
TOTAL	171	69	85	325	11.008	2.215	5.528	18.751
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	1079 (359)	1500 (475)	584 (227)	3163(1061)	211.617	269.229	75.862	556.708
OPERATIONS PERSONNEL	349 (114)	2 (2)	248 (76)	599 (192)	53.342	0.715	52.763	106.820
HEALTH PHYSICS PERSONNEL	202 (54)	0 (0)	517 (148)	719 (202)	16.526	0.000	78.332	94.858
SUPERVISORY PERSONNEL	19 (9)	3 (1)	3 (1)	25 (11)	1.901	0.370	0.155	2.426
ENGINEERING PERSONNEL	39 (14)	6 (2)	20 (5)	65 (21)	3.718	0.380	1.260	5.358
GRAND TOTALS	1688 (550)	1511 (480)	1372 (457)	4571(1487)	287.104	270.694	208.372	766.170

*Workers may be counted in more than one category. Numbers in parentheses are total numbers of individuals.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *OYSTER CREEK

TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	150	4	107	261	14.462	0.022	4.181	18.665
OPERATIONS PERSONNEL	152	0	3	155	31.589	0.000	0.030	31.619
HEALTH PHYSICS PERSONNEL	101	0	92	193	16.166	0.000	13.040	29.206
SUPERVISORY PERSONNEL	30	1	11	42	0.799	0.005	0.101	0.905
ENGINEERING PERSONNEL	33	1	3	37	0.913	0.000	0.000	0.913
TOTAL	466	6	216	688	63.929	0.027	17.352	81.308
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	500	47	1051	1598	53.006	1.956	100.860	155.822
OPERATIONS PERSONNEL	298	1	50	349	13.446	0.004	0.786	14.236
HEALTH PHYSICS PERSONNEL	80	0	47	127	4.501	0.000	2.029	6.530
SUPERVISORY PERSONNEL	100	3	49	152	3.910	0.015	1.487	5.412
ENGINEERING PERSONNEL	178	2	66	246	3.792	0.164	2.339	6.295
TOTAL	1156	53	1263	2472	78.655	2.139	107.501	188.295
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	53	11	247	311	0.532	0.031	4.329	4.892
OPERATIONS PERSONNEL	32	0	8	40	0.754	0.000	0.038	0.792
HEALTH PHYSICS PERSONNEL	18	0	11	29	0.190	0.000	0.073	0.263
SUPERVISORY PERSONNEL	0	0	5	5	0.000	0.000	0.036	0.036
ENGINEERING PERSONNEL	10	0	12	22	0.322	0.000	0.263	0.585
TOTAL	113	11	283	407	1.798	0.031	4.739	6.568
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	263	35	995	1293	71.564	5.302	327.395	404.261
OPERATIONS PERSONNEL	91	0	19	110	8.756	0.000	2.261	11.017
HEALTH PHYSICS PERSONNEL	57	0	77	134	9.990	0.000	10.542	20.532
SUPERVISORY PERSONNEL	27	0	28	55	0.853	0.000	4.161	5.014
ENGINEERING PERSONNEL	41	0	35	76	3.332	0.000	5.683	9.015
TOTAL	479	35	1154	1668	94.495	5.302	350.042	449.839
WASTE PROCESSING								
MAINTENANCE PERSONNEL	78	5	125	208	2.098	0.003	16.529	18.630
OPERATIONS PERSONNEL	72	0	6	78	2.284	0.000	4.171	6.455
HEALTH PHYSICS PERSONNEL	50	0	29	79	1.640	0.000	1.346	2.986
SUPERVISORY PERSONNEL	3	0	4	7	0.208	0.000	0.010	0.218
ENGINEERING PERSONNEL	7	1	7	15	0.224	0.022	2.269	2.515
TOTAL	210	6	171	387	6.454	0.025	24.325	30.804
REFUELING								
MAINTENANCE PERSONNEL	17	4	75	96	0.153	0.011	4.987	5.151
OPERATIONS PERSONNEL	37	0	4	41	1.377	0.000	0.492	1.869
HEALTH PHYSICS PERSONNEL	5	0	11	16	0.048	0.000	0.325	0.373
SUPERVISORY PERSONNEL	1	0	0	1	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	8	0	5	13	0.143	0.000	0.035	0.178
TOTAL	68	4	95	167	1.721	0.011	5.839	7.571
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	1061 (530)	106 (47)	2600 (1245)	3767(1822)	141.815	7.325	458.281	607.421
OPERATIONS PERSONNEL	682 (334)	1 (1)	90 (56)	773 (391)	58.206	0.004	7.778	65.988
HEALTH PHYSICS PERSONNEL	311 (125)	0 (0)	267 (103)	578 (228)	32.535	0.000	27.355	59.890
SUPERVISORY PERSONNEL	161 (105)	4 (3)	97 (58)	262 (166)	5.770	0.020	5.795	11.585
ENGINEERING PERSONNEL	277 (186)	4 (3)	128 (71)	409 (260)	8.726	0.186	10.589	19.501
GRAND TOTALS	2492 (1280)	115 (54)	3182 (1533)	5789(2867)	247.052	7.535	509.798	764.385

*Workers may be counted in more than one category. Numbers in parentheses are total numbers of individuals.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *PALISADES

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	4	0	2	6	1.107	0.000	0.950	2.057
OPERATIONS PERSONNEL	31	0	0	31	9.143	0.078	0.426	9.647
HEALTH PHYSICS PERSONNEL	30	0	41	71	7.029	0.000	13.515	20.544
SUPERVISORY PERSONNEL	6	0	1	7	1.878	0.006	0.284	2.168
ENGINEERING PERSONNEL	2	1	1	4	1.056	0.220	1.083	2.359
TOTAL	73	1	45	119	20.213	0.304	16.258	36.775
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	61	4	88	153	21.093	0.783	38.316	60.192
OPERATIONS PERSONNEL	0	0	2	2	0.231	0.005	0.477	0.713
HEALTH PHYSICS PERSONNEL	39	0	15	54	9.665	0.000	3.754	13.419
SUPERVISORY PERSONNEL	3	0	1	4	0.874	0.000	0.482	1.356
ENGINEERING PERSONNEL	2	0	4	6	0.692	0.099	1.361	2.152
TOTAL	105	4	110	219	32.555	0.887	44.390	77.832
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	1	0	34	35	0.732	0.000	9.453	10.185
OPERATIONS PERSONNEL	0	0	4	4	0.037	0.000	1.576	1.613
HEALTH PHYSICS PERSONNEL	5	0	10	15	2.004	0.000	3.346	5.350
SUPERVISORY PERSONNEL	0	0	2	2	0.038	0.000	1.521	1.559
ENGINEERING PERSONNEL	0	9	47	56	0.157	5.626	21.282	27.065
TOTAL	6	9	97	112	2.968	5.626	37.178	45.772
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	11	0	96	107	5.432	0.042	44.303	49.777
OPERATIONS PERSONNEL	0	0	3	3	0.189	0.010	1.859	2.058
HEALTH PHYSICS PERSONNEL	4	0	13	17	1.265	0.000	3.404	4.669
SUPERVISORY PERSONNEL	1	0	2	3	0.341	0.000	0.516	0.857
ENGINEERING PERSONNEL	2	2	51	55	0.500	0.473	14.251	15.224
TOTAL	18	2	165	185	7.727	0.525	64.333	72.585
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.004	0.001	0.001	0.006
HEALTH PHYSICS PERSONNEL	7	0	0	7	2.109	0.000	0.000	2.109
SUPERVISORY PERSONNEL	0	0	0	0	0.010	0.000	0.000	0.010
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.044	0.044
TOTAL	7	0	0	7	2.123	0.001	0.045	2.169
REFUELING								
MAINTENANCE PERSONNEL	12	0	1	13	3.824	0.078	0.549	4.451
OPERATIONS PERSONNEL	15	0	3	18	4.358	0.000	0.724	5.082
HEALTH PHYSICS PERSONNEL	1	0	22	23	0.390	0.000	16.539	16.929
SUPERVISORY PERSONNEL	6	0	3	9	1.230	0.000	1.533	2.763
ENGINEERING PERSONNEL	2	0	34	36	0.724	0.004	29.973	30.701
TOTAL	36	0	63	99	10.526	0.082	49.318	59.926
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	89	4	221	314	32.188	0.903	93.571	126.662
OPERATIONS PERSONNEL	46	0	12	58	13.962	0.094	5.063	19.119
HEALTH PHYSICS PERSONNEL	86	0	101	187	22.462	0.000	40.558	63.020
SUPERVISORY PERSONNEL	16	0	9	25	4.371	0.006	4.336	8.713
ENGINEERING PERSONNEL	8	12	137	157	3.129	6.422	67.994	77.545
GRAND TOTALS	245	16	480	741	76.112	7.425	211.522	295.059

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *PALO VERDE 1,2,3 TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	3	0	0	3	0.925	0.000	0.835	1.760
OPERATIONS PERSONNEL	66	0	1	67	16.640	0.000	0.446	17.086
HEALTH PHYSICS PERSONNEL	59	0	54	113	15.254	0.000	13.895	29.149
SUPERVISORY PERSONNEL	2	0	0	2	1.290	0.000	0.120	1.410
ENGINEERING PERSONNEL	1	0	1	2	1.165	0.000	0.680	1.845
TOTAL	131	0	56	187	35.274	0.000	15.976	51.250
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	151	0	438	589	53.608	0.000	238.499	292.107
OPERATIONS PERSONNEL	24	0	6	30	9.110	0.000	3.097	12.207
HEALTH PHYSICS PERSONNEL	74	0	106	180	28.460	0.000	39.465	67.925
SUPERVISORY PERSONNEL	12	0	7	19	5.355	0.000	5.314	10.669
ENGINEERING PERSONNEL	13	0	23	36	6.584	0.000	12.091	18.675
TOTAL	274	0	580	854	103.117	0.000	298.466	401.583
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	39	39	0.440	0.000	13.265	13.705
OPERATIONS PERSONNEL	1	0	1	2	0.375	0.000	0.515	0.890
HEALTH PHYSICS PERSONNEL	2	0	7	9	1.050	0.000	2.455	3.505
SUPERVISORY PERSONNEL	0	0	1	1	0.105	0.000	0.110	0.215
ENGINEERING PERSONNEL	1	0	6	7	0.230	0.000	2.010	2.240
TOTAL	4	0	54	58	2.200	0.000	18.355	20.555
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.340	0.000	0.575	0.915
OPERATIONS PERSONNEL	0	0	0	0	0.060	0.000	0.045	0.105
HEALTH PHYSICS PERSONNEL	21	0	19	40	11.625	0.000	10.844	22.469
SUPERVISORY PERSONNEL	0	0	0	0	0.090	0.000	0.000	0.090
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	21	0	19	40	12.115	0.000	11.464	23.579
REFUELING								
MAINTENANCE PERSONNEL	7	0	46	53	2.195	0.000	14.691	16.886
OPERATIONS PERSONNEL	7	0	0	7	3.275	0.000	0.285	3.560
HEALTH PHYSICS PERSONNEL	7	0	7	14	1.860	0.000	2.795	4.655
SUPERVISORY PERSONNEL	6	0	1	7	1.560	0.000	0.505	2.065
ENGINEERING PERSONNEL	9	0	1	10	2.345	0.000	0.690	3.035
TOTAL	36	0	55	91	11.235	0.000	18.966	30.201
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	161	0	523	684	57.508	0.000	267.865	325.373
OPERATIONS PERSONNEL	98	0	8	106	29.460	0.000	4.388	33.848
HEALTH PHYSICS PERSONNEL	163	0	193	356	58.249	0.000	69.454	127.703
SUPERVISORY PERSONNEL	20	0	9	29	8.400	0.000	6.049	14.449
ENGINEERING PERSONNEL	24	0	31	55	10.324	0.000	15.471	25.795
GRAND TOTALS	466	0	764	1230	163.941	0.000	363.227	527.168

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *PEACH BOTTOM 2,3 TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM) STATION	UTILITY	CONTRACT	TOTAL	TOTAL PERSON-REM STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	107	85	204	396	7.235	6.223	24.284	37.742
OPERATIONS PERSONNEL	155	51	216	422	15.436	3.121	15.742	34.299
HEALTH PHYSICS PERSONNEL	113	7	99	219	23.936	0.835	14.843	39.614
SUPERVISORY PERSONNEL	13	10	37	60	0.480	0.361	0.855	1.696
ENGINEERING PERSONNEL	63	74	58	195	4.001	2.179	1.752	7.932
TOTAL	451	227	614	1292	51.088	12.719	57.476	121.283
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	120	200	352	672	14.075	8.700	19.896	42.671
OPERATIONS PERSONNEL	62	44	122	228	2.489	1.707	3.619	7.815
HEALTH PHYSICS PERSONNEL	57	3	57	117	5.133	0.153	3.602	8.888
SUPERVISORY PERSONNEL	6	3	8	17	0.211	0.142	0.201	0.554
ENGINEERING PERSONNEL	40	44	36	120	2.232	0.646	0.765	3.643
TOTAL	285	294	575	1154	24.140	11.348	28.083	63.571
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	7	4	8	19	0.532	0.071	0.027	0.630
OPERATIONS PERSONNEL	5	2	1	8	0.030	0.010	0.004	0.044
HEALTH PHYSICS PERSONNEL	18	0	3	21	0.189	0.000	0.019	0.208
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	4	3	4	11	0.216	0.026	0.128	0.370
TOTAL	34	9	16	59	0.967	0.107	0.178	1.252
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	130	238	435	803	21.090	19.465	54.298	94.853
OPERATIONS PERSONNEL	38	34	157	229	2.943	3.395	14.271	20.609
HEALTH PHYSICS PERSONNEL	61	5	70	136	6.656	0.411	4.555	11.622
SUPERVISORY PERSONNEL	2	6	13	21	0.240	0.438	0.769	1.447
ENGINEERING PERSONNEL	26	29	34	89	2.069	0.800	2.199	5.068
TOTAL	257	312	709	1278	32.998	24.509	76.092	133.599
WASTE PROCESSING								
MAINTENANCE PERSONNEL	14	43	37	94	0.269	1.176	2.442	3.887
OPERATIONS PERSONNEL	3	6	11	20	0.091	0.063	0.839	0.993
HEALTH PHYSICS PERSONNEL	20	1	21	42	1.372	0.024	0.856	2.252
SUPERVISORY PERSONNEL	0	2	0	2	0.000	0.033	0.000	0.033
ENGINEERING PERSONNEL	2	1	7	10	0.013	0.172	0.000	0.185
TOTAL	39	53	76	168	1.745	1.468	4.137	7.350
REFUELING								
MAINTENANCE PERSONNEL	110	153	492	755	19.691	41.835	52.743	114.269
OPERATIONS PERSONNEL	37	35	186	258	3.301	5.467	18.990	27.758
HEALTH PHYSICS PERSONNEL	43	4	79	126	6.021	0.460	13.992	20.473
SUPERVISORY PERSONNEL	2	9	16	27	0.262	1.512	0.818	2.592
ENGINEERING PERSONNEL	23	30	37	90	2.238	3.897	3.679	9.814
TOTAL	215	231	810	1256	31.513	53.171	90.222	174.906
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	488 (293)	723 (424)	1528 (1024)	2739(1741)	62.892	77.470	153.690	294.052
OPERATIONS PERSONNEL	300 (370)	172 (240)	693 (1261)	1165(1871)	24.290	13.763	53.465	91.518
HEALTH PHYSICS PERSONNEL	312 (149)	20 (20)	329 (149)	661 (318)	43.307	1.883	37.867	83.057
SUPERVISORY PERSONNEL	23 (22)	30 (43)	74 (109)	127 (174)	1.193	2.486	2.643	6.322
ENGINEERING PERSONNEL	158 (134)	181 (277)	176 (197)	515 (608)	10.769	7.720	8.523	27.012
GRAND TOTALS	1281 (968)	1126 (1004)	2800 (2740)	5207(4712)	142.451	103.322	256.188	501.961

*Workers may be counted in more than one category. Numbers in parentheses are total numbers of individuals.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *PERRY TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	44	8	31	83	0.904	0.000	2.938	3.842
OPERATIONS PERSONNEL	119	0	9	128	17.671	0.000	0.082	17.753
HEALTH PHYSICS PERSONNEL	43	0	91	134	4.522	0.000	1.875	6.397
SUPERVISORY PERSONNEL	0	0	1	1	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	3	27	6	36	0.040	0.825	0.020	0.885
TOTAL	209	35	138	382	23.137	0.825	4.915	28.877
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	100	20	344	464	4.616	0.415	10.067	15.098
OPERATIONS PERSONNEL	97	0	12	109	5.670	0.000	0.218	5.888
HEALTH PHYSICS PERSONNEL	37	0	112	149	0.710	0.000	4.961	5.671
SUPERVISORY PERSONNEL	0	0	2	2	0.000	0.000	0.097	0.097
ENGINEERING PERSONNEL	2	37	19	58	0.023	1.042	0.055	1.120
TOTAL	236	57	489	782	11.019	1.457	15.398	27.874
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	42	0	327	369	0.435	0.000	69.904	70.339
OPERATIONS PERSONNEL	14	0	5	19	0.220	0.000	0.155	0.375
HEALTH PHYSICS PERSONNEL	17	0	48	65	0.640	0.000	3.515	4.155
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	2	24	23	49	0.090	0.959	6.335	7.384
TOTAL	75	24	403	502	1.385	0.959	79.909	82.253
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	102	20	570	692	38.460	2.620	230.015	271.095
OPERATIONS PERSONNEL	122	0	14	136	16.323	0.000	2.600	18.923
HEALTH PHYSICS PERSONNEL	43	0	143	186	8.583	0.000	41.762	50.345
SUPERVISORY PERSONNEL	0	0	2	2	0.000	0.000	0.130	0.130
ENGINEERING PERSONNEL	3	41	28	72	0.795	8.189	6.407	15.391
TOTAL	270	61	757	1088	64.161	10.809	280.914	355.884
WASTE PROCESSING								
MAINTENANCE PERSONNEL	62	7	47	116	1.021	0.580	2.080	3.681
OPERATIONS PERSONNEL	34	0	1	35	1.815	0.000	0.000	1.815
HEALTH PHYSICS PERSONNEL	35	0	47	82	2.202	0.000	0.980	3.182
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	6	0	6	0.000	0.051	0.000	0.051
TOTAL	131	13	95	239	5.038	0.631	3.060	8.729
REFUELING								
MAINTENANCE PERSONNEL	88	8	342	438	6.637	0.030	53.575	60.242
OPERATIONS PERSONNEL	123	0	13	136	4.305	0.000	0.355	4.660
HEALTH PHYSICS PERSONNEL	34	0	121	155	2.535	0.000	12.443	14.978
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	2	23	9	34	0.045	1.900	0.255	2.200
TOTAL	247	31	485	763	13.522	1.930	66.628	82.080
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	438	63	1661	2162	52.073	3.645	368.579	424.297
OPERATIONS PERSONNEL	509	0	54	563	46.004	0.000	3.410	49.414
HEALTH PHYSICS PERSONNEL	209	0	562	771	19.192	0.000	65.536	84.728
SUPERVISORY PERSONNEL	0	0	5	5	0.000	0.000	0.227	0.227
ENGINEERING PERSONNEL	12	158	85	255	0.993	12.966	13.072	27.031
GRAND TOTALS	1168	221	2367	3756	118.262	16.611	450.824	585.697

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *PILGRIM

TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	4	0	0	4	1.677	0.040	0.390	2.107
OPERATIONS PERSONNEL	55	0	0	55	20.950	0.001	0.460	21.411
HEALTH PHYSICS PERSONNEL	32	0	7	39	9.309	0.000	2.019	11.328
SUPERVISORY PERSONNEL	5	0	1	6	2.833	0.085	0.419	3.337
ENGINEERING PERSONNEL	3	0	0	3	1.283	0.090	0.171	1.544
TOTAL	99	0	8	107	36.052	0.216	3.459	39.727
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	106	6	176	288	50.714	2.936	53.672	107.322
OPERATIONS PERSONNEL	27	0	2	29	6.275	0.038	3.592	9.905
HEALTH PHYSICS PERSONNEL	28	0	6	34	7.426	0.000	2.261	9.687
SUPERVISORY PERSONNEL	17	2	15	34	5.769	0.599	3.613	9.981
ENGINEERING PERSONNEL	20	1	5	26	7.154	0.283	2.510	9.947
TOTAL	198	9	204	411	77.338	3.856	65.648	146.842
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	66	66	0.243	0.000	24.674	24.917
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.011	0.011
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.206	0.000	0.060	0.266
SUPERVISORY PERSONNEL	0	0	2	2	0.000	0.000	1.008	1.008
ENGINEERING PERSONNEL	1	0	2	3	0.485	0.029	0.673	1.187
TOTAL	1	0	70	71	0.934	0.029	26.426	27.389
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
WASTE PROCESSING								
MAINTENANCE PERSONNEL	6	0	9	15	1.286	0.091	1.517	2.894
OPERATIONS PERSONNEL	9	1	1	11	5.363	0.495	0.198	6.056
HEALTH PHYSICS PERSONNEL	2	0	0	2	0.889	0.000	0.005	0.894
SUPERVISORY PERSONNEL	2	0	0	2	0.797	0.000	0.071	0.868
ENGINEERING PERSONNEL	1	0	0	1	0.366	0.000	0.000	0.366
TOTAL	20	1	10	31	8.701	0.586	1.791	11.078
REFUELING								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	116	6	251	373	53.920	3.067	80.253	137.240
OPERATIONS PERSONNEL	91	1	3	95	32.588	0.534	4.261	37.383
HEALTH PHYSICS PERSONNEL	62	0	13	75	17.830	0.000	4.345	22.175
SUPERVISORY PERSONNEL	24	2	18	44	9.399	0.684	5.111	15.194
ENGINEERING PERSONNEL	25	1	7	33	9.288	0.402	3.354	13.044
GRAND TOTALS	318	10	292	620	123.025	4.687	97.324	225.036

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *POINT BEACH 1,2 TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM) STATION	UTILITY	CONTRACT	TOTAL	TOTAL PERSON-REM STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	1.210	0.150	1.360
OPERATIONS PERSONNEL	0	0	0	0	18.400	0.000	0.000	18.400
HEALTH PHYSICS PERSONNEL	0	0	0	0	18.540	0.000	0.000	18.540
SUPERVISORY PERSONNEL	0	0	0	0	0.150	0.000	0.000	0.150
ENGINEERING PERSONNEL	0	0	0	0	0.090	0.000	0.000	0.090
TOTAL	0	0	0	0	37.180	1.210	0.150	38.540
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	0	0	38.020	25.710	0.000	63.730
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	2.030	0.000	0.000	2.030
TOTAL	0	0	0	0	40.050	25.710	0.000	65.760
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	0	0	2.390	1.180	30.040	33.610
OPERATIONS PERSONNEL	0	0	0	0	7.110	0.000	0.000	7.110
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.100	0.000	0.000	0.100
ENGINEERING PERSONNEL	0	0	0	0	2.840	0.000	0.000	2.840
TOTAL	0	0	0	0	12.440	1.180	30.040	43.660
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	86.040	86.040
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.080	0.000	0.000	0.080
TOTAL	0	0	0	0	0.080	0.000	86.040	86.120
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	1.140	1.140
OPERATIONS PERSONNEL	0	0	0	0	0.200	0.000	0.000	0.200
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.850	0.000	0.000	0.850
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	1.050	0.000	1.140	2.190
REFUELING								
MAINTENANCE PERSONNEL	0	0	0	0	16.230	0.000	0.000	16.230
OPERATIONS PERSONNEL	0	0	0	0	2.740	0.000	0.000	2.740
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.280	0.000	0.000	0.280
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	19.250	0.000	0.000	19.250
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	0 (43)	0 (28)	0 (231)	0 (302)	56.640	28.100	117.370	202.110
OPERATIONS PERSONNEL	0 (73)	0 (0)	0 (0)	0 (73)	28.450	0.000	0.000	28.450
HEALTH PHYSICS PERSONNEL	0 (26)	0 (0)	0 (0)	0 (26)	19.390	0.000	0.000	19.390
SUPERVISORY PERSONNEL	0 (2)	0 (0)	0 (0)	0 (2)	0.530	0.000	0.000	0.530
ENGINEERING PERSONNEL	0 (26)	0 (0)	0 (0)	0 (26)	5.040	0.000	0.000	5.040
GRAND TOTALS	0 (170)	0 (28)	0 (231)	0 (429)	110.050	28.100	117.370	255.520

*Workers may be counted in more than one category. Numbers in parentheses are total numbers of individuals.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *PRAIRIE ISLAND 1,2 TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	0	2	0	2	1.423	0.824	0.000	2.247
OPERATIONS PERSONNEL	18	0	0	18	5.276	0.000	0.005	5.281
HEALTH PHYSICS PERSONNEL	7	0	4	11	1.840	0.000	1.238	3.078
SUPERVISORY PERSONNEL	0	1	0	1	0.428	0.425	0.404	1.257
ENGINEERING PERSONNEL	0	0	0	0	0.213	0.000	0.008	0.221
TOTAL	25	3	4	32	9.180	1.249	1.655	12.084
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	18	23	1	42	5.618	8.654	0.930	15.202
OPERATIONS PERSONNEL	0	0	0	0	0.029	0.000	0.000	0.029
HEALTH PHYSICS PERSONNEL	0	0	1	1	0.038	0.000	0.562	0.600
SUPERVISORY PERSONNEL	1	0	5	6	0.926	0.341	1.613	2.880
ENGINEERING PERSONNEL	9	0	0	9	1.746	0.045	0.021	1.812
TOTAL	28	23	7	58	8.357	9.040	3.126	20.523
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	7	40	35	82	2.999	13.979	13.073	30.051
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	1	1	20	22	0.151	0.219	4.868	5.238
SUPERVISORY PERSONNEL	2	2	32	36	0.623	0.486	12.737	13.846
ENGINEERING PERSONNEL	0	0	25	25	0.000	0.000	12.925	12.925
TOTAL	10	43	112	165	3.773	14.684	43.603	62.060
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	27	112	25	164	8.338	43.083	8.363	59.784
OPERATIONS PERSONNEL	2	0	0	2	1.282	0.000	0.000	1.282
HEALTH PHYSICS PERSONNEL	9	1	34	44	2.230	0.243	9.234	11.707
SUPERVISORY PERSONNEL	8	3	10	21	2.864	0.729	3.328	6.921
ENGINEERING PERSONNEL	2	0	3	5	0.692	0.002	1.163	1.857
TOTAL	48	116	72	236	15.406	44.057	22.088	81.551
WASTE PROCESSING								
MAINTENANCE PERSONNEL	5	0	0	5	1.222	0.275	0.000	1.497
OPERATIONS PERSONNEL	0	0	0	0	0.059	0.000	0.012	0.071
HEALTH PHYSICS PERSONNEL	1	0	0	1	0.598	0.000	0.072	0.670
SUPERVISORY PERSONNEL	0	0	0	0	0.009	0.009	0.000	0.018
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	6	0	0	6	1.888	0.284	0.084	2.256
REFUELING								
MAINTENANCE PERSONNEL	36	37	1	74	16.685	11.929	0.390	29.004
OPERATIONS PERSONNEL	1	0	0	1	0.952	0.000	0.000	0.952
HEALTH PHYSICS PERSONNEL	0	0	3	3	0.281	0.005	1.012	1.298
SUPERVISORY PERSONNEL	6	0	0	6	1.093	0.270	0.123	1.486
ENGINEERING PERSONNEL	0	0	0	0	0.151	0.010	0.000	0.161
TOTAL	43	37	4	84	19.162	12.214	1.525	32.901
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	93	214	62	369	36.285	78.744	22.756	137.785
OPERATIONS PERSONNEL	21	0	0	21	7.598	0.000	0.017	7.615
HEALTH PHYSICS PERSONNEL	18	2	62	82	5.138	0.467	16.986	22.591
SUPERVISORY PERSONNEL	17	6	47	70	5.943	2.260	18.205	26.408
ENGINEERING PERSONNEL	11	0	28	39	2.802	0.057	14.117	16.976
GRAND TOTALS	160	222	199	581	57.766	81.528	72.081	211.375

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *QUAD CITIES 1,2 TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	7	31	47	85	9.224	0.165	17.093	26.482
OPERATIONS PERSONNEL	154	0	215	369	47.042	0.000	16.222	63.264
HEALTH PHYSICS PERSONNEL	40	0	25	65	42.509	0.000	8.967	51.476
SUPERVISORY PERSONNEL	69	40	11	120	10.933	0.436	0.805	12.174
ENGINEERING PERSONNEL	60	39	27	126	11.740	1.026	2.181	14.947
TOTAL	330	110	325	765	121.448	1.627	45.268	168.343
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	111	130	1030	1271	141.087	0.696	371.823	513.606
OPERATIONS PERSONNEL	18	0	1	19	5.430	0.000	0.035	5.465
HEALTH PHYSICS PERSONNEL	16	0	12	28	16.580	0.000	4.194	20.774
SUPERVISORY PERSONNEL	140	29	62	231	22.341	0.314	4.533	27.188
ENGINEERING PERSONNEL	28	90	54	172	5.541	2.380	4.347	12.268
TOTAL	313	249	1159	1721	190.979	3.390	384.932	579.301
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	1	9	181	191	0.212	0.050	65.217	65.479
OPERATIONS PERSONNEL	1	0	0	1	0.207	0.000	0.000	0.207
HEALTH PHYSICS PERSONNEL	1	0	1	2	0.540	0.000	0.001	0.541
SUPERVISORY PERSONNEL	1	11	8	20	0.216	0.124	0.570	0.910
ENGINEERING PERSONNEL	12	83	38	133	2.232	2.193	3.091	7.516
TOTAL	16	103	228	347	3.407	2.367	68.879	74.653
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	11	6	623	640	14.379	0.031	225.079	239.489
OPERATIONS PERSONNEL	3	0	2	5	0.797	0.000	0.118	0.915
HEALTH PHYSICS PERSONNEL	3	0	20	23	3.224	0.000	7.160	10.384
SUPERVISORY PERSONNEL	17	1	106	124	2.778	0.002	7.761	10.541
ENGINEERING PERSONNEL	11	67	116	194	2.050	1.772	9.332	13.154
TOTAL	45	74	867	986	23.228	1.805	249.450	274.483
WASTE PROCESSING								
MAINTENANCE PERSONNEL	1	5	7	13	0.051	0.025	2.558	2.634
OPERATIONS PERSONNEL	31	0	30	61	9.408	0.000	2.297	11.705
HEALTH PHYSICS PERSONNEL	2	0	0	2	2.215	0.000	0.000	2.215
SUPERVISORY PERSONNEL	24	1	0	25	3.784	0.004	0.000	3.788
ENGINEERING PERSONNEL	1	1	1	3	0.008	0.002	0.005	0.015
TOTAL	59	7	38	104	15.466	0.031	4.860	20.357
REFUELING								
MAINTENANCE PERSONNEL	21	0	2	23	25.738	0.000	0.562	26.300
OPERATIONS PERSONNEL	20	0	0	20	6.221	0.000	0.000	6.221
HEALTH PHYSICS PERSONNEL	3	0	1	4	2.698	0.000	0.001	2.699
SUPERVISORY PERSONNEL	26	0	1	27	4.017	0.000	0.012	4.029
ENGINEERING PERSONNEL	1	2	1	4	0.141	0.044	0.086	0.271
TOTAL	71	2	5	78	38.815	0.044	0.661	39.520
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	152	181	1890	2223	190.691	0.967	682.332	873.990
OPERATIONS PERSONNEL	227	0	248	475	69.105	0.000	18.672	87.777
HEALTH PHYSICS PERSONNEL	65	0	59	124	67.766	0.000	20.323	88.089
SUPERVISORY PERSONNEL	277	82	188	547	44.069	0.880	13.681	58.630
ENGINEERING PERSONNEL	113	282	237	632	21.712	7.417	19.042	48.171
GRAND TOTALS	834	545	2622	4001	393.343	9.264	754.050	1156.657

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *RANCHO SECO

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	31	0	4	35	0.437	0.000	0.000	0.437
OPERATIONS PERSONNEL	65	0	6	71	1.028	0.000	0.000	1.028
HEALTH PHYSICS PERSONNEL	26	0	1	27	1.370	0.000	0.037	1.407
SUPERVISORY PERSONNEL	15	0	7	22	0.046	0.000	0.000	0.046
ENGINEERING PERSONNEL	42	0	39	81	0.021	0.000	0.016	0.037
TOTAL	179	0	57	236	2.902	0.000	0.053	2.955
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	9	0	0	9	0.497	0.000	0.000	0.497
OPERATIONS PERSONNEL	1	0	0	1	0.063	0.000	0.000	0.063
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.051	0.000	0.000	0.051
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	10	0	0	10	0.611	0.000	0.000	0.611
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.050	0.000	0.000	0.050
OPERATIONS PERSONNEL	7	0	0	7	0.546	0.000	0.000	0.546
HEALTH PHYSICS PERSONNEL	4	0	0	4	0.692	0.000	0.000	0.692
SUPERVISORY PERSONNEL	1	0	0	1	0.016	0.000	0.000	0.016
ENGINEERING PERSONNEL	1	0	0	1	0.052	0.000	0.000	0.052
TOTAL	13	0	0	13	1.356	0.000	0.000	1.356
REFUELING								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	40	0	4	44	0.984	0.000	0.000	0.984
OPERATIONS PERSONNEL	73	0	6	79	1.637	0.000	0.000	1.637
HEALTH PHYSICS PERSONNEL	30	0	1	31	2.113	0.000	0.037	2.150
SUPERVISORY PERSONNEL	16	0	7	23	0.062	0.000	0.000	0.062
ENGINEERING PERSONNEL	43	0	39	82	0.073	0.000	0.016	0.089
GRAND TOTALS	202	0	57	259	4.869	0.000	0.053	4.922

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *RIVER BEND 1 TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM) STATION	UTILITY	CONTRACT	TOTAL	TOTAL PERSON-REM STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	6	0	11	17	2.922	0.026	5.773	8.721
OPERATIONS PERSONNEL	47	0	1	48	19.094	0.000	0.108	19.202
HEALTH PHYSICS PERSONNEL	20	0	50	70	11.314	0.000	29.628	40.942
SUPERVISORY PERSONNEL	0	1	1	2	0.000	0.079	0.090	0.169
ENGINEERING PERSONNEL	6	3	6	15	2.193	1.231	2.904	6.328
TOTAL	79	4	69	152	35.523	1.336	38.503	75.362
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	11	0	53	64	6.029	0.000	29.465	35.494
OPERATIONS PERSONNEL	0	0	0	0	0.013	0.000	0.000	0.013
HEALTH PHYSICS PERSONNEL	0	0	6	6	0.340	0.000	2.299	2.639
SUPERVISORY PERSONNEL	1	0	1	2	0.069	0.000	0.108	0.177
ENGINEERING PERSONNEL	0	1	16	17	0.052	0.241	12.119	12.412
TOTAL	12	1	76	89	6.503	0.241	43.991	50.735
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	6	0	94	100	3.300	0.000	70.212	73.512
OPERATIONS PERSONNEL	3	0	0	3	0.951	0.000	0.000	0.951
HEALTH PHYSICS PERSONNEL	3	0	5	8	1.695	0.000	2.058	3.753
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.069	0.069
ENGINEERING PERSONNEL	3	3	37	43	0.596	0.919	57.186	58.701
TOTAL	15	3	136	154	6.542	0.919	129.525	136.986
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	60	1	328	389	58.681	0.245	262.481	321.407
OPERATIONS PERSONNEL	11	0	1	12	4.854	0.000	2.139	6.993
HEALTH PHYSICS PERSONNEL	12	0	25	37	6.477	0.000	13.213	19.690
SUPERVISORY PERSONNEL	0	0	1	1	0.043	0.009	0.495	0.547
ENGINEERING PERSONNEL	6	7	38	51	1.222	1.642	17.643	20.507
TOTAL	89	8	393	490	71.277	1.896	295.971	369.144
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	33	33	0.189	0.000	19.322	19.511
OPERATIONS PERSONNEL	4	0	5	9	0.046	0.000	5.620	5.666
HEALTH PHYSICS PERSONNEL	1	0	9	10	0.011	0.000	5.478	5.489
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.082	0.082
TOTAL	5	0	47	52	0.246	0.000	30.502	30.748
REFUELING								
MAINTENANCE PERSONNEL	0	0	41	41	0.125	0.000	18.283	18.408
OPERATIONS PERSONNEL	3	0	0	3	0.440	0.000	0.000	0.440
HEALTH PHYSICS PERSONNEL	1	0	5	6	0.588	0.000	2.535	3.123
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.060	0.060
ENGINEERING PERSONNEL	4	1	22	27	0.602	0.219	6.310	7.131
TOTAL	8	1	68	77	1.755	0.219	27.188	29.162
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	83	1	560	644	71.246	0.271	405.536	477.053
OPERATIONS PERSONNEL	68	0	7	75	25.398	0.000	7.867	33.265
HEALTH PHYSICS PERSONNEL	37	0	100	137	20.425	0.000	55.211	75.636
SUPERVISORY PERSONNEL	1	1	3	5	0.112	0.088	0.822	1.022
ENGINEERING PERSONNEL	19	15	119	153	4.665	4.252	96.244	105.161
GRAND TOTALS	208	17	789	1014	121.846	4.611	565.680	692.137

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *ROBINSON 2 TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	10	1	3	14	4.600	0.340	2.467	7.407
OPERATIONS PERSONNEL	36	0	0	36	12.955	0.000	2.692	15.647
HEALTH PHYSICS PERSONNEL	24	0	38	62	9.820	0.090	15.745	25.655
SUPERVISORY PERSONNEL	2	0	0	2	0.375	0.015	0.110	0.500
ENGINEERING PERSONNEL	6	0	5	11	3.040	0.340	2.580	5.960
TOTAL	78	1	46	125	30.790	0.785	23.594	55.169
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	5	1	17	23	1.771	0.505	5.140	7.416
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.045	0.045
HEALTH PHYSICS PERSONNEL	0	0	1	1	0.350	0.000	0.270	0.620
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.015	0.015
ENGINEERING PERSONNEL	0	0	0	0	0.110	0.120	0.480	0.710
TOTAL	5	1	18	24	2.231	0.625	5.950	8.806
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	0	0	0.025	0.010	0.000	0.035
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.020	0.000	0.000	0.020
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.020	0.000	0.020	0.040
TOTAL	0	0	0	0	0.065	0.010	0.020	0.095
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	30	1	25	56	9.670	0.780	9.820	20.270
OPERATIONS PERSONNEL	0	0	1	1	0.976	0.000	0.200	1.176
HEALTH PHYSICS PERSONNEL	11	0	10	21	3.811	0.000	2.415	6.226
SUPERVISORY PERSONNEL	0	0	0	0	0.005	0.000	0.060	0.065
ENGINEERING PERSONNEL	2	1	10	13	0.755	0.290	2.995	4.040
TOTAL	43	2	46	91	15.217	1.070	15.490	31.777
WASTE PROCESSING								
MAINTENANCE PERSONNEL	1	0	0	1	0.340	0.245	0.230	0.815
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	1	0	0	1	0.545	0.000	0.070	0.615
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	1	1	0.030	0.000	0.290	0.320
TOTAL	2	0	1	3	0.915	0.245	0.590	1.750
REFUELING								
MAINTENANCE PERSONNEL	49	38	326	413	20.365	17.045	163.351	200.761
OPERATIONS PERSONNEL	5	0	17	22	2.155	0.000	5.180	7.335
HEALTH PHYSICS PERSONNEL	4	0	27	31	1.575	0.000	8.055	9.630
SUPERVISORY PERSONNEL	0	0	1	1	0.035	0.150	0.265	0.450
ENGINEERING PERSONNEL	20	2	141	163	5.835	0.825	57.970	64.630
TOTAL	78	40	512	630	29.965	18.020	234.821	282.806
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	95	41	371	507	36.771	18.925	181.008	236.704
OPERATIONS PERSONNEL	41	0	18	59	16.086	0.000	8.117	24.203
HEALTH PHYSICS PERSONNEL	40	0	76	116	16.121	0.090	26.555	42.766
SUPERVISORY PERSONNEL	2	0	1	3	0.415	0.165	0.450	1.030
ENGINEERING PERSONNEL	28	3	157	188	9.790	1.575	64.335	75.700
GRAND TOTALS	206	44	623	873	79.183	20.755	280.465	380.403

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *SALEM 1,2 TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	17	0	4	21	8.304	0.023	5.416	13.743
OPERATIONS PERSONNEL	0	0	0	0	0.109	0.000	0.047	0.156
HEALTH PHYSICS PERSONNEL	4	0	0	4	1.321	0.000	0.369	1.690
SUPERVISORY PERSONNEL	0	0	0	0	0.004	0.012	0.008	0.024
ENGINEERING PERSONNEL	0	0	0	0	0.209	0.043	0.047	0.299
TOTAL	21	0	4	25	9.947	0.078	5.887	15.912
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	6	0	20	26	7.728	0.266	15.474	23.468
OPERATIONS PERSONNEL	0	0	0	0	3.376	0.000	0.861	4.237
HEALTH PHYSICS PERSONNEL	15	0	8	23	6.384	0.306	6.172	12.862
SUPERVISORY PERSONNEL	0	0	0	0	0.037	0.069	0.059	0.165
ENGINEERING PERSONNEL	0	0	0	0	0.342	0.055	0.123	0.520
TOTAL	21	0	28	49	17.867	0.696	22.689	41.252
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	0	0	0.034	0.000	0.032	0.066
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.008	0.000	0.000	0.008
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.042	0.000	0.032	0.074
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	6	0	2	8	2.499	0.005	1.467	3.971
OPERATIONS PERSONNEL	0	0	0	0	0.109	0.000	0.158	0.267
HEALTH PHYSICS PERSONNEL	11	0	5	16	2.536	0.000	1.213	3.749
SUPERVISORY PERSONNEL	0	0	0	0	0.014	0.010	0.000	0.024
ENGINEERING PERSONNEL	0	0	0	0	0.065	0.000	0.005	0.070
TOTAL	17	0	7	24	5.223	0.015	2.843	8.081
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.114	0.000	0.004	0.118
OPERATIONS PERSONNEL	0	0	0	0	0.012	0.000	0.014	0.026
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.064	0.000	0.064	0.128
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.022	0.000	0.000	0.022
TOTAL	0	0	0	0	0.212	0.000	0.082	0.294
REFUELING								
MAINTENANCE PERSONNEL	95	0	695	790	31.882	0.307	276.059	308.248
OPERATIONS PERSONNEL	8	0	0	8	5.392	0.000	0.904	6.296
HEALTH PHYSICS PERSONNEL	40	0	69	109	13.686	0.001	25.725	39.412
SUPERVISORY PERSONNEL	2	7	1	10	0.407	1.895	0.683	2.985
ENGINEERING PERSONNEL	6	1	5	12	2.495	0.510	2.331	5.336
TOTAL	151	8	770	929	53.862	2.713	305.702	362.277
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	124	0	721	845	50.561	0.601	298.452	349.614
OPERATIONS PERSONNEL	8	0	0	8	8.998	0.000	1.984	10.982
HEALTH PHYSICS PERSONNEL	70	0	82	152	23.999	0.307	33.543	57.849
SUPERVISORY PERSONNEL	2	7	1	10	0.462	1.986	0.750	3.198
ENGINEERING PERSONNEL	6	1	5	12	3.133	0.608	2.506	6.247
GRAND TOTALS	210	8	809	1027	87.153	3.502	337.235	427.890

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *SAN ONOFRE 1,2,3 TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM) STATION	UTILITY	CONTRACT	TOTAL	TOTAL PERSON-REM STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	20	5	9	34	0.652	0.035	0.082	0.769
OPERATIONS PERSONNEL	6	1	0	7	0.117	0.015	0.000	0.132
HEALTH PHYSICS PERSONNEL	17	0	9	26	1.165	0.000	0.583	1.748
SUPERVISORY PERSONNEL	2	0	1	3	0.320	0.000	0.013	0.333
ENGINEERING PERSONNEL	13	2	9	24	0.733	0.089	0.281	1.103
TOTAL	58	8	28	94	2.987	0.139	0.959	4.085
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	70	14	202	286	6.511	1.404	21.764	29.679
OPERATIONS PERSONNEL	31	11	1	43	6.653	3.266	0.431	10.350
HEALTH PHYSICS PERSONNEL	55	2	179	236	14.008	0.441	37.960	52.409
SUPERVISORY PERSONNEL	4	0	2	6	0.465	0.000	0.013	0.478
ENGINEERING PERSONNEL	31	4	27	62	3.610	0.254	2.830	6.694
TOTAL	191	31	411	633	31.247	5.365	62.998	99.610
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	17	3	75	95	0.193	0.078	19.196	19.467
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	2	0	1	3	0.053	0.000	0.001	0.054
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	15	2	15	32	0.725	0.219	3.729	4.673
TOTAL	34	5	91	130	0.971	0.297	22.926	24.194
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	56	13	188	257	11.595	4.824	36.172	52.591
OPERATIONS PERSONNEL	5	5	0	10	0.069	0.066	0.000	0.135
HEALTH PHYSICS PERSONNEL	32	0	104	136	2.100	0.000	6.658	8.758
SUPERVISORY PERSONNEL	3	0	3	6	0.522	0.000	0.693	1.215
ENGINEERING PERSONNEL	23	2	33	58	4.059	0.018	8.051	12.128
TOTAL	119	20	328	467	18.345	4.908	51.574	74.827
WASTE PROCESSING								
MAINTENANCE PERSONNEL	5	1	18	24	0.016	0.000	0.522	0.538
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	26	2	110	138	5.876	0.483	31.875	38.234
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	2	0	2	4	0.025	0.000	0.090	0.115
TOTAL	33	3	130	166	5.917	0.483	32.487	38.887
REFUELING								
MAINTENANCE PERSONNEL	33	2	97	132	9.598	0.005	30.007	39.610
OPERATIONS PERSONNEL	1	1	0	2	0.126	0.004	0.000	0.130
HEALTH PHYSICS PERSONNEL	11	1	35	47	0.586	0.009	2.610	3.205
SUPERVISORY PERSONNEL	0	0	2	2	0.000	0.000	0.102	0.102
ENGINEERING PERSONNEL	13	2	8	23	4.214	0.119	2.031	6.364
TOTAL	58	6	142	206	14.524	0.137	34.750	49.411
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	201 (86)	38 (14)	589 (291)	828 (391)	28.565	6.346	107.743	142.654
OPERATIONS PERSONNEL	43 (32)	18 (11)	1 (1)	62 (44)	6.965	3.351	0.431	10.747
HEALTH PHYSICS PERSONNEL	143 (55)	5 (2)	438 (184)	586 (241)	23.788	0.933	79.687	104.408
SUPERVISORY PERSONNEL	9 (4)	0 (0)	8 (4)	17 (8)	1.307	0.000	0.821	2.128
ENGINEERING PERSONNEL	97 (37)	12 (5)	94 (54)	203 (96)	13.366	0.699	17.012	31.077
GRAND TOTALS	493 (214)	73 (32)	1130 (534)	1696 (780)	73.991	11.329	205.694	291.014

*Workers may be counted in more than one category. Numbers in parentheses are total numbers of individuals.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *SEABROOK

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)								TOTAL PERSON-REM			
	STATION		UTILITY		CONTRACT		TOTAL		STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV												
MAINTENANCE PERSONNEL	15		2		36		53		0.031	0.007	0.020	0.058
OPERATIONS PERSONNEL	7		3		6		16		0.000	0.005	0.000	0.005
HEALTH PHYSICS PERSONNEL	4		0		9		13		0.005	0.000	0.075	0.080
SUPERVISORY PERSONNEL	4		1		0		5		0.025	0.020	0.000	0.045
ENGINEERING PERSONNEL	3		1		5		9		0.005	0.000	0.005	0.010
TOTAL	33		7		56		96		0.066	0.032	0.100	0.198
ROUTINE MAINTENANCE												
MAINTENANCE PERSONNEL	27		2		177		206		4.998	0.280	62.024	67.302
OPERATIONS PERSONNEL	23		4		13		40		3.195	0.645	2.997	6.837
HEALTH PHYSICS PERSONNEL	12		0		62		74		2.820	0.000	17.611	20.431
SUPERVISORY PERSONNEL	5		1		0		6		0.390	0.095	0.000	0.485
ENGINEERING PERSONNEL	3		1		60		64		0.585	0.130	9.901	10.616
TOTAL	70		8		312		390		11.988	1.150	92.533	105.671
IN-SERVICE INSPECTION												
MAINTENANCE PERSONNEL	5		0		13		18		0.030	0.000	0.699	0.729
OPERATIONS PERSONNEL	2		2		1		5		0.010	0.020	0.160	0.190
HEALTH PHYSICS PERSONNEL	1		0		3		4		0.000	0.000	0.035	0.035
SUPERVISORY PERSONNEL	1		0		0		1		0.015	0.000	0.000	0.015
ENGINEERING PERSONNEL	1		0		4		5		0.000	0.000	0.025	0.025
TOTAL	10		2		21		33		0.055	0.020	0.919	0.994
SPECIAL MAINTENANCE												
MAINTENANCE PERSONNEL	4		1		15		20		0.185	0.090	0.553	0.828
OPERATIONS PERSONNEL	0		0		0		0		0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	1		0		17		18		0.020	0.000	1.505	1.525
SUPERVISORY PERSONNEL	1		0		0		1		0.060	0.000	0.000	0.060
ENGINEERING PERSONNEL	0		0		41		41		0.000	0.000	12.250	12.250
TOTAL	6		1		73		80		0.265	0.090	14.308	14.663
WASTE PROCESSING												
MAINTENANCE PERSONNEL	10		0		21		31		0.460	0.000	1.138	1.598
OPERATIONS PERSONNEL	4		0		1		5		0.175	0.000	0.225	0.400
HEALTH PHYSICS PERSONNEL	6		0		17		23		0.065	0.000	0.655	0.720
SUPERVISORY PERSONNEL	0		0		0		0		0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0		0		1		1		0.000	0.000	0.000	0.000
TOTAL	20		0		40		60		0.700	0.000	2.018	2.718
REFUELING												
MAINTENANCE PERSONNEL	17		0		48		65		1.045	0.000	3.642	4.687
OPERATIONS PERSONNEL	18		0		2		20		0.637	0.000	0.000	0.637
HEALTH PHYSICS PERSONNEL	0		0		12		12		0.000	0.000	0.155	0.155
SUPERVISORY PERSONNEL	3		1		0		4		0.395	0.085	0.000	0.480
ENGINEERING PERSONNEL	2		0		6		8		0.010	0.000	0.581	0.591
TOTAL	40		1		68		109		2.087	0.085	4.378	6.550
TOTAL BY JOB FUNCTION												
MAINTENANCE PERSONNEL	78	(27)	5	(2)	310	(177)	393	(206)	6.749	0.377	68.076	75.202
OPERATIONS PERSONNEL	54	(23)	9	(4)	23	(13)	86	(40)	4.017	0.670	3.382	8.069
HEALTH PHYSICS PERSONNEL	24	(12)	0	(0)	120	(62)	144	(74)	2.910	0.000	20.036	22.946
SUPERVISORY PERSONNEL	14	(5)	3	(1)	0	(0)	17	(6)	0.885	0.200	0.000	1.085
ENGINEERING PERSONNEL	9	(3)	2	(1)	117	(61)	128	(65)	0.600	0.130	22.762	23.492
GRAND TOTALS	179	(70)	19	(8)	570	(313)	768	(391)	15.161	1.377	114.256	130.794

*Workers may be counted in more than one category. Numbers in parentheses are total numbers of individuals.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *SEQUOYAH 1,2

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	102	4	146	252	1.395	0.019	1.626	3.040
OPERATIONS PERSONNEL	35	5	1	41	6.119	0.779	0.160	7.058
HEALTH PHYSICS PERSONNEL	38	1	86	125	4.330	0.275	8.161	12.766
SUPERVISORY PERSONNEL	34	1	7	42	2.863	0.218	0.290	3.371
ENGINEERING PERSONNEL	32	17	14	63	1.689	1.203	0.583	3.475
TOTAL	241	28	254	523	16.396	2.494	10.820	29.710
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	142	9	416	567	31.773	1.448	89.695	122.916
OPERATIONS PERSONNEL	32	5	1	38	1.570	0.117	0.032	1.719
HEALTH PHYSICS PERSONNEL	54	1	129	184	5.928	0.040	13.911	19.879
SUPERVISORY PERSONNEL	33	2	9	44	3.932	0.164	0.329	4.425
ENGINEERING PERSONNEL	34	22	76	132	4.115	0.929	12.121	17.165
TOTAL	295	39	631	965	47.318	2.698	116.088	166.104
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	18	0	175	193	1.120	0.000	16.855	17.975
OPERATIONS PERSONNEL	5	1	1	7	0.438	0.687	0.004	1.129
HEALTH PHYSICS PERSONNEL	25	0	81	106	2.632	0.000	17.298	19.930
SUPERVISORY PERSONNEL	8	1	8	17	2.266	0.159	2.652	5.077
ENGINEERING PERSONNEL	16	22	88	126	5.404	6.077	30.235	41.716
TOTAL	72	24	353	449	11.860	6.923	67.044	85.827
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	53	3	293	349	7.700	0.330	57.695	65.725
OPERATIONS PERSONNEL	1	0	0	1	0.003	0.000	0.000	0.003
HEALTH PHYSICS PERSONNEL	18	0	29	47	0.497	0.000	0.978	1.475
SUPERVISORY PERSONNEL	12	1	5	18	0.374	0.023	0.047	0.444
ENGINEERING PERSONNEL	15	12	75	102	1.296	0.425	20.523	22.244
TOTAL	99	16	402	517	9.870	0.778	79.243	89.891
WASTE PROCESSING								
MAINTENANCE PERSONNEL	23	0	26	49	0.756	0.000	1.258	2.014
OPERATIONS PERSONNEL	4	0	2	6	0.229	0.000	1.198	1.427
HEALTH PHYSICS PERSONNEL	28	0	32	60	4.068	0.000	2.684	6.752
SUPERVISORY PERSONNEL	1	0	0	1	0.059	0.000	0.000	0.059
ENGINEERING PERSONNEL	3	3	8	14	0.258	0.012	0.136	0.406
TOTAL	59	3	68	130	5.370	0.012	5.276	10.658
REFUELING								
MAINTENANCE PERSONNEL	51	0	140	191	1.451	0.000	13.196	14.647
OPERATIONS PERSONNEL	24	5	1	30	0.408	0.040	0.014	0.462
HEALTH PHYSICS PERSONNEL	15	0	81	96	2.321	0.000	8.420	10.741
SUPERVISORY PERSONNEL	11	0	2	13	1.644	0.000	0.110	1.754
ENGINEERING PERSONNEL	7	11	24	42	0.582	1.813	15.027	17.422
TOTAL	108	16	248	372	6.406	1.853	36.767	45.026
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	389	16	1196	1601	44.195	1.797	180.325	226.317
OPERATIONS PERSONNEL	101	16	6	123	8.767	1.623	1.408	11.798
HEALTH PHYSICS PERSONNEL	178	2	438	618	19.776	0.315	51.452	71.543
SUPERVISORY PERSONNEL	99	5	31	135	11.138	0.564	3.428	15.130
ENGINEERING PERSONNEL	107	87	285	479	13.344	10.459	78.625	102.428
GRAND TOTALS	874	126	1956	2956	97.220	14.758	315.238	427.216

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *SHOREHAM TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.008	0.000	0.000	0.008
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.005	0.000	0.000	0.005
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.013	0.000	0.000	0.013
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	0	0	0.321	0.000	1.368	1.689
OPERATIONS PERSONNEL	0	0	0	0	0.051	0.000	0.000	0.051
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.005	0.000	0.476	0.481
SUPERVISORY PERSONNEL	0	0	0	0	0.015	0.000	0.050	0.065
ENGINEERING PERSONNEL	0	0	0	0	0.035	0.000	0.023	0.058
TOTAL	0	0	0	0	0.427	0.000	1.917	2.344
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.012	0.000	0.049	0.061
OPERATIONS PERSONNEL	0	0	0	0	0.005	0.000	0.000	0.005
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.010	0.000	0.078	0.088
SUPERVISORY PERSONNEL	0	0	0	0	0.003	0.000	0.008	0.011
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.030	0.000	0.135	0.165
REFUELING								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	0	0	0	0	0.333	0.000	1.417	1.750
OPERATIONS PERSONNEL	0	0	0	0	0.064	0.000	0.000	0.064
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.015	0.000	0.554	0.569
SUPERVISORY PERSONNEL	0	0	0	0	0.023	0.000	0.058	0.081
ENGINEERING PERSONNEL	0	0	0	0	0.035	0.000	0.023	0.058
GRAND TOTALS	0	0	0	0	0.470	0.000	2.052	2.522

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *SOUTH TEXAS 1,2

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	0	0	1	1	0.494	1.032	0.920	2.446
OPERATIONS PERSONNEL	1	0	0	1	1.583	0.000	0.000	1.583
HEALTH PHYSICS PERSONNEL	17	0	1	18	3.410	0.000	0.901	4.311
SUPERVISORY PERSONNEL	3	0	0	3	1.176	0.169	0.000	1.345
ENGINEERING PERSONNEL	0	0	0	0	0.301	0.000	0.089	0.390
TOTAL	21	0	2	23	6.964	1.201	1.910	10.075
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	64	1	106	171	19.510	0.541	28.924	48.975
OPERATIONS PERSONNEL	0	0	0	0	0.138	0.000	0.000	0.138
HEALTH PHYSICS PERSONNEL	7	0	4	11	2.062	0.000	1.445	3.507
SUPERVISORY PERSONNEL	11	0	0	11	3.024	0.181	0.057	3.262
ENGINEERING PERSONNEL	8	0	20	28	3.526	0.000	7.739	11.265
TOTAL	90	1	130	221	28.260	0.722	38.165	67.147
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	1	30	31	0.270	0.228	10.308	10.806
OPERATIONS PERSONNEL	0	0	0	0	0.004	0.000	0.000	0.004
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.204	0.000	0.080	0.284
SUPERVISORY PERSONNEL	3	0	4	7	0.920	0.048	1.518	2.486
ENGINEERING PERSONNEL	3	0	2	5	0.732	0.000	0.866	1.598
TOTAL	6	1	36	43	2.130	0.276	12.772	15.178
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	4	0	11	15	1.962	0.117	4.699	6.778
OPERATIONS PERSONNEL	0	0	0	0	0.127	0.000	0.000	0.127
HEALTH PHYSICS PERSONNEL	4	0	0	4	1.075	0.000	0.353	1.428
SUPERVISORY PERSONNEL	1	0	0	1	0.811	0.037	0.000	0.848
ENGINEERING PERSONNEL	0	0	0	0	0.016	0.000	0.006	0.022
TOTAL	9	0	11	20	3.991	0.154	5.058	9.203
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	2	2	0.062	0.182	1.309	1.553
OPERATIONS PERSONNEL	0	0	0	0	0.008	0.000	0.000	0.008
HEALTH PHYSICS PERSONNEL	6	0	29	35	2.003	0.000	8.332	10.335
SUPERVISORY PERSONNEL	0	0	0	0	0.258	0.005	0.000	0.263
ENGINEERING PERSONNEL	0	0	0	0	0.001	0.000	0.000	0.001
TOTAL	6	0	31	37	2.332	0.187	9.641	12.160
REFUELING								
MAINTENANCE PERSONNEL	3	0	66	69	2.441	0.315	23.641	26.397
OPERATIONS PERSONNEL	20	0	0	20	4.394	0.000	0.000	4.394
HEALTH PHYSICS PERSONNEL	20	0	21	41	4.665	0.000	6.347	11.012
SUPERVISORY PERSONNEL	4	0	0	4	2.247	0.076	0.035	2.358
ENGINEERING PERSONNEL	0	0	1	1	0.275	0.000	0.283	0.558
TOTAL	47	0	88	135	14.022	0.391	30.306	44.719
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	71	2	216	289	24.739	2.415	69.801	96.955
OPERATIONS PERSONNEL	21	0	0	21	6.254	0.000	0.000	6.254
HEALTH PHYSICS PERSONNEL	54	0	55	109	13.419	0.000	17.458	30.877
SUPERVISORY PERSONNEL	22	0	4	26	8.436	0.516	1.610	10.562
ENGINEERING PERSONNEL	11	0	23	34	4.851	0.000	8.983	13.834
GRAND TOTALS	179	2	298	479	57.699	2.931	97.852	158.482

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *ST. LUCIE 1,2

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM) STATION	UTILITY	CONTRACT	TOTAL	TOTAL PERSON-REM STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	2	0	2	4	0.720	0.040	1.450	2.210
OPERATIONS PERSONNEL	35	1	6	42	15.216	0.585	2.770	18.571
HEALTH PHYSICS PERSONNEL	25	0	13	38	8.540	0.000	3.937	12.477
SUPERVISORY PERSONNEL	0	0	0	0	0.100	0.000	0.000	0.100
ENGINEERING PERSONNEL	0	1	0	1	0.000	0.405	0.225	0.630
TOTAL	62	2	21	85	24.576	1.030	8.382	33.988
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	116	7	203	326	50.468	2.320	71.247	124.035
OPERATIONS PERSONNEL	15	4	4	23	4.720	1.655	2.081	8.456
HEALTH PHYSICS PERSONNEL	16	0	49	65	6.930	0.000	16.950	23.880
SUPERVISORY PERSONNEL	1	0	0	1	0.165	0.000	0.000	0.165
ENGINEERING PERSONNEL	0	2	3	5	0.000	0.775	1.190	1.965
TOTAL	148	13	259	420	62.283	4.750	91.468	158.501
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	1	0	2	3	0.465	0.010	0.570	1.045
OPERATIONS PERSONNEL	1	0	0	1	0.590	0.000	0.095	0.685
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.020	0.000	0.000	0.020
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.015	0.000	0.015
TOTAL	2	0	2	4	1.075	0.025	0.665	1.765
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	80	4	121	205	25.612	1.300	48.227	75.139
OPERATIONS PERSONNEL	0	2	42	44	0.232	0.540	12.545	13.317
HEALTH PHYSICS PERSONNEL	11	0	3	14	3.055	0.000	1.050	4.105
SUPERVISORY PERSONNEL	0	0	0	0	0.050	0.000	0.000	0.050
ENGINEERING PERSONNEL	0	0	4	4	0.000	0.260	0.862	1.122
TOTAL	91	6	170	267	28.949	2.100	62.684	93.733
WASTE PROCESSING								
MAINTENANCE PERSONNEL	2	0	0	2	1.030	0.000	0.040	1.070
OPERATIONS PERSONNEL	0	0	5	5	0.025	0.000	1.489	1.514
HEALTH PHYSICS PERSONNEL	0	0	33	33	0.310	0.000	9.980	10.290
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	2	0	38	40	1.365	0.000	11.509	12.874
REFUELING								
MAINTENANCE PERSONNEL	2	0	2	4	1.020	0.025	0.485	1.530
OPERATIONS PERSONNEL	2	0	2	4	1.225	0.000	0.700	1.925
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.055	0.000	0.000	0.055
SUPERVISORY PERSONNEL	0	0	0	0	0.010	0.000	0.000	0.010
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.035	0.035	0.070
TOTAL	4	0	4	8	2.310	0.060	1.220	3.590
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	203 (163)	11 (11)	330 (317)	544 (491)	79.315	3.695	122.019	205.029
OPERATIONS PERSONNEL	53 (45)	7 (6)	59 (60)	119 (111)	22.008	2.780	19.680	44.468
HEALTH PHYSICS PERSONNEL	52 (35)	0 (0)	98 (94)	150 (129)	18.910	0.000	31.917	50.827
SUPERVISORY PERSONNEL	1 (1)	0 (0)	0 (0)	1 (1)	0.325	0.000	0.000	0.325
ENGINEERING PERSONNEL	0 (0)	3 (3)	7 (7)	10 (10)	0.000	1.490	2.312	3.802
GRAND TOTALS	309 (244)	21 (20)	494 (478)	824 (742)	120.558	7.965	175.928	304.451

*Workers may be counted in more than one category. Numbers in parentheses are total numbers of individuals.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *SUMMER 1 TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	0	0	0	0	0.255	0.000	0.110	0.365
OPERATIONS PERSONNEL	3	0	1	4	2.075	0.000	0.635	2.710
HEALTH PHYSICS PERSONNEL	7	0	3	10	1.485	0.000	0.620	2.105
SUPERVISORY PERSONNEL	0	0	0	0	0.235	0.000	0.066	0.301
ENGINEERING PERSONNEL	0	0	0	0	0.090	0.000	0.065	0.155
TOTAL	10	0	4	14	4.140	0.000	1.496	5.636
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	3	0	10	13	2.303	0.000	2.960	5.263
OPERATIONS PERSONNEL	2	0	3	5	1.445	0.005	0.892	2.342
HEALTH PHYSICS PERSONNEL	2	0	1	3	0.985	0.000	0.420	1.405
SUPERVISORY PERSONNEL	0	0	0	0	0.015	0.000	0.000	0.015
ENGINEERING PERSONNEL	0	0	0	0	0.140	0.000	0.270	0.410
TOTAL	7	0	14	21	4.888	0.005	4.542	9.435
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.005	0.005
OPERATIONS PERSONNEL	0	0	0	0	0.010	0.000	0.000	0.010
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.005	0.000	0.000	0.005
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.005	0.005
TOTAL	0	0	0	0	0.015	0.000	0.010	0.025
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	2	0	3	5	1.215	0.000	1.785	3.000
OPERATIONS PERSONNEL	0	0	2	2	0.625	0.000	0.580	1.205
HEALTH PHYSICS PERSONNEL	1	0	0	1	0.575	0.000	0.360	0.935
SUPERVISORY PERSONNEL	0	0	0	0	0.035	0.000	0.000	0.035
ENGINEERING PERSONNEL	0	0	0	0	0.100	0.000	0.265	0.365
TOTAL	3	0	5	8	2.550	0.000	2.990	5.540
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.145	0.000	0.340	0.485
OPERATIONS PERSONNEL	0	0	1	1	0.175	0.005	0.355	0.535
HEALTH PHYSICS PERSONNEL	7	0	2	9	2.230	0.000	1.075	3.305
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.005	0.005
TOTAL	7	0	3	10	2.550	0.005	1.775	4.330
REFUELING								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	5	0	13	18	3.918	0.000	5.200	9.118
OPERATIONS PERSONNEL	5	0	7	12	4.330	0.010	2.462	6.802
HEALTH PHYSICS PERSONNEL	17	0	6	23	5.280	0.000	2.475	7.755
SUPERVISORY PERSONNEL	0	0	0	0	0.285	0.000	0.066	0.351
ENGINEERING PERSONNEL	0	0	0	0	0.330	0.000	0.610	0.940
GRAND TOTALS	27	0	26	53	14.143	0.010	10.813	24.966

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *SURRY 1,2 TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	190	2	594	786	5.866	0.000	2.233	8.099
OPERATIONS PERSONNEL	325	64	107	496	29.800	0.076	1.607	31.483
HEALTH PHYSICS PERSONNEL	83	2	187	272	18.683	0.008	46.098	64.789
SUPERVISORY PERSONNEL	151	9	65	225	4.906	0.053	3.933	8.892
ENGINEERING PERSONNEL	99	70	31	200	3.244	0.267	0.424	3.935
TOTAL	848	147	984	1979	62.499	0.404	54.295	117.198
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	180	0	700	880	60.416	0.000	103.395	163.811
OPERATIONS PERSONNEL	196	9	90	295	4.381	0.008	7.043	11.432
HEALTH PHYSICS PERSONNEL	67	1	140	208	13.946	0.001	34.527	48.474
SUPERVISORY PERSONNEL	82	1	56	139	8.472	0.012	6.973	15.457
ENGINEERING PERSONNEL	32	8	31	71	1.420	0.068	4.261	5.749
TOTAL	557	19	1017	1593	88.635	0.089	156.199	244.923
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	1	0	163	164	0.037	0.000	27.681	27.718
OPERATIONS PERSONNEL	14	0	22	36	0.254	0.000	2.601	2.855
HEALTH PHYSICS PERSONNEL	5	0	14	19	0.148	0.000	1.116	1.264
SUPERVISORY PERSONNEL	3	0	11	14	0.037	0.000	1.098	1.135
ENGINEERING PERSONNEL	7	1	34	42	1.325	0.014	6.947	8.286
TOTAL	30	1	244	275	1.801	0.014	39.443	41.258
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	49	1	466	516	2.123	0.000	111.207	113.330
OPERATIONS PERSONNEL	19	2	24	45	1.401	0.013	4.467	5.881
HEALTH PHYSICS PERSONNEL	31	0	84	115	6.238	0.000	11.558	17.796
SUPERVISORY PERSONNEL	12	0	33	45	1.000	0.000	8.819	9.819
ENGINEERING PERSONNEL	16	20	69	105	0.947	1.102	28.732	30.781
TOTAL	127	23	676	826	11.709	1.115	164.783	177.607
WASTE PROCESSING								
MAINTENANCE PERSONNEL	24	0	14	38	0.032	0.000	0.183	0.215
OPERATIONS PERSONNEL	18	1	7	26	1.021	0.004	0.052	1.077
HEALTH PHYSICS PERSONNEL	38	0	16	54	1.659	0.000	0.337	1.996
SUPERVISORY PERSONNEL	16	0	4	20	0.724	0.000	0.063	0.787
ENGINEERING PERSONNEL	2	0	0	2	0.000	0.000	0.000	0.000
TOTAL	98	1	41	140	3.436	0.004	0.635	4.075
REFUELING								
MAINTENANCE PERSONNEL	0	0	24	24	0.000	0.000	1.369	1.369
OPERATIONS PERSONNEL	9	5	2	16	0.390	0.097	0.299	0.786
HEALTH PHYSICS PERSONNEL	14	0	16	30	0.052	0.000	0.133	0.185
SUPERVISORY PERSONNEL	3	0	0	3	0.137	0.000	0.000	0.137
ENGINEERING PERSONNEL	0	1	1	2	0.000	0.016	0.011	0.027
TOTAL	26	6	43	75	0.579	0.113	1.812	2.504
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	444	3	1961	2408	68.474	0.000	246.068	314.542
OPERATIONS PERSONNEL	581	81	252	914	37.247	0.198	16.069	53.514
HEALTH PHYSICS PERSONNEL	238	3	457	698	40.726	0.009	93.769	134.504
SUPERVISORY PERSONNEL	267	10	169	446	15.276	0.065	20.886	36.227
ENGINEERING PERSONNEL	156	100	166	422	6.936	1.467	40.375	48.778
GRAND TOTALS	1686	197	3005	4888	168.659	1.739	417.167	587.565

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *SUSQUEHANNA 1,2 TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	59	0	1	60	24.556	0.000	0.195	24.751
HEALTH PHYSICS PERSONNEL	6	0	8	14	2.172	0.000	1.482	3.654
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	2	0	0	2	0.298	0.000	0.000	0.298
TOTAL	67	0	9	76	27.026	0.000	1.677	28.703
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	202	133	200	535	108.967	70.559	136.476	316.002
OPERATIONS PERSONNEL	6	0	5	11	1.007	0.000	3.457	4.464
HEALTH PHYSICS PERSONNEL	34	0	190	224	18.242	0.000	114.297	132.539
SUPERVISORY PERSONNEL	15	0	0	15	4.960	0.000	0.000	4.960
ENGINEERING PERSONNEL	9	0	9	18	1.937	0.000	2.983	4.920
TOTAL	266	133	404	803	135.113	70.559	257.213	462.885
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	21	54	106	181	22.014	54.500	62.802	139.316
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	3	3	0.000	0.000	2.078	2.078
SUPERVISORY PERSONNEL	3	0	0	3	1.670	0.000	0.000	1.670
ENGINEERING PERSONNEL	1	6	9	16	0.724	0.865	4.022	5.611
TOTAL	25	60	118	203	24.408	55.365	68.902	148.675
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	23	40	27	90	20.314	26.370	13.477	60.161
OPERATIONS PERSONNEL	1	0	0	1	0.125	0.000	0.000	0.125
HEALTH PHYSICS PERSONNEL	0	0	11	11	0.000	0.000	4.074	4.074
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	2	0	15	17	0.263	0.000	2.381	2.644
TOTAL	26	40	53	119	20.702	26.370	19.932	67.004
WASTE PROCESSING								
MAINTENANCE PERSONNEL	6	0	0	6	1.720	0.000	0.000	1.720
OPERATIONS PERSONNEL	0	0	2	2	0.000	0.000	2.400	2.400
HEALTH PHYSICS PERSONNEL	3	0	7	10	0.825	0.000	2.305	3.130
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	9	0	9	18	2.545	0.000	4.705	7.250
REFUELING								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	14	0	0	14	2.516	0.000	0.000	2.516
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	14	0	0	14	2.516	0.000	0.000	2.516
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	252	227	333	812	153.015	151.429	212.755	517.199
OPERATIONS PERSONNEL	80	0	8	88	28.204	0.000	6.052	34.256
HEALTH PHYSICS PERSONNEL	43	0	219	262	21.239	0.000	124.236	145.475
SUPERVISORY PERSONNEL	18	0	0	18	6.630	0.000	0.000	6.630
ENGINEERING PERSONNEL	14	6	33	53	3.222	0.865	9.386	13.473
GRAND TOTALS	407	233	593	1233	212.310	152.294	352.429	717.033

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *THREE MILE ISLAND 1 TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM) STATION	UTILITY	CONTRACT	TOTAL	TOTAL PERSON-REM STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	74	1	7	82	0.883	0.022	0.026	0.931
OPERATIONS PERSONNEL	88	0	2	90	5.700	0.000	0.005	5.705
HEALTH PHYSICS PERSONNEL	72	1	0	73	8.326	0.000	0.000	8.326
SUPERVISORY PERSONNEL	102	14	4	120	1.675	0.170	0.083	1.928
ENGINEERING PERSONNEL	37	2	1	40	0.368	0.000	0.020	0.388
TOTAL	373	18	14	405	16.952	0.192	0.134	17.278
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	123	7	18	148	5.951	0.001	0.014	5.966
OPERATIONS PERSONNEL	21	1	5	27	0.072	0.003	0.011	0.086
HEALTH PHYSICS PERSONNEL	13	3	1	17	0.063	0.002	0.000	0.065
SUPERVISORY PERSONNEL	195	58	19	272	1.769	0.024	0.040	1.833
ENGINEERING PERSONNEL	68	18	20	106	0.295	0.012	0.096	0.403
TOTAL	420	87	63	570	8.150	0.042	0.161	8.353
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	32	0	0	32	0.002	0.000	0.000	0.002
OPERATIONS PERSONNEL	33	0	0	33	0.019	0.000	0.000	0.019
HEALTH PHYSICS PERSONNEL	18	0	0	18	0.070	0.000	0.000	0.070
SUPERVISORY PERSONNEL	26	4	3	33	0.015	0.020	0.006	0.041
ENGINEERING PERSONNEL	14	1	0	15	0.036	0.011	0.000	0.047
TOTAL	123	5	3	131	0.142	0.031	0.006	0.179
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	73	2	17	92	1.540	0.151	3.307	4.998
OPERATIONS PERSONNEL	39	0	0	39	0.272	0.000	0.000	0.272
HEALTH PHYSICS PERSONNEL	24	0	3	27	0.450	0.000	0.002	0.452
SUPERVISORY PERSONNEL	39	14	6	59	0.148	0.024	2.014	2.186
ENGINEERING PERSONNEL	15	2	2	19	0.193	0.010	0.004	0.207
TOTAL	190	18	28	236	2.603	0.185	5.327	8.115
WASTE PROCESSING								
MAINTENANCE PERSONNEL	52	0	38	90	0.173	0.000	0.357	0.530
OPERATIONS PERSONNEL	56	0	1	57	3.888	0.000	0.000	3.888
HEALTH PHYSICS PERSONNEL	49	0	4	53	0.425	0.000	0.007	0.432
SUPERVISORY PERSONNEL	47	8	17	72	0.211	0.000	0.048	0.259
ENGINEERING PERSONNEL	16	3	9	28	0.022	0.000	0.029	0.051
TOTAL	220	11	69	300	4.719	0.000	0.441	5.160
REFUELING								
MAINTENANCE PERSONNEL	12	0	0	12	0.005	0.000	0.000	0.005
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	3	0	0	3	0.002	0.000	0.000	0.002
ENGINEERING PERSONNEL	1	0	0	1	0.002	0.000	0.000	0.002
TOTAL	16	0	0	16	0.009	0.000	0.000	0.009
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	366 (128)	10 (9)	80 (58)	456 (195)	8.554	0.174	3.704	12.432
OPERATIONS PERSONNEL	237 (113)	1 (1)	8 (5)	246 (119)	9.951	0.003	0.016	9.970
HEALTH PHYSICS PERSONNEL	176 (74)	4 (4)	8 (8)	188 (86)	9.334	0.002	0.009	9.345
SUPERVISORY PERSONNEL	412 (252)	98 (86)	49 (32)	559 (370)	3.820	0.238	2.191	6.249
ENGINEERING PERSONNEL	151 (85)	26 (21)	32 (28)	209 (134)	0.916	0.033	0.149	1.098
GRAND TOTALS	1342 (652)	139 (121)	177 (131)	1658 (904)	32.575	0.450	6.069	39.094

*Workers may be counted in more than one category. Numbers in parentheses are total numbers of individuals.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *THREE MILE ISLAND 2 TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM) STATION	UTILITY	CONTRACT	TOTAL	TOTAL PERSON-REM STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	12	0	47	59	1.826	0.000	2.629	4.455
OPERATIONS PERSONNEL	29	0	0	29	0.522	0.000	0.000	0.522
HEALTH PHYSICS PERSONNEL	18	0	9	27	1.280	0.000	0.907	2.187
SUPERVISORY PERSONNEL	14	0	8	22	1.223	0.000	0.281	1.504
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	73	0	64	137	4.851	0.000	3.817	8.668
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	43	2	70	115	7.338	0.000	22.629	29.967
OPERATIONS PERSONNEL	28	2	4	34	0.903	0.000	0.006	0.909
HEALTH PHYSICS PERSONNEL	36	0	9	45	3.080	0.000	1.383	4.463
SUPERVISORY PERSONNEL	38	4	24	66	2.114	0.000	3.067	5.181
ENGINEERING PERSONNEL	12	2	4	18	0.008	0.003	0.233	0.244
TOTAL	157	10	111	278	13.443	0.003	27.318	40.764
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	14	3	23	40	0.040	0.000	0.134	0.174
OPERATIONS PERSONNEL	52	1	1	54	1.575	0.002	0.027	1.604
HEALTH PHYSICS PERSONNEL	43	0	9	52	1.308	0.000	2.036	3.344
SUPERVISORY PERSONNEL	123	25	14	162	1.203	0.358	0.228	1.789
ENGINEERING PERSONNEL	37	2	5	44	0.081	0.002	0.063	0.146
TOTAL	269	31	52	352	4.207	0.362	2.488	7.057
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	17	3	69	89	17.044	0.000	54.600	71.644
OPERATIONS PERSONNEL	37	1	5	43	5.234	0.085	0.077	5.396
HEALTH PHYSICS PERSONNEL	27	0	10	37	11.186	0.000	7.234	18.420
SUPERVISORY PERSONNEL	38	5	16	59	4.973	0.098	6.635	11.706
ENGINEERING PERSONNEL	7	0	2	9	0.234	0.000	0.130	0.364
TOTAL	126	9	102	237	38.671	0.183	68.676	107.530
WASTE PROCESSING								
MAINTENANCE PERSONNEL	35	2	64	101	0.057	0.000	10.957	11.014
OPERATIONS PERSONNEL	53	2	4	59	1.388	0.007	0.129	1.524
HEALTH PHYSICS PERSONNEL	22	0	10	32	2.263	0.000	1.235	3.498
SUPERVISORY PERSONNEL	41	9	12	62	1.403	0.000	0.836	2.239
ENGINEERING PERSONNEL	13	2	4	19	0.212	0.000	0.075	0.287
TOTAL	164	15	94	273	5.323	0.007	13.232	18.562
REFUELING								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	121 (66)	10 (8)	273 (90)	404 (164)	26.305	0.000	90.949	117.254
OPERATIONS PERSONNEL	199 (83)	6 (4)	14 (6)	219 (93)	9.622	0.094	0.239	9.955
HEALTH PHYSICS PERSONNEL	146 (61)	0 (0)	47 (10)	193 (71)	19.117	0.000	12.795	31.912
SUPERVISORY PERSONNEL	254 (154)	43 (40)	74 (30)	371 (224)	10.916	0.456	11.047	22.419
ENGINEERING PERSONNEL	69 (45)	6 (5)	15 (7)	90 (57)	0.535	0.005	0.501	1.041
GRAND TOTALS	789 (409)	65 (57)	423 (143)	1277 (609)	66.495	0.555	115.531	182.581

*Workers may be counted in more than one category. Numbers in parentheses are total numbers of individuals.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *TROJAN

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM) STATION	UTILITY	CONTRACT	TOTAL	TOTAL PERSON-REM STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	0	0	0	0	0.240	0.000	0.240	0.480
OPERATIONS PERSONNEL	14	0	0	14	3.790	0.000	0.000	3.790
HEALTH PHYSICS PERSONNEL	9	0	6	15	2.890	0.000	2.140	5.030
SUPERVISORY PERSONNEL	1	0	0	1	0.350	0.000	0.440	0.790
ENGINEERING PERSONNEL	0	0	1	1	0.080	0.000	0.210	0.290
TOTAL	24	0	7	31	7.350	0.000	3.030	10.380
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	39	1	22	62	11.020	0.180	6.700	17.900
OPERATIONS PERSONNEL	1	0	0	1	0.350	0.000	0.000	0.350
HEALTH PHYSICS PERSONNEL	10	0	6	16	2.540	0.000	2.070	4.610
SUPERVISORY PERSONNEL	5	0	0	5	1.660	0.010	0.250	1.920
ENGINEERING PERSONNEL	3	0	0	3	1.540	0.000	0.130	1.670
TOTAL	58	1	28	87	17.110	0.190	9.150	26.450
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	13	0	48	61	5.450	0.090	21.670	27.210
OPERATIONS PERSONNEL	0	0	0	0	0.040	0.000	0.000	0.040
HEALTH PHYSICS PERSONNEL	19	0	27	46	4.720	0.000	10.610	15.330
SUPERVISORY PERSONNEL	5	0	2	7	2.510	0.010	0.610	3.130
ENGINEERING PERSONNEL	1	0	50	51	1.050	0.000	22.530	23.580
TOTAL	38	0	127	165	13.770	0.100	55.420	69.290
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.150	0.010	0.070	0.230
OPERATIONS PERSONNEL	1	0	0	1	0.920	0.000	0.000	0.920
HEALTH PHYSICS PERSONNEL	14	0	1	15	3.450	0.000	0.880	4.330
SUPERVISORY PERSONNEL	0	0	0	0	0.070	0.000	0.010	0.080
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.020	0.020
TOTAL	15	0	1	16	4.590	0.010	0.980	5.580
REFUELING								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	52 (40)	1 (0)	70 (61)	123 (101)	16.860	0.280	28.680	45.820
OPERATIONS PERSONNEL	16 (13)	0 (0)	0 (0)	16 (13)	5.100	0.000	0.000	5.100
HEALTH PHYSICS PERSONNEL	52 (34)	0 (0)	40 (31)	92 (65)	13.600	0.000	15.700	29.300
SUPERVISORY PERSONNEL	11 (6)	0 (0)	2 (1)	13 (7)	4.590	0.020	1.310	5.920
ENGINEERING PERSONNEL	4 (3)	0 (0)	51 (45)	55 (48)	2.670	0.000	22.890	25.560
GRAND TOTALS	135 (96)	1 (0)	163 (138)	299 (234)	42.820	0.300	68.580	111.700

*Workers may be counted in more than one category. Numbers in parentheses are total numbers of individuals.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *TURKEY POINT 3,4 TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM) STATION	UTILITY	CONTRACT	TOTAL	TOTAL PERSON-REM STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	4	0	1	5	3.597	0.127	1.799	5.523
OPERATIONS PERSONNEL	39	0	0	39	10.231	0.003	0.000	10.234
HEALTH PHYSICS PERSONNEL	24	0	4	28	5.629	0.000	2.392	8.021
SUPERVISORY PERSONNEL	0	0	0	0	0.771	0.151	3.434	4.356
ENGINEERING PERSONNEL	4	0	0	4	2.387	0.253	0.268	2.908
TOTAL	71	0	5	76	22.615	0.534	7.893	31.042
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	132	3	117	252	39.294	1.301	47.560	88.155
OPERATIONS PERSONNEL	20	0	0	20	5.504	0.000	0.041	5.545
HEALTH PHYSICS PERSONNEL	21	0	36	57	7.120	0.000	15.273	22.393
SUPERVISORY PERSONNEL	2	0	2	4	0.642	0.222	1.200	2.064
ENGINEERING PERSONNEL	18	0	6	24	4.703	0.157	3.698	8.558
TOTAL	193	3	161	357	57.263	1.680	67.772	126.715
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	57	57	5.500	0.499	20.035	26.034
OPERATIONS PERSONNEL	0	0	1	1	0.319	0.000	0.622	0.941
HEALTH PHYSICS PERSONNEL	0	0	8	8	1.129	0.000	2.360	3.489
SUPERVISORY PERSONNEL	0	0	1	1	0.021	1.208	0.458	1.687
ENGINEERING PERSONNEL	0	0	3	3	4.639	0.151	0.843	5.633
TOTAL	0	0	70	70	11.608	1.858	24.318	37.784
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	15	2	109	126	0.297	0.118	54.436	54.851
OPERATIONS PERSONNEL	0	0	1	1	0.450	0.000	0.900	1.350
HEALTH PHYSICS PERSONNEL	2	0	3	5	1.545	0.000	1.152	2.697
SUPERVISORY PERSONNEL	0	1	2	3	0.006	0.020	0.623	0.649
ENGINEERING PERSONNEL	9	1	5	15	0.769	0.121	2.883	3.773
TOTAL	26	4	120	150	3.067	0.259	59.994	63.320
WASTE PROCESSING								
MAINTENANCE PERSONNEL	12	0	2	14	6.939	0.010	0.670	7.619
OPERATIONS PERSONNEL	0	0	0	0	0.012	0.000	0.000	0.012
HEALTH PHYSICS PERSONNEL	14	0	0	14	5.404	0.000	0.243	5.647
SUPERVISORY PERSONNEL	2	0	0	2	1.144	0.000	0.000	1.144
ENGINEERING PERSONNEL	0	0	0	0	0.025	0.000	0.002	0.027
TOTAL	28	0	2	30	13.524	0.010	0.915	14.449
REFUELING								
MAINTENANCE PERSONNEL	65	6	17	88	24.684	2.265	4.122	31.071
OPERATIONS PERSONNEL	13	0	2	15	5.542	0.000	0.327	5.869
HEALTH PHYSICS PERSONNEL	2	0	10	12	0.727	0.000	0.272	0.999
SUPERVISORY PERSONNEL	0	0	2	2	0.227	0.014	0.462	0.703
ENGINEERING PERSONNEL	2	0	1	3	0.745	0.100	0.190	1.035
TOTAL	82	6	32	120	31.925	2.379	5.373	39.677
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	228 (168)	11 (12)	303 (256)	542 (436)	80.311	4.320	128.622	213.253
OPERATIONS PERSONNEL	72 (77)	0 (0)	4 (4)	76 (81)	22.058	0.003	1.890	23.951
HEALTH PHYSICS PERSONNEL	63 (52)	0 (0)	61 (51)	124 (103)	21.554	0.000	21.692	43.246
SUPERVISORY PERSONNEL	4 (3)	1 (3)	7 (9)	12 (15)	2.811	1.615	6.177	10.603
ENGINEERING PERSONNEL	33 (29)	1 (4)	15 (18)	49 (51)	13.268	0.782	7.884	21.934
GRAND TOTALS	400 (329)	13 (19)	390 (338)	803 (686)	140.002	6.720	166.265	312.987

*Workers may be counted in more than one category. Numbers in parentheses are total numbers of individuals.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *VERMONT YANKEE

TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	10	0	70	80	3.708	0.000	27.534	31.242
OPERATIONS PERSONNEL	31	0	1	32	13.682	0.000	0.620	14.302
HEALTH PHYSICS PERSONNEL	15	0	5	20	5.473	0.000	2.511	7.984
SUPERVISORY PERSONNEL	0	0	0	0	0.004	0.000	0.015	0.019
ENGINEERING PERSONNEL	1	0	0	1	0.276	0.000	0.099	0.375
TOTAL	57	0	76	133	23.143	0.000	30.779	53.922
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	39	0	285	324	14.485	0.000	111.721	126.206
OPERATIONS PERSONNEL	5	0	0	5	2.277	0.000	0.265	2.542
HEALTH PHYSICS PERSONNEL	10	0	34	44	6.013	0.000	14.647	20.660
SUPERVISORY PERSONNEL	1	0	0	1	0.588	0.000	0.075	0.663
ENGINEERING PERSONNEL	2	0	0	2	0.641	0.000	0.077	0.718
TOTAL	57	0	319	376	24.004	0.000	126.785	150.789
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	109	109	0.187	0.000	47.635	47.822
OPERATIONS PERSONNEL	3	0	0	3	0.732	0.000	0.008	0.740
HEALTH PHYSICS PERSONNEL	0	0	2	2	0.092	0.000	0.760	0.852
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.119	0.000	0.097	0.216
TOTAL	3	0	111	114	1.130	0.000	48.500	49.630
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	12	0	190	202	4.538	0.000	86.242	90.780
OPERATIONS PERSONNEL	3	0	0	3	0.751	0.000	0.012	0.763
HEALTH PHYSICS PERSONNEL	5	0	11	16	1.875	0.000	3.215	5.090
SUPERVISORY PERSONNEL	0	0	0	0	0.009	0.000	0.000	0.009
ENGINEERING PERSONNEL	1	0	0	1	0.620	0.000	0.056	0.676
TOTAL	21	0	201	222	7.793	0.000	89.525	97.318
WASTE PROCESSING								
MAINTENANCE PERSONNEL	1	0	1	2	0.212	0.000	0.692	0.904
OPERATIONS PERSONNEL	1	0	0	1	0.200	0.000	0.000	0.200
HEALTH PHYSICS PERSONNEL	0	0	2	2	0.140	0.000	0.535	0.675
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	2	0	3	5	0.552	0.000	1.227	1.779
REFUELING								
MAINTENANCE PERSONNEL	1	0	1	2	0.277	0.000	1.381	1.658
OPERATIONS PERSONNEL	0	0	0	0	0.810	0.000	0.019	0.829
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.117	0.117
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	1	0	0	1	0.267	0.000	0.211	0.478
TOTAL	2	0	1	3	1.354	0.000	1.728	3.082
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	63	0	656	719	23.407	0.000	275.205	298.612
OPERATIONS PERSONNEL	43	0	1	44	18.452	0.000	0.924	19.376
HEALTH PHYSICS PERSONNEL	30	0	54	84	13.593	0.000	21.785	35.378
SUPERVISORY PERSONNEL	1	0	0	1	0.601	0.000	0.090	0.691
ENGINEERING PERSONNEL	5	0	0	5	1.923	0.000	0.540	2.463
GRAND TOTALS	142	0	711	853	57.976	0.000	298.544	356.520

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *VOGTLE 1,2

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	14	0	56	70	6.258	0.000	17.152	23.410
OPERATIONS PERSONNEL	3	0	0	3	1.567	0.035	0.022	1.624
HEALTH PHYSICS PERSONNEL	15	0	41	56	4.714	0.089	16.616	21.419
SUPERVISORY PERSONNEL	2	0	10	12	0.342	0.011	2.838	3.191
ENGINEERING PERSONNEL	0	0	3	3	0.200	0.000	1.478	1.678
TOTAL	34	0	110	144	13.081	0.135	38.106	51.322
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	9	0	34	43	3.618	0.022	9.943	13.583
OPERATIONS PERSONNEL	23	0	0	23	5.901	0.000	0.044	5.945
HEALTH PHYSICS PERSONNEL	7	0	12	19	2.635	0.008	4.961	7.604
SUPERVISORY PERSONNEL	2	0	4	6	0.830	0.031	1.781	2.642
ENGINEERING PERSONNEL	1	0	1	2	0.606	0.000	0.822	1.428
TOTAL	42	0	51	93	13.590	0.061	17.551	31.202
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	6	0	52	58	4.284	0.000	18.287	22.571
OPERATIONS PERSONNEL	2	0	0	2	1.023	0.000	0.022	1.045
HEALTH PHYSICS PERSONNEL	3	0	4	7	2.260	0.000	2.219	4.479
SUPERVISORY PERSONNEL	0	0	1	1	0.074	0.011	0.469	0.554
ENGINEERING PERSONNEL	1	0	2	3	0.453	0.000	1.117	1.570
TOTAL	12	0	59	71	8.094	0.011	22.114	30.219
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	78	1	250	329	34.512	0.791	113.650	148.953
OPERATIONS PERSONNEL	18	1	1	20	5.964	0.278	0.652	6.894
HEALTH PHYSICS PERSONNEL	27	0	76	103	8.712	0.041	37.339	46.092
SUPERVISORY PERSONNEL	4	2	25	31	1.274	0.492	10.770	12.536
ENGINEERING PERSONNEL	3	0	7	10	1.201	0.000	4.184	5.385
TOTAL	130	4	359	493	51.663	1.602	166.595	219.860
WASTE PROCESSING								
MAINTENANCE PERSONNEL	16	0	26	42	6.547	0.000	6.928	13.475
OPERATIONS PERSONNEL	2	0	0	2	1.023	0.000	0.022	1.045
HEALTH PHYSICS PERSONNEL	8	0	19	27	2.938	0.000	8.966	11.904
SUPERVISORY PERSONNEL	0	0	1	1	0.074	0.011	0.422	0.507
ENGINEERING PERSONNEL	0	0	1	1	0.013	0.000	0.695	0.708
TOTAL	26	0	47	73	10.595	0.011	17.033	27.639
REFUELING								
MAINTENANCE PERSONNEL	25	0	62	87	8.972	0.000	22.853	31.825
OPERATIONS PERSONNEL	7	0	0	7	2.873	0.000	0.034	2.907
HEALTH PHYSICS PERSONNEL	10	0	48	58	4.066	0.000	21.502	25.568
SUPERVISORY PERSONNEL	1	0	4	5	0.405	0.011	1.990	2.406
ENGINEERING PERSONNEL	2	0	6	8	0.525	0.000	3.006	3.531
TOTAL	45	0	120	165	16.841	0.011	49.385	66.237
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	148	1	480	629	64.191	0.813	188.813	253.817
OPERATIONS PERSONNEL	55	1	1	57	18.351	0.313	0.796	19.460
HEALTH PHYSICS PERSONNEL	70	0	200	270	25.325	0.138	91.603	117.066
SUPERVISORY PERSONNEL	9	2	45	56	2.999	0.567	18.270	21.836
ENGINEERING PERSONNEL	7	0	20	27	2.998	0.000	11.302	14.300
GRAND TOTALS	289	4	746	1039	113.864	1.831	310.784	426.479

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *WASHINGTON NUCLEAR 2 TYPE: BWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	3	0	2	5	3.310	0.000	1.185	4.495
OPERATIONS PERSONNEL	2	0	0	2	1.556	0.000	0.000	1.556
HEALTH PHYSICS PERSONNEL	3	0	0	3	2.562	0.000	0.306	2.868
SUPERVISORY PERSONNEL	2	0	0	2	0.600	0.000	0.100	0.700
ENGINEERING PERSONNEL	2	4	2	8	0.572	1.400	0.645	2.617
TOTAL	12	4	4	20	8.600	1.400	2.236	12.236
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	213	5	375	593	165.769	1.947	230.415	398.131
OPERATIONS PERSONNEL	41	4	0	45	40.635	0.735	0.000	41.370
HEALTH PHYSICS PERSONNEL	43	0	67	110	31.459	0.000	46.464	77.923
SUPERVISORY PERSONNEL	21	1	3	25	7.016	0.503	0.905	8.424
ENGINEERING PERSONNEL	29	34	63	126	11.092	11.067	38.143	60.302
TOTAL	347	44	508	899	255.971	14.252	315.927	586.150
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	2	2	0.395	0.095	1.227	1.717
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.025	0.000	0.185	0.210
SUPERVISORY PERSONNEL	0	0	0	0	0.070	0.000	0.000	0.070
ENGINEERING PERSONNEL	0	1	0	1	0.185	0.191	0.110	0.486
TOTAL	0	1	2	3	0.675	0.286	1.522	2.483
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	9	0	12	21	5.990	0.420	4.758	11.168
OPERATIONS PERSONNEL	0	0	0	0	0.462	0.000	0.000	0.462
HEALTH PHYSICS PERSONNEL	1	0	0	1	0.929	0.000	0.355	1.284
SUPERVISORY PERSONNEL	1	0	0	1	0.322	0.000	0.000	0.322
ENGINEERING PERSONNEL	1	1	1	3	0.680	0.587	0.462	1.729
TOTAL	12	1	13	26	8.383	1.007	5.575	14.965
WASTE PROCESSING								
MAINTENANCE PERSONNEL	2	0	3	5	2.470	0.030	0.937	3.437
OPERATIONS PERSONNEL	0	0	0	0	0.020	0.000	0.000	0.020
HEALTH PHYSICS PERSONNEL	4	0	3	7	3.513	0.000	2.454	5.967
SUPERVISORY PERSONNEL	0	0	0	0	0.020	0.000	0.260	0.280
ENGINEERING PERSONNEL	0	0	1	1	0.035	0.140	0.195	0.370
TOTAL	6	0	7	13	6.058	0.170	3.846	10.074
REFUELING								
MAINTENANCE PERSONNEL	18	1	0	19	24.958	0.616	0.110	25.684
OPERATIONS PERSONNEL	2	1	0	3	3.416	0.155	0.000	3.571
HEALTH PHYSICS PERSONNEL	0	0	7	7	1.145	0.000	2.741	3.886
SUPERVISORY PERSONNEL	2	0	0	2	0.660	0.000	0.005	0.665
ENGINEERING PERSONNEL	2	2	0	4	0.935	1.260	0.310	2.505
TOTAL	24	4	7	35	31.114	2.031	3.166	36.311
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	245	6	394	645	202.892	3.108	238.632	444.632
OPERATIONS PERSONNEL	45	5	0	50	46.089	0.890	0.000	46.979
HEALTH PHYSICS PERSONNEL	51	0	77	128	39.633	0.000	52.505	92.138
SUPERVISORY PERSONNEL	26	1	3	30	8.688	0.503	1.270	10.461
ENGINEERING PERSONNEL	34	42	67	143	13.499	14.645	39.865	68.009
GRAND TOTALS	401	54	541	996	310.801	19.146	332.272	662.219

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *WATERFORD 3

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM) STATION	UTILITY	CONTRACT	TOTAL	TOTAL PERSON-REM STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	1	0	2	3	0.524	0.000	1.419	1.943
OPERATIONS PERSONNEL	33	0	34	67	9.135	0.000	14.555	23.690
HEALTH PHYSICS PERSONNEL	15	0	61	76	3.654	0.000	14.847	18.501
SUPERVISORY PERSONNEL	2	0	0	2	0.515	0.000	0.142	0.657
ENGINEERING PERSONNEL	5	0	8	13	1.715	0.000	2.083	3.798
TOTAL	56	0	105	161	15.543	0.000	33.046	48.589
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	40	0	249	289	12.142	0.000	77.382	89.524
OPERATIONS PERSONNEL	2	0	15	17	0.728	0.000	4.293	5.021
HEALTH PHYSICS PERSONNEL	2	0	0	2	0.591	0.000	1.175	1.766
SUPERVISORY PERSONNEL	2	0	0	2	0.325	0.000	0.007	0.332
ENGINEERING PERSONNEL	0	0	0	0	0.034	0.000	0.085	0.119
TOTAL	46	0	264	310	13.820	0.000	82.942	96.762
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	2	2	0.017	0.000	0.751	0.768
OPERATIONS PERSONNEL	0	0	3	3	0.073	0.000	0.928	1.001
HEALTH PHYSICS PERSONNEL	2	0	0	2	0.526	0.000	0.076	0.602
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	1	0	3	4	0.216	0.000	0.651	0.867
TOTAL	3	0	8	11	0.832	0.000	2.406	3.238
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	18	0	16	34	6.509	0.000	7.455	13.964
OPERATIONS PERSONNEL	1	0	7	8	0.277	0.000	1.816	2.093
HEALTH PHYSICS PERSONNEL	0	0	2	2	0.417	0.000	0.826	1.243
SUPERVISORY PERSONNEL	2	0	0	2	1.724	0.000	0.000	1.724
ENGINEERING PERSONNEL	0	0	7	7	0.088	0.000	2.218	2.306
TOTAL	21	0	32	53	9.015	0.000	12.315	21.330
WASTE PROCESSING								
MAINTENANCE PERSONNEL	2	0	0	2	0.790	0.000	0.387	1.177
OPERATIONS PERSONNEL	8	0	63	71	2.769	0.000	17.960	20.729
HEALTH PHYSICS PERSONNEL	0	0	3	3	0.132	0.000	1.036	1.168
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.085	0.085
TOTAL	10	0	66	76	3.691	0.000	19.468	23.159
REFUELING								
MAINTENANCE PERSONNEL	3	0	11	14	0.935	0.000	5.674	6.609
OPERATIONS PERSONNEL	4	0	17	21	0.769	0.000	6.584	7.353
HEALTH PHYSICS PERSONNEL	1	0	10	11	0.334	0.000	2.612	2.946
SUPERVISORY PERSONNEL	0	0	0	0	0.004	0.000	0.000	0.004
ENGINEERING PERSONNEL	1	0	0	1	0.296	0.000	0.096	0.392
TOTAL	9	0	38	47	2.338	0.000	14.966	17.304
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	64 (50)	0 (0)	280 (273)	344 (323)	20.917	0.000	93.068	113.985
OPERATIONS PERSONNEL	48 (45)	0 (0)	139 (119)	187 (164)	13.751	0.000	46.136	59.887
HEALTH PHYSICS PERSONNEL	20 (19)	0 (0)	76 (73)	96 (92)	5.654	0.000	20.572	26.226
SUPERVISORY PERSONNEL	6 (2)	0 (0)	0 (0)	6 (2)	2.568	0.000	0.149	2.717
ENGINEERING PERSONNEL	7 (7)	0 (0)	18 (14)	25 (21)	2.349	0.000	5.218	7.567
GRAND TOTALS	145 (123)	0 (0)	513 (479)	658 (602)	45.239	0.000	165.143	210.382

*Workers may be counted in more than one category. Numbers in parentheses are total numbers of individuals.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *WATTS BAR 1,2 TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
REFUELING								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
GRAND TOTALS	0	0	0	0	0.000	0.000	0.000	0.000

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *WOLF CREEK 1

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	1	0	4	5	1.261	0.015	1.268	2.544
OPERATIONS PERSONNEL	0	0	0	0	1.093	0.006	0.073	1.172
HEALTH PHYSICS PERSONNEL	20	0	0	20	5.653	0.264	0.233	6.150
SUPERVISORY PERSONNEL	1	0	2	3	1.447	0.024	0.798	2.269
ENGINEERING PERSONNEL	4	0	2	6	1.459	0.288	0.935	2.682
TOTAL	26	0	8	34	10.913	0.597	3.307	14.817
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	0	0	1.398	0.015	1.152	2.565
OPERATIONS PERSONNEL	0	0	0	0	0.135	0.000	0.000	0.135
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.418	0.043	0.049	0.510
SUPERVISORY PERSONNEL	0	0	0	0	0.409	0.000	0.063	0.472
ENGINEERING PERSONNEL	0	0	0	0	0.416	0.019	0.010	0.445
TOTAL	0	0	0	0	2.776	0.077	1.274	4.127
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	1	0	16	17	0.469	0.019	3.734	4.222
OPERATIONS PERSONNEL	0	0	0	0	0.268	0.000	0.000	0.268
HEALTH PHYSICS PERSONNEL	3	1	0	4	0.869	0.121	0.000	0.990
SUPERVISORY PERSONNEL	9	0	1	10	2.368	0.000	0.333	2.701
ENGINEERING PERSONNEL	6	3	4	13	1.442	0.389	1.184	3.015
TOTAL	19	4	21	44	5.416	0.529	5.251	11.196
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	10	2	80	92	3.583	0.343	26.018	29.944
OPERATIONS PERSONNEL	1	0	0	1	0.328	0.024	0.123	0.475
HEALTH PHYSICS PERSONNEL	4	0	1	5	1.422	0.067	0.295	1.784
SUPERVISORY PERSONNEL	4	0	4	8	1.428	0.000	0.836	2.264
ENGINEERING PERSONNEL	1	0	1	2	0.581	0.039	0.256	0.876
TOTAL	20	2	86	108	7.342	0.473	27.528	35.343
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.029	0.000	0.121	0.150
OPERATIONS PERSONNEL	0	0	0	0	0.051	0.000	0.019	0.070
HEALTH PHYSICS PERSONNEL	5	0	0	5	3.802	0.000	0.000	3.802
SUPERVISORY PERSONNEL	2	0	0	2	0.275	0.000	0.000	0.275
ENGINEERING PERSONNEL	0	0	0	0	0.010	0.000	0.000	0.010
TOTAL	7	0	0	7	4.167	0.000	0.140	4.307
REFUELING								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.005	0.000	0.000	0.005
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.005	0.000	0.000	0.005
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0.010	0.000	0.000	0.010
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	12	2	100	114	6.740	0.392	32.293	39.425
OPERATIONS PERSONNEL	1	0	0	1	1.880	0.030	0.215	2.125
HEALTH PHYSICS PERSONNEL	32	1	1	34	12.169	0.495	0.577	13.241
SUPERVISORY PERSONNEL	16	0	7	23	5.927	0.024	2.030	7.981
ENGINEERING PERSONNEL	11	3	7	21	3.908	0.735	2.385	7.028
GRAND TOTALS	72	6	115	193	30.624	1.676	37.500	69.800

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *YANKEE-ROWE TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM) STATION	UTILITY	CONTRACT	TOTAL	TOTAL PERSON-REM STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	1	0	1	2	0.809	0.054	1.153	2.016
OPERATIONS PERSONNEL	16	0	0	16	3.516	0.000	0.337	3.853
HEALTH PHYSICS PERSONNEL	6	0	3	9	1.323	0.015	2.199	3.537
SUPERVISORY PERSONNEL	0	0	0	0	0.031	0.000	0.000	0.031
ENGINEERING PERSONNEL	1	0	0	1	0.444	0.331	0.116	0.891
TOTAL	24	0	4	28	6.123	0.400	3.805	10.328
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	15	2	35	52	6.220	0.260	12.085	18.565
OPERATIONS PERSONNEL	5	0	0	5	1.937	0.000	0.023	1.960
HEALTH PHYSICS PERSONNEL	6	0	32	38	2.191	0.000	13.738	15.929
SUPERVISORY PERSONNEL	0	0	0	0	0.064	0.000	0.000	0.064
ENGINEERING PERSONNEL	2	2	0	4	0.641	0.614	0.111	1.366
TOTAL	28	4	67	99	11.053	0.874	25.957	37.884
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	12	12	0.056	0.065	2.840	2.961
OPERATIONS PERSONNEL	0	0	0	0	0.012	0.000	0.000	0.012
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.030	0.030
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.032	0.000	0.154	0.186
TOTAL	0	0	12	12	0.100	0.065	3.024	3.189
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	1	0	15	16	0.868	0.039	7.268	8.175
OPERATIONS PERSONNEL	0	0	0	0	0.630	0.000	0.000	0.630
HEALTH PHYSICS PERSONNEL	1	1	9	11	0.228	0.336	3.172	3.736
SUPERVISORY PERSONNEL	1	0	0	1	0.168	0.000	0.000	0.168
ENGINEERING PERSONNEL	0	0	1	1	0.062	0.282	0.122	0.466
TOTAL	3	1	25	29	1.956	0.657	10.562	13.175
WASTE PROCESSING								
MAINTENANCE PERSONNEL	3	0	0	3	1.856	0.000	0.000	1.856
OPERATIONS PERSONNEL	0	0	0	0	0.346	0.000	0.000	0.346
HEALTH PHYSICS PERSONNEL	3	0	29	32	3.110	0.000	9.493	12.603
SUPERVISORY PERSONNEL	0	0	0	0	0.069	0.000	0.000	0.069
ENGINEERING PERSONNEL	1	0	0	1	0.168	0.052	0.000	0.220
TOTAL	7	0	29	36	5.549	0.052	9.493	15.094
REFUELING								
MAINTENANCE PERSONNEL	14	0	17	31	5.523	0.093	3.366	8.982
OPERATIONS PERSONNEL	1	0	0	1	1.111	0.000	0.037	1.148
HEALTH PHYSICS PERSONNEL	1	0	7	8	0.442	0.000	2.327	2.769
SUPERVISORY PERSONNEL	1	0	0	1	0.314	0.000	0.000	0.314
ENGINEERING PERSONNEL	2	2	0	4	0.612	0.435	0.022	1.069
TOTAL	19	2	24	45	8.002	0.528	5.752	14.282
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	34	2	80	116	15.332	0.511	26.712	42.555
OPERATIONS PERSONNEL	22	0	0	22	7.552	0.000	0.397	7.949
HEALTH PHYSICS PERSONNEL	17	1	80	98	7.294	0.351	30.959	38.604
SUPERVISORY PERSONNEL	2	0	0	2	0.646	0.000	0.000	0.646
ENGINEERING PERSONNEL	6	4	1	11	1.959	1.714	0.525	4.198
GRAND TOTALS	81	7	161	249	32.783	2.576	58.593	93.952

*Workers may be counted in more than one category.

APPENDIX D (Continued)

NUMBER OF PERSONNEL AND PERSON-REM BY WORK AND JOB FUNCTION

1992

PLANT: *ZION 1,2

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	0	0	0	0	0.190	0.000	0.135	0.325
OPERATIONS PERSONNEL	99	0	0	99	15.603	0.000	0.000	15.603
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.082	0.000	0.004	0.086
SUPERVISORY PERSONNEL	26	0	6	32	2.191	0.000	0.535	2.726
ENGINEERING PERSONNEL	2	1	0	3	0.236	0.016	0.000	0.252
TOTAL	127	1	6	134	18.302	0.016	0.674	18.992
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	139	6	679	824	116.279	0.009	438.646	554.934
OPERATIONS PERSONNEL	112	0	241	353	17.597	0.000	0.116	17.713
HEALTH PHYSICS PERSONNEL	40	0	144	184	37.894	0.000	70.545	108.439
SUPERVISORY PERSONNEL	230	55	231	516	19.765	0.375	23.500	43.640
ENGINEERING PERSONNEL	61	149	169	379	6.219	2.405	3.148	11.772
TOTAL	582	210	1464	2256	197.754	2.789	535.955	736.498
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	2	7	101	110	1.539	0.009	65.303	66.851
OPERATIONS PERSONNEL	3	0	0	3	0.469	0.000	0.000	0.469
HEALTH PHYSICS PERSONNEL	0	0	1	1	0.269	0.000	0.335	0.604
SUPERVISORY PERSONNEL	4	17	100	121	0.322	0.116	10.204	10.642
ENGINEERING PERSONNEL	28	11	25	64	2.862	0.178	0.474	3.514
TOTAL	37	35	227	299	5.461	0.303	76.316	82.080
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	4	5	80	89	3.526	0.006	51.660	55.192
OPERATIONS PERSONNEL	6	0	0	6	0.886	0.000	0.000	0.886
HEALTH PHYSICS PERSONNEL	1	0	5	6	0.985	0.000	2.680	3.665
SUPERVISORY PERSONNEL	9	3	172	184	0.779	0.016	17.491	18.286
ENGINEERING PERSONNEL	10	66	17	93	1.017	1.064	0.319	2.400
TOTAL	30	74	274	378	7.193	1.086	72.150	80.429
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	21	21	0.063	0.000	13.401	13.464
OPERATIONS PERSONNEL	0	0	0	0	0.039	0.000	0.000	0.039
HEALTH PHYSICS PERSONNEL	2	0	7	9	1.954	0.000	3.362	5.316
SUPERVISORY PERSONNEL	10	0	0	10	0.902	0.000	0.014	0.916
ENGINEERING PERSONNEL	1	0	0	1	0.064	0.003	0.000	0.067
TOTAL	13	0	28	41	3.022	0.003	16.777	19.802
REFUELING								
MAINTENANCE PERSONNEL	12	2	115	129	9.745	0.002	74.435	84.182
OPERATIONS PERSONNEL	63	0	0	63	10.013	0.000	0.000	10.013
HEALTH PHYSICS PERSONNEL	0	0	1	1	0.180	0.000	0.510	0.690
SUPERVISORY PERSONNEL	36	0	55	91	3.094	0.001	5.619	8.714
ENGINEERING PERSONNEL	10	7	0	17	0.950	0.106	0.000	1.056
TOTAL	121	9	171	301	23.982	0.109	80.564	104.655
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	157	20	996	1173	131.342	0.026	643.580	774.948
OPERATIONS PERSONNEL	283	0	241	524	44.607	0.000	0.116	44.723
HEALTH PHYSICS PERSONNEL	43	0	158	201	41.364	0.000	77.436	118.800
SUPERVISORY PERSONNEL	315	75	564	954	27.053	0.508	57.363	84.924
ENGINEERING PERSONNEL	112	234	211	557	11.348	3.772	3.941	19.061
GRAND TOTALS	910	329	2170	3409	255.714	4.306	782.436	1042.456

*Workers may be counted in more than one category.

APPENDIX E

Graphical Representation of Collective Dose Trends by Year and Job Function for Each Site

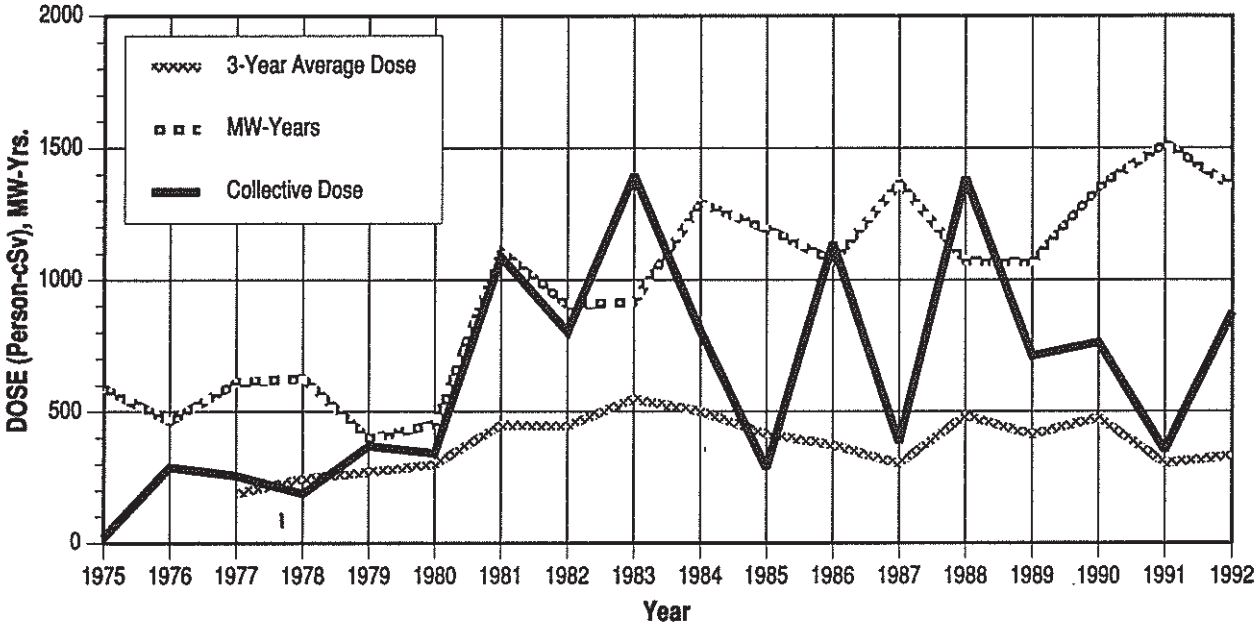
1973-1992

NOTE: Appendix E contains data on operating plants as well as plants which are no longer in commercial operation.

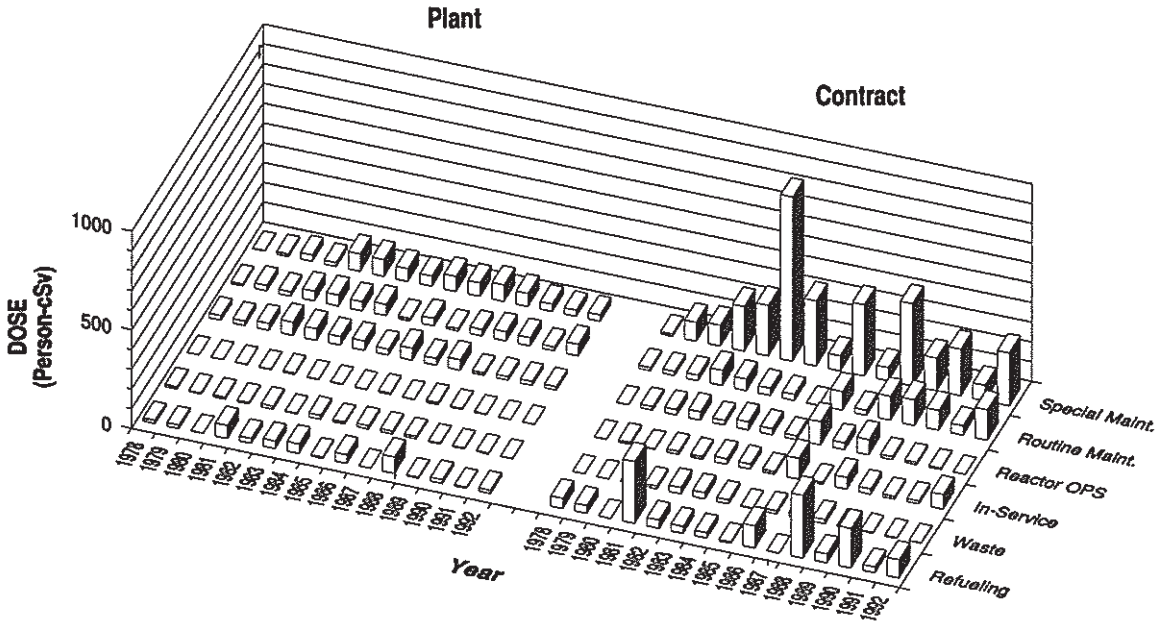
APPENDIX E

ARKANSAS 1, 2

Dose-Performance Indicators **PWR**



Breakdown by Job Function

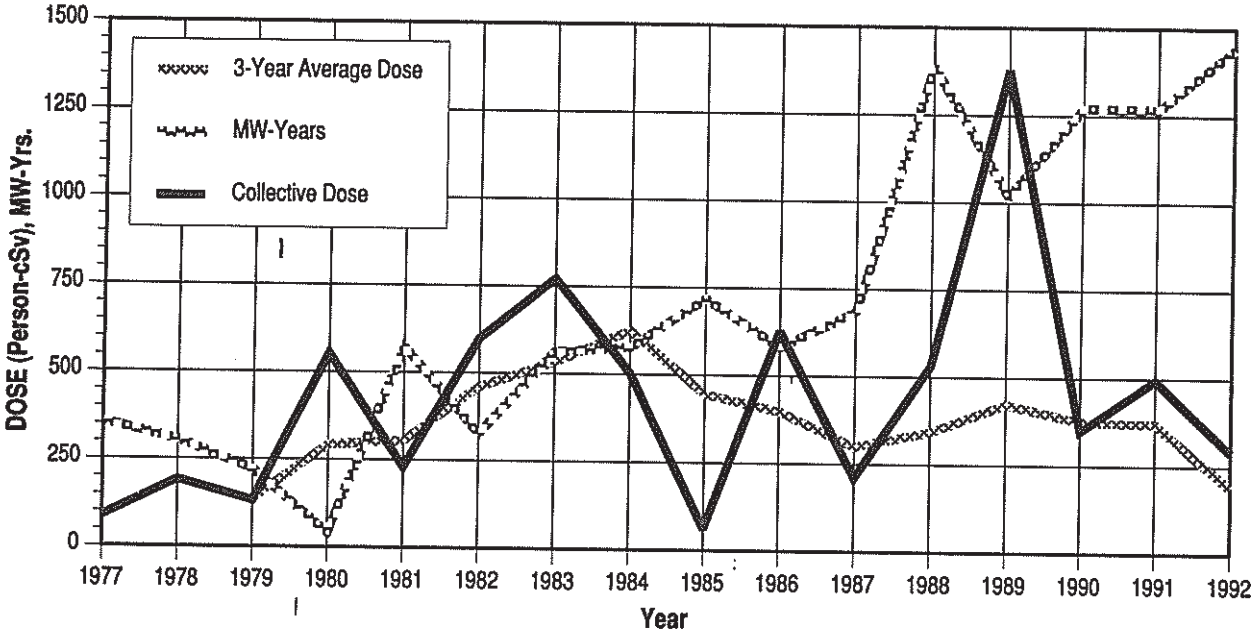


APPENDIX E (continued)

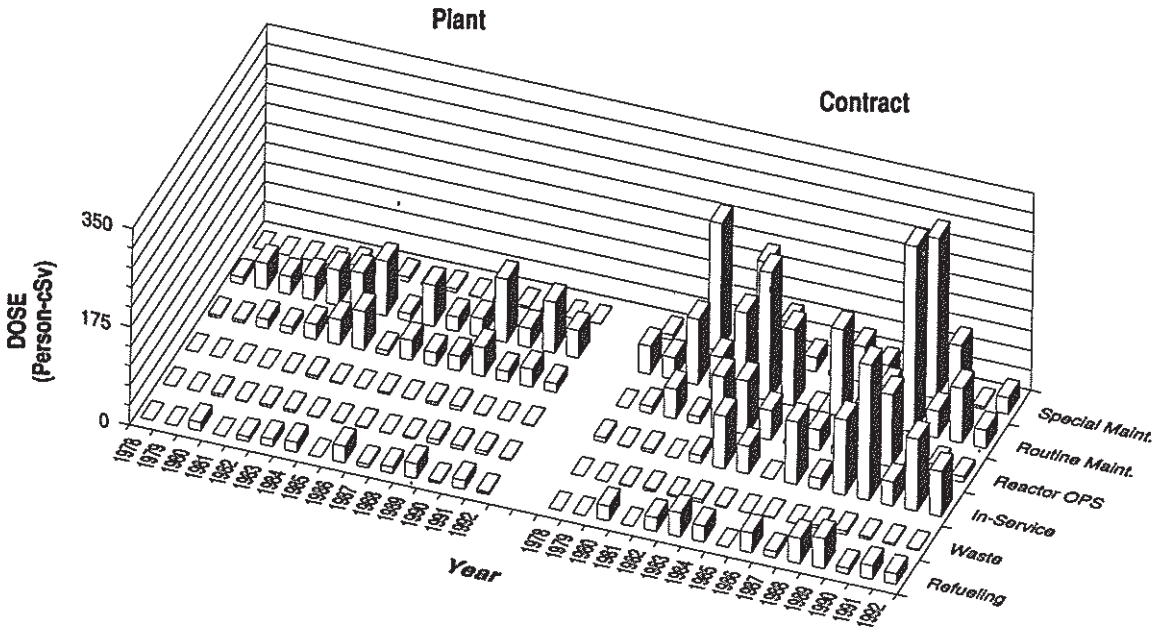
BEAVER VALLEY 1, 2

Dose-Performance Indicators

PWR



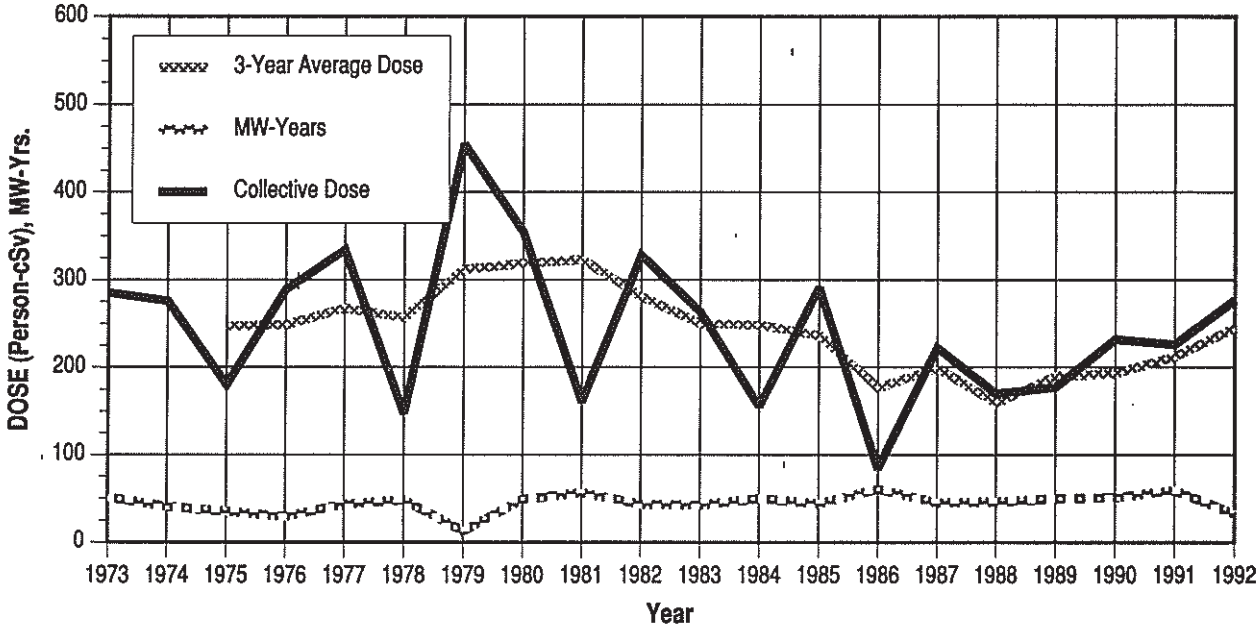
Breakdown by Job Function



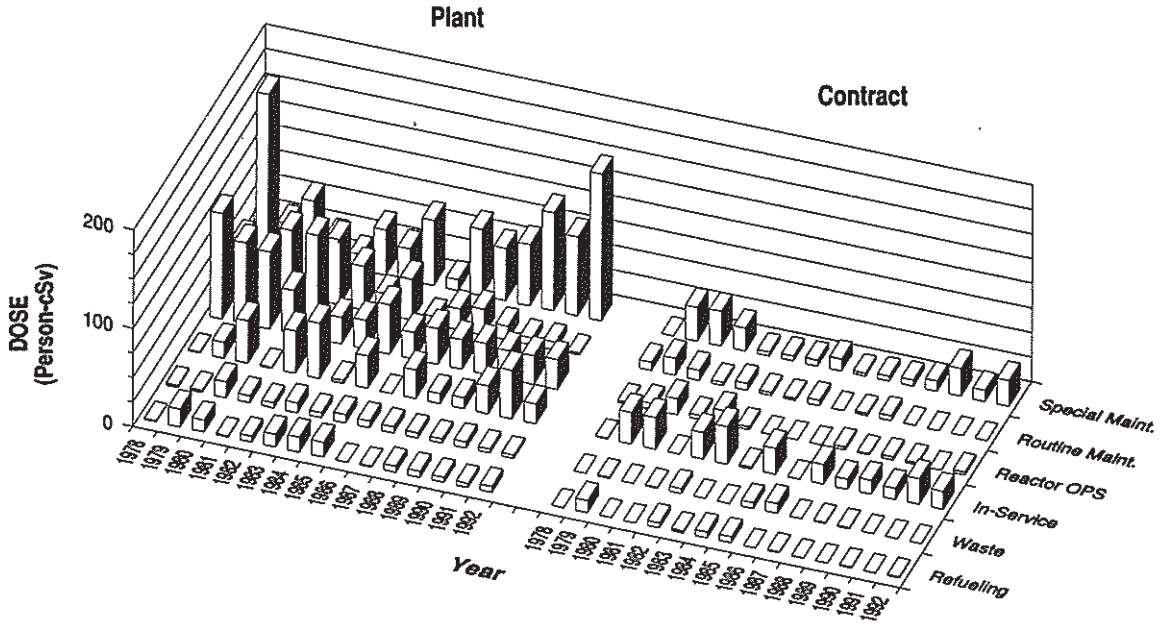
APPENDIX E (continued)

BIG ROCK POINT

Dose-Performance Indicators **BWR**



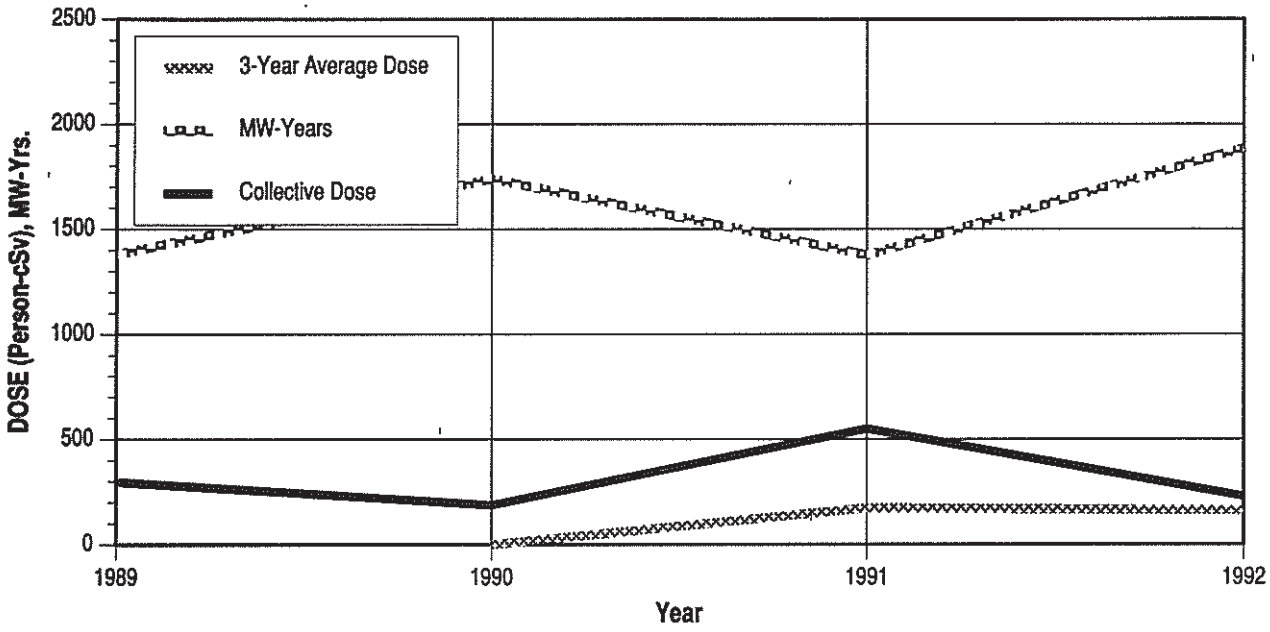
Breakdown by Job Function



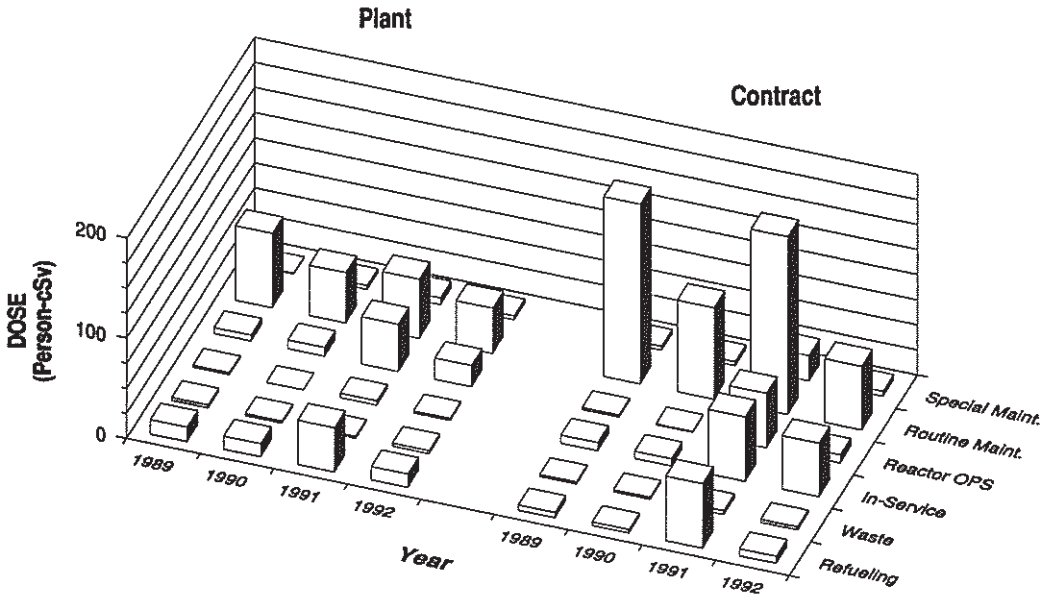
APPENDIX E (continued)

BRAIDWOOD 1, 2

Dose-Performance Indicators **PWR**



Breakdown by Job Function

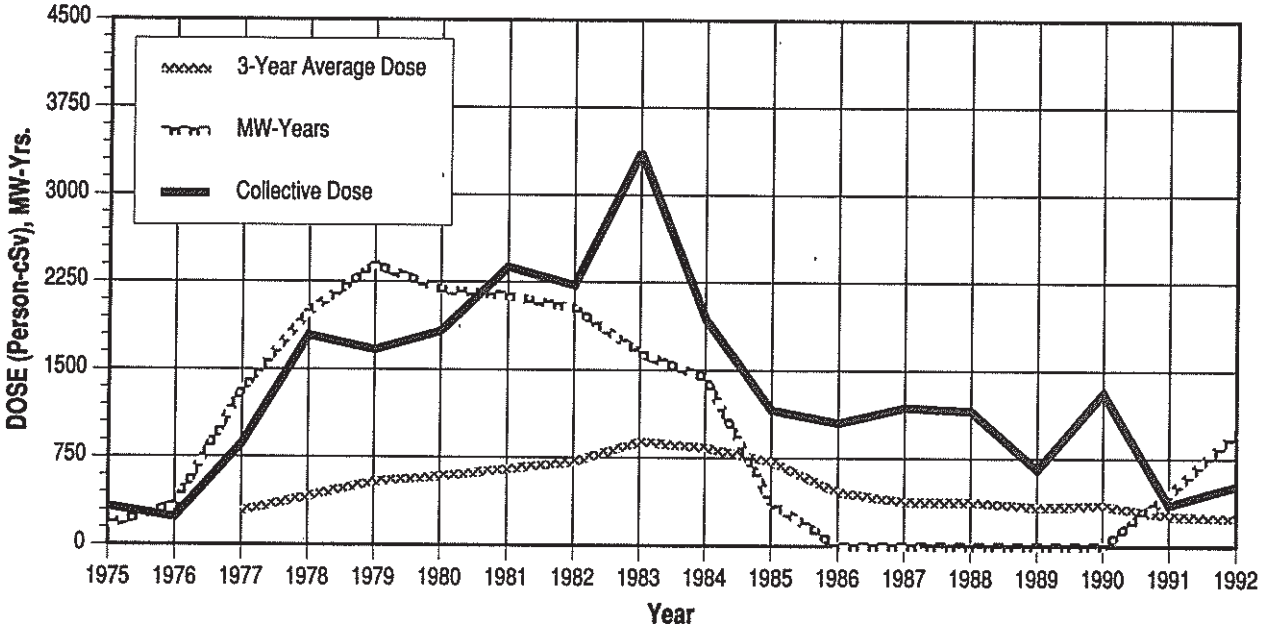


APPENDIX E (continued)

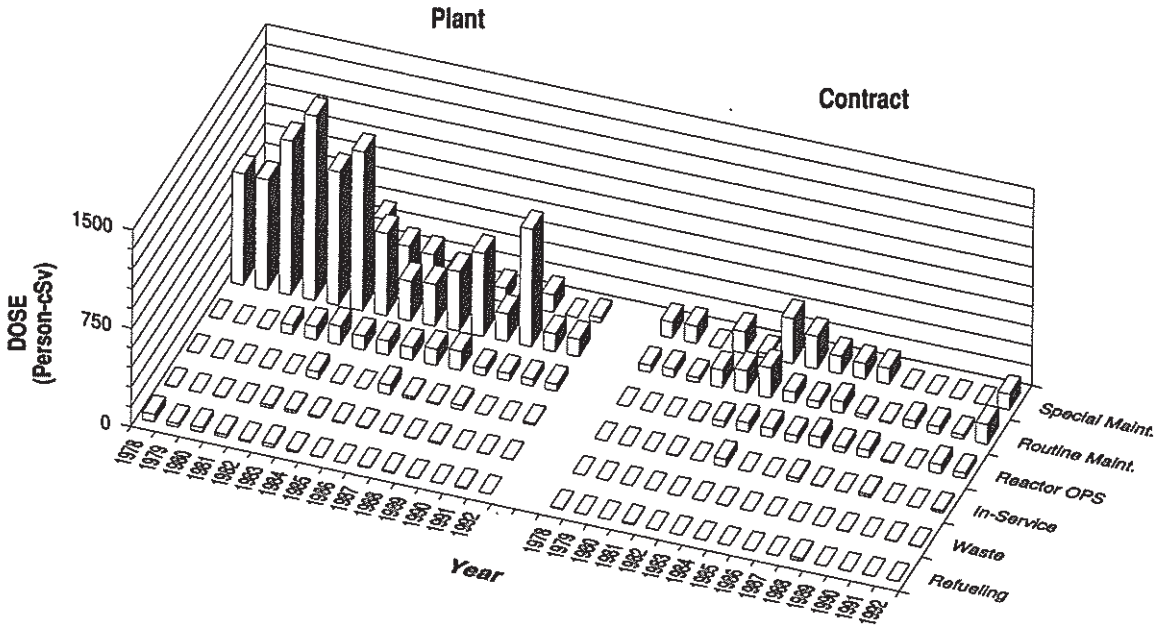
BROWNS FERRY 1, 2, 3

Dose-Performance Indicators

BWR



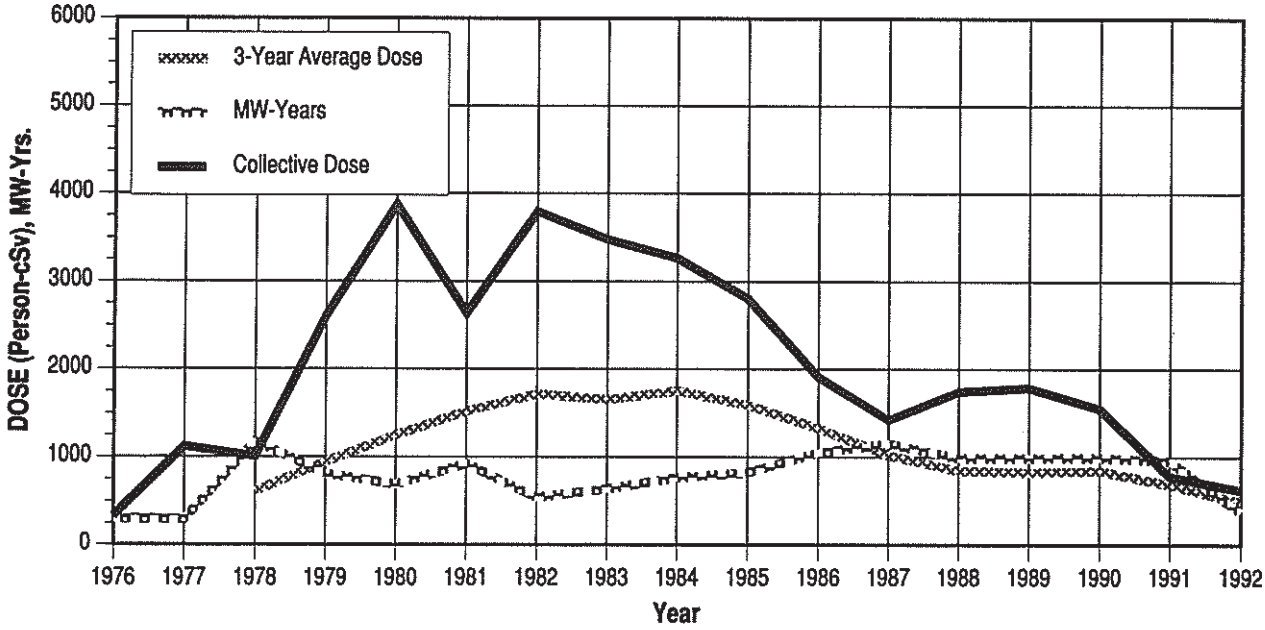
Breakdown by Job Function



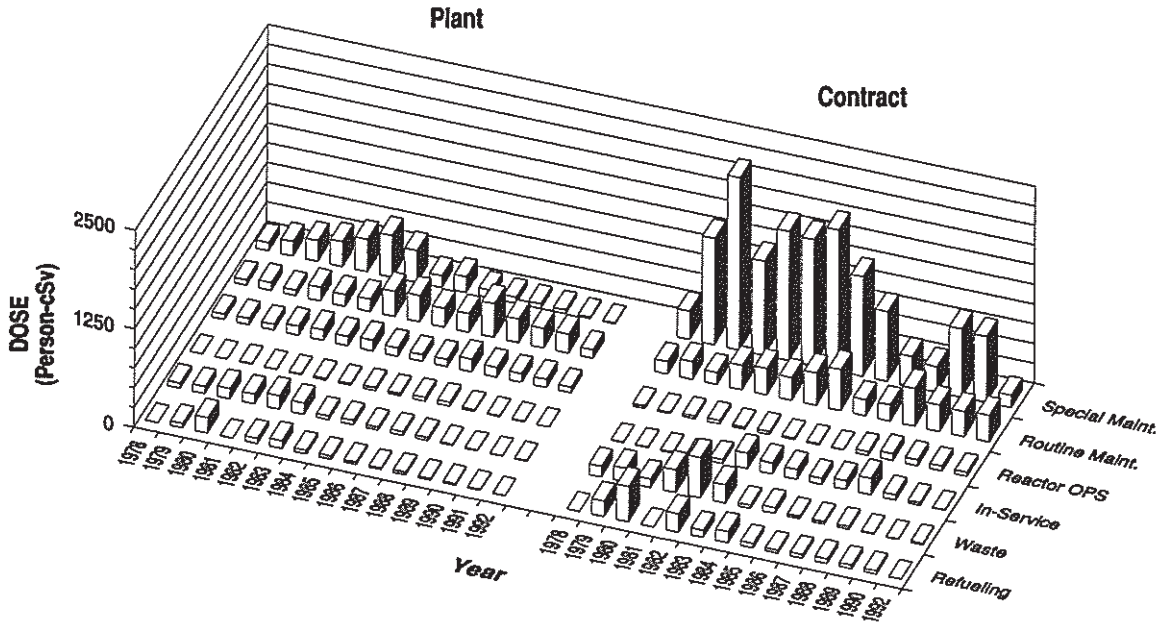
APPENDIX E (continued)

BRUNSWICK 1, 2

Dose-Performance Indicators **BWR**



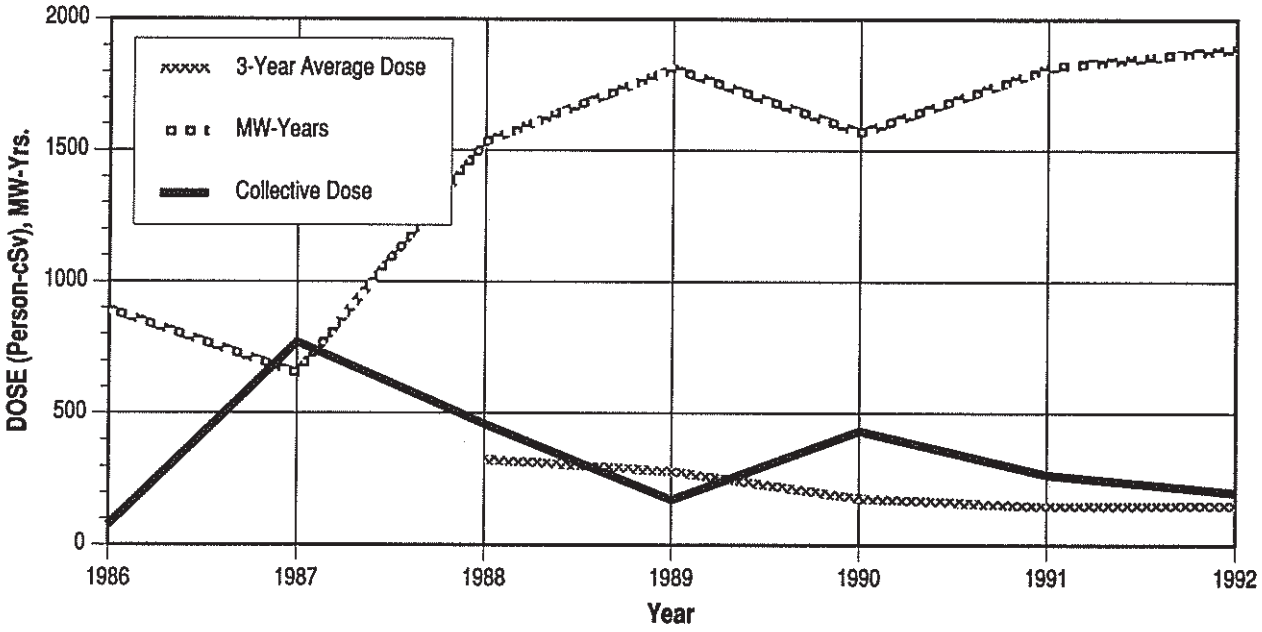
Breakdown by Job Function



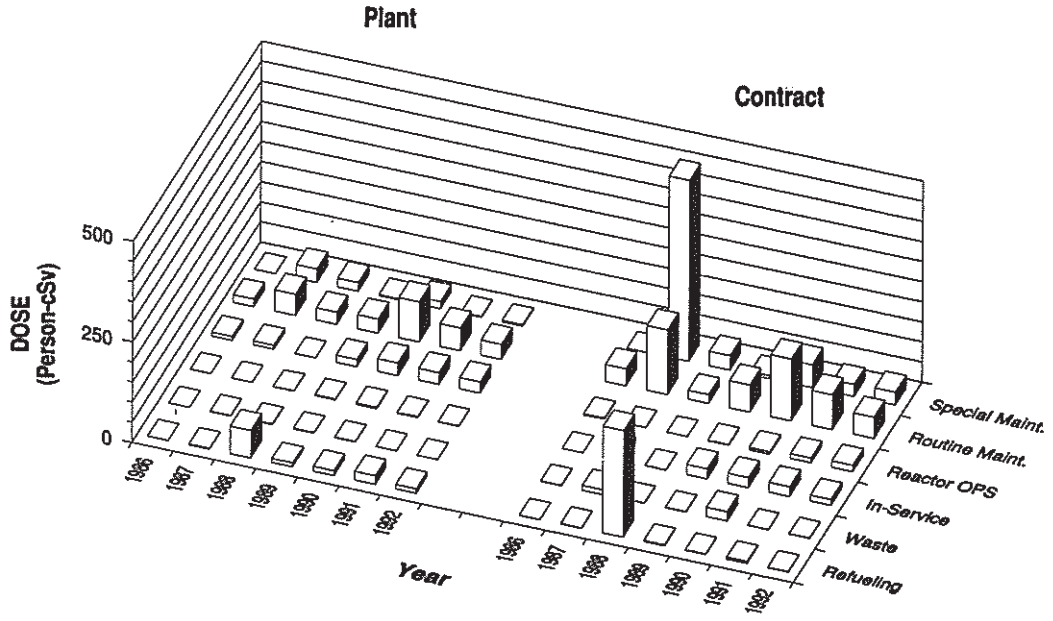
APPENDIX E (continued)

BYRON 1, 2

Dose-Performance Indicators **PWR**



Breakdown by Job Function

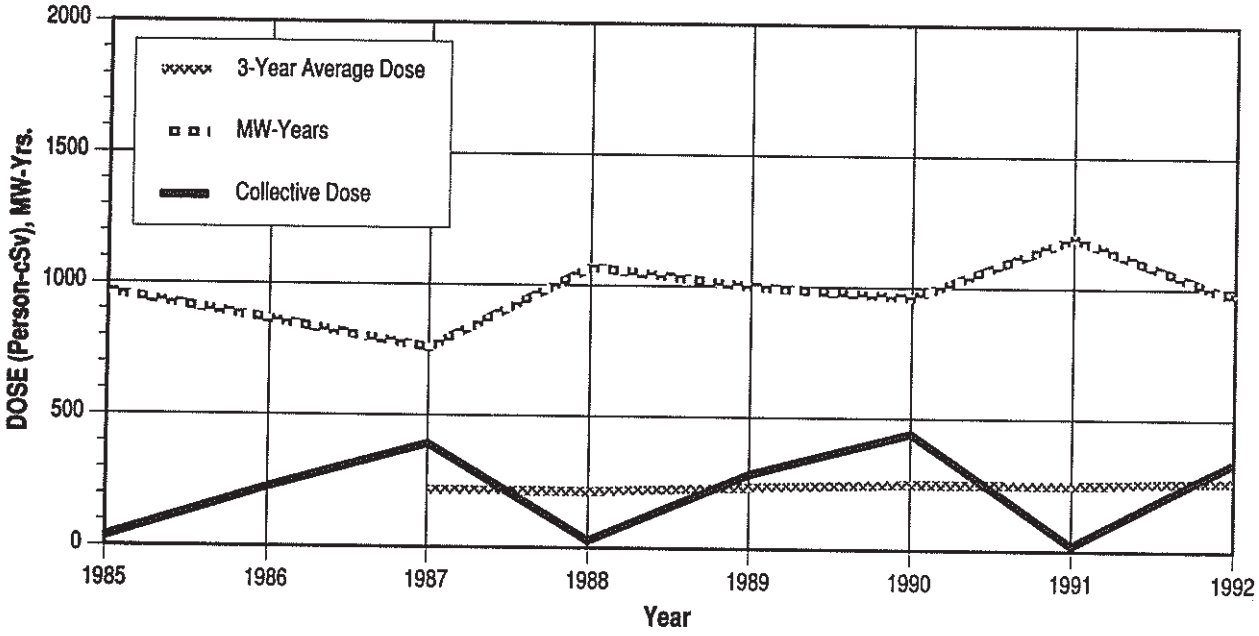


APPENDIX E (continued)

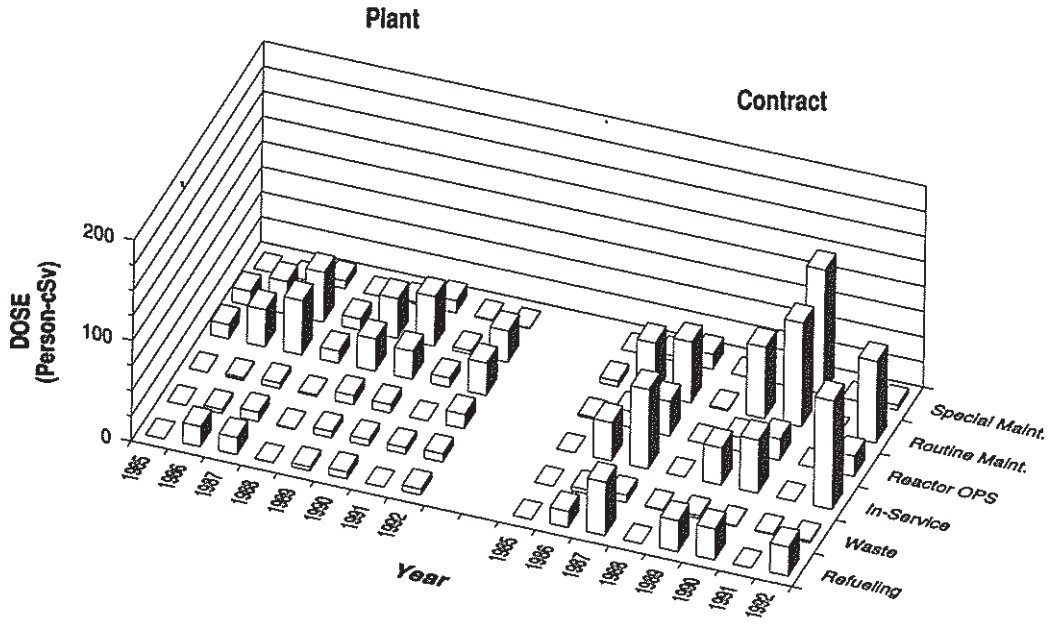
CALLAWAY 1

Dose-Performance Indicators

PWR



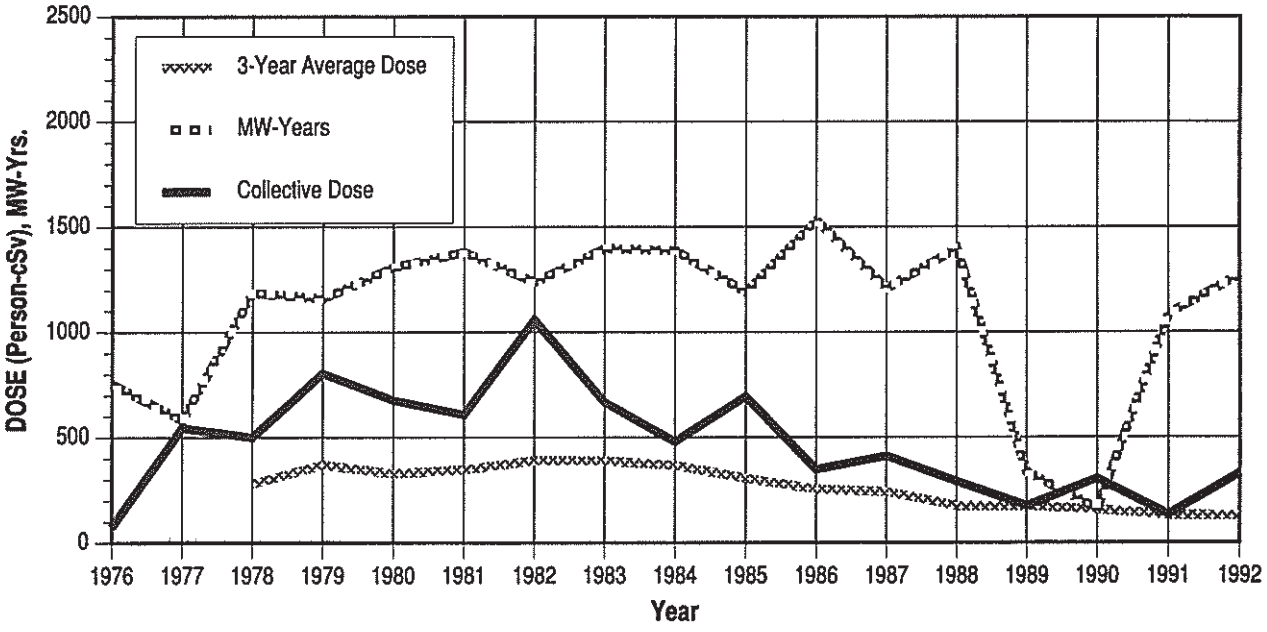
Breakdown by Job Function



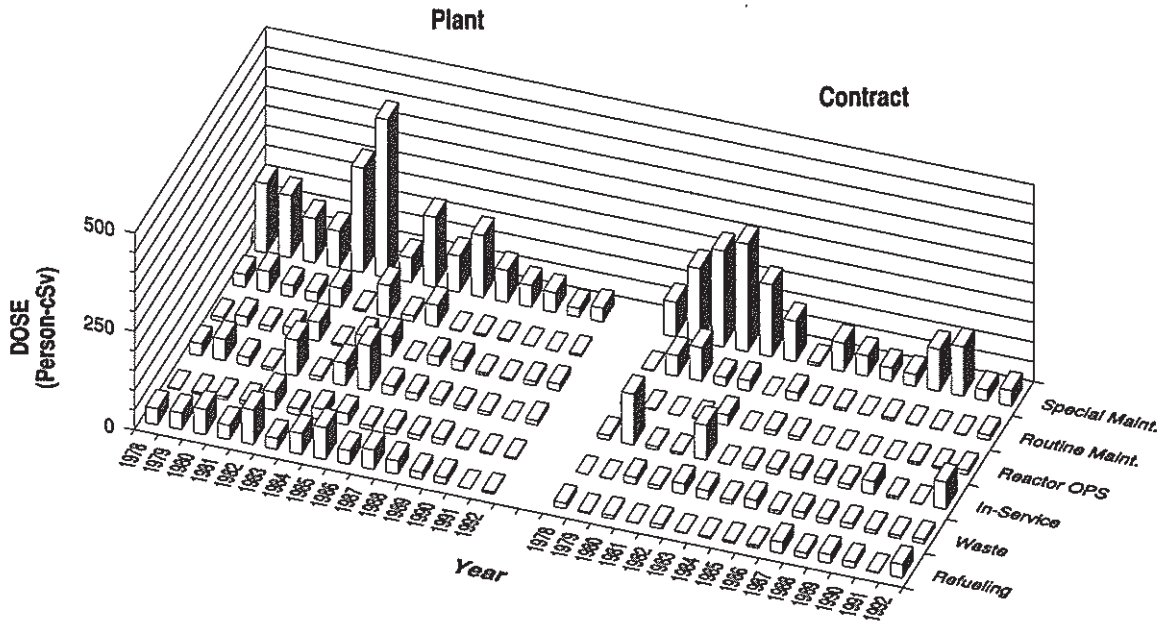
APPENDIX E (continued)

CALVERT CLIFFS 1, 2

Dose-Performance Indicators **PWR**



Breakdown by Job Function

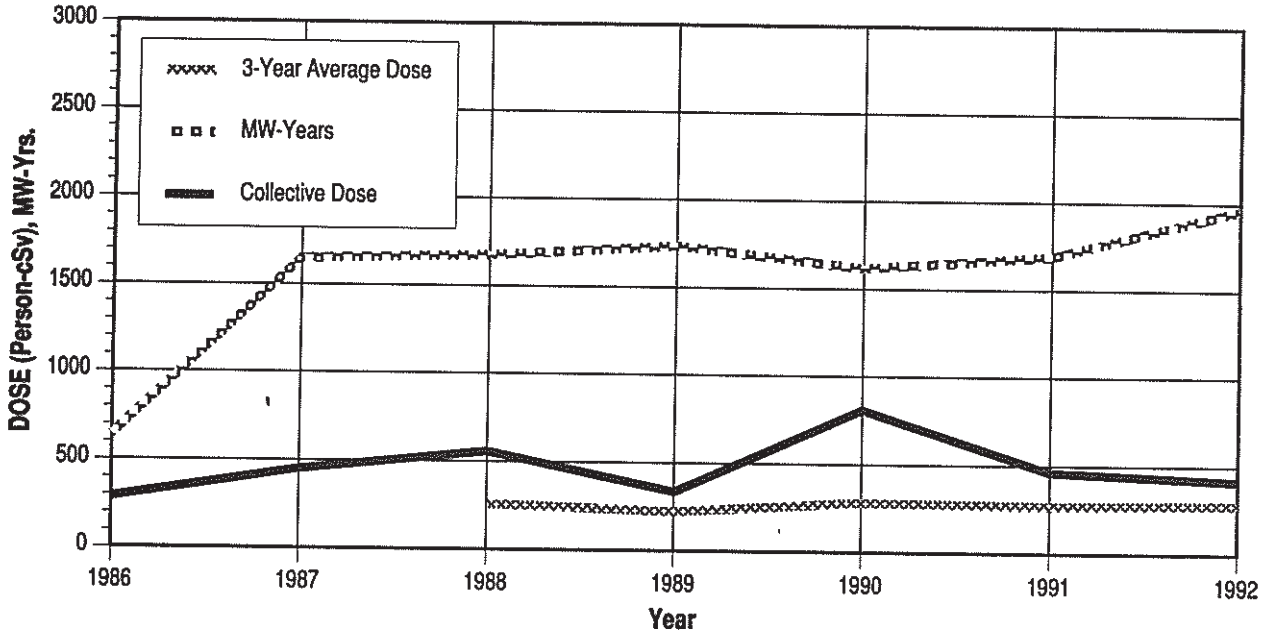


APPENDIX E (continued)

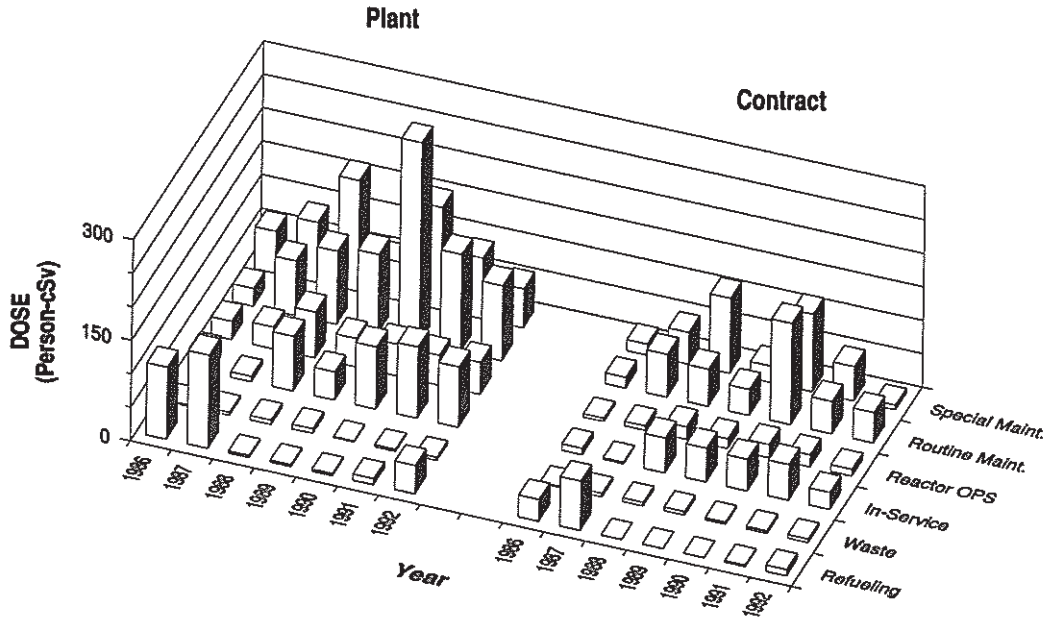
CATAWBA 1, 2

Dose-Performance Indicators

PWR



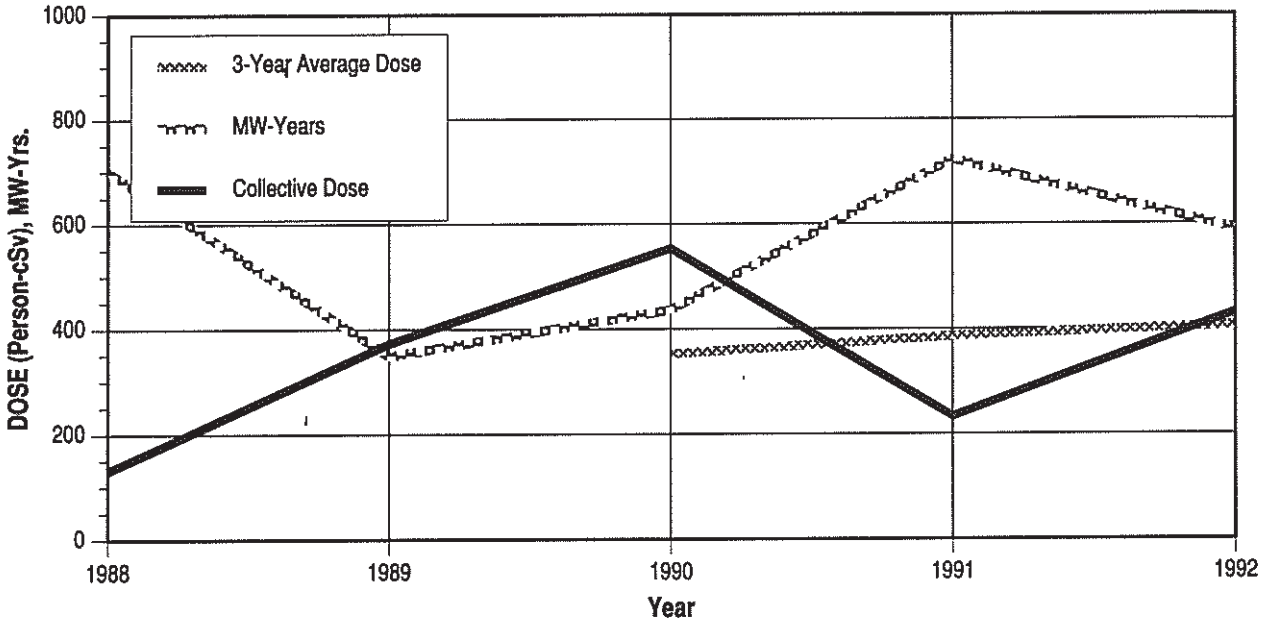
Breakdown by Job Function



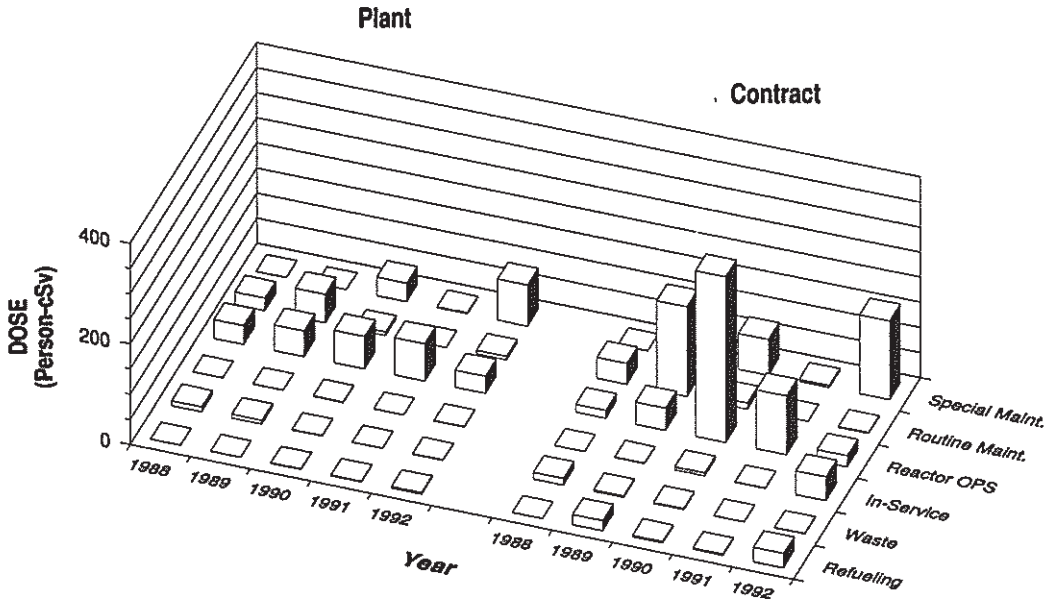
APPENDIX E (continued)

CLINTON

Dose-Performance Indicators **BWR**



Breakdown by Job Function

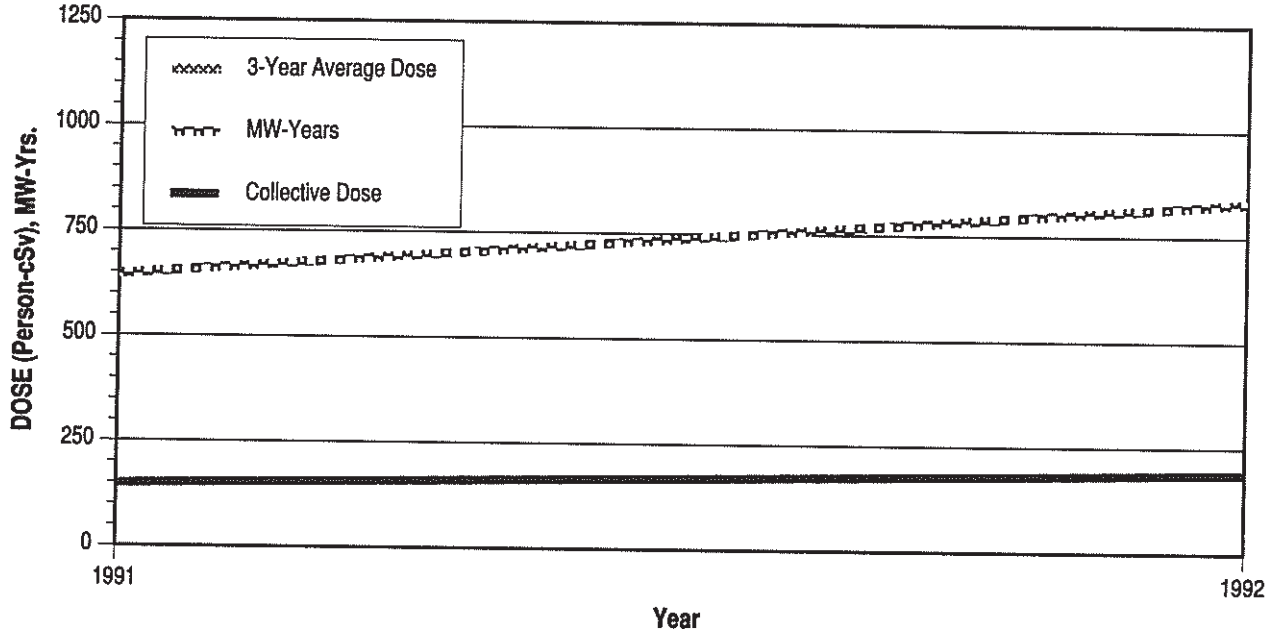


APPENDIX E (continued)

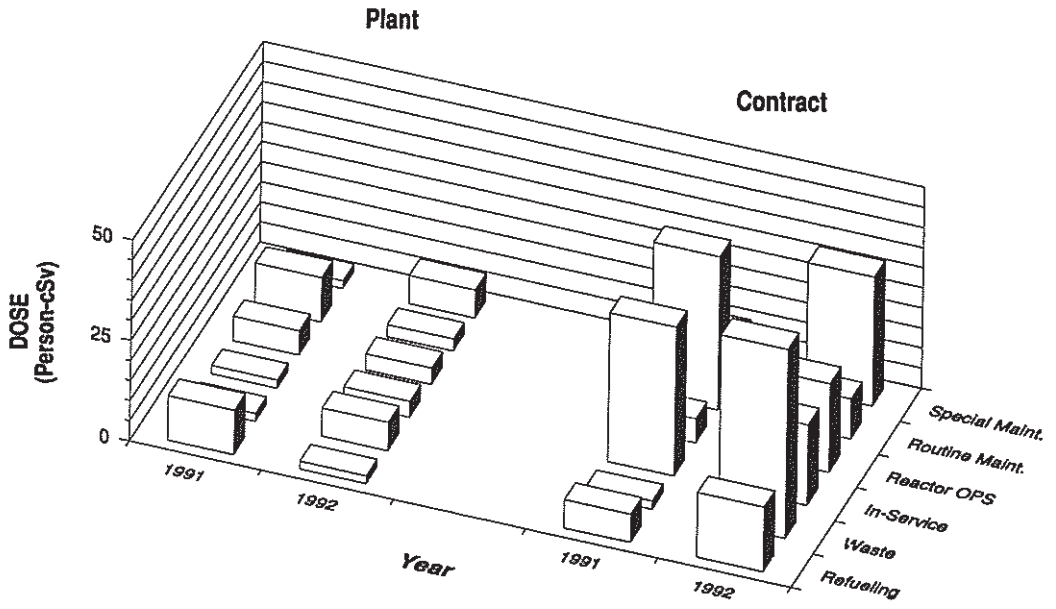
COMANCHE PEAK

Dose-Performance Indicators

PWR



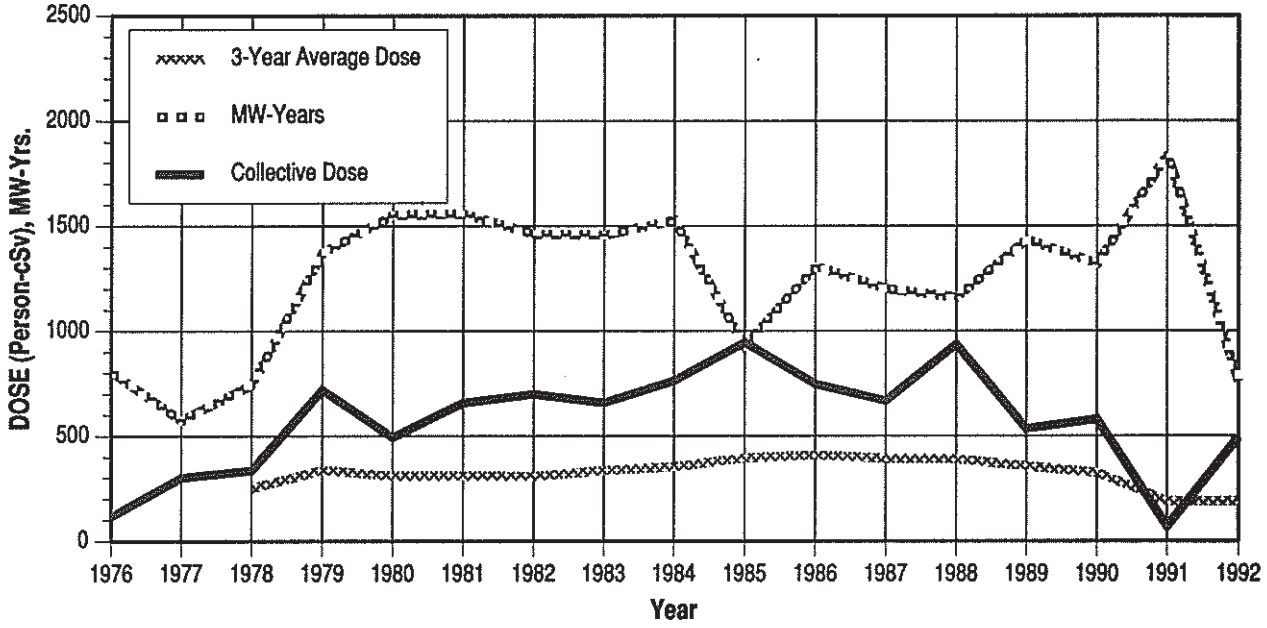
Breakdown by Job Function



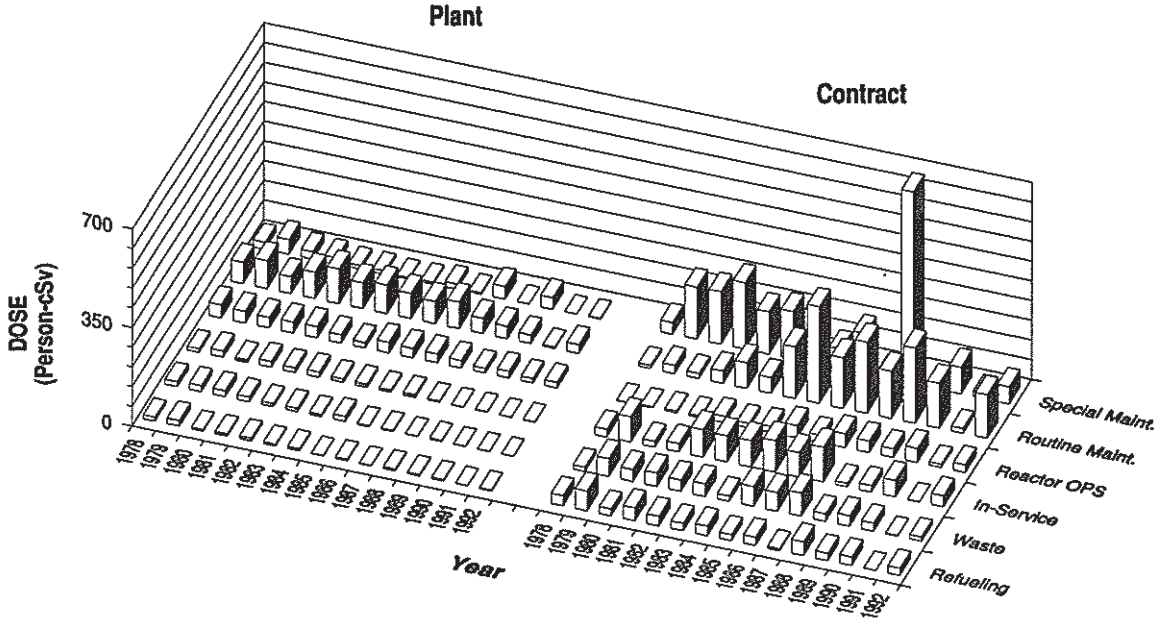
APPENDIX E (continued)

COOK 1, 2

Dose-Performance Indicators **PWR**



Breakdown by Job Function

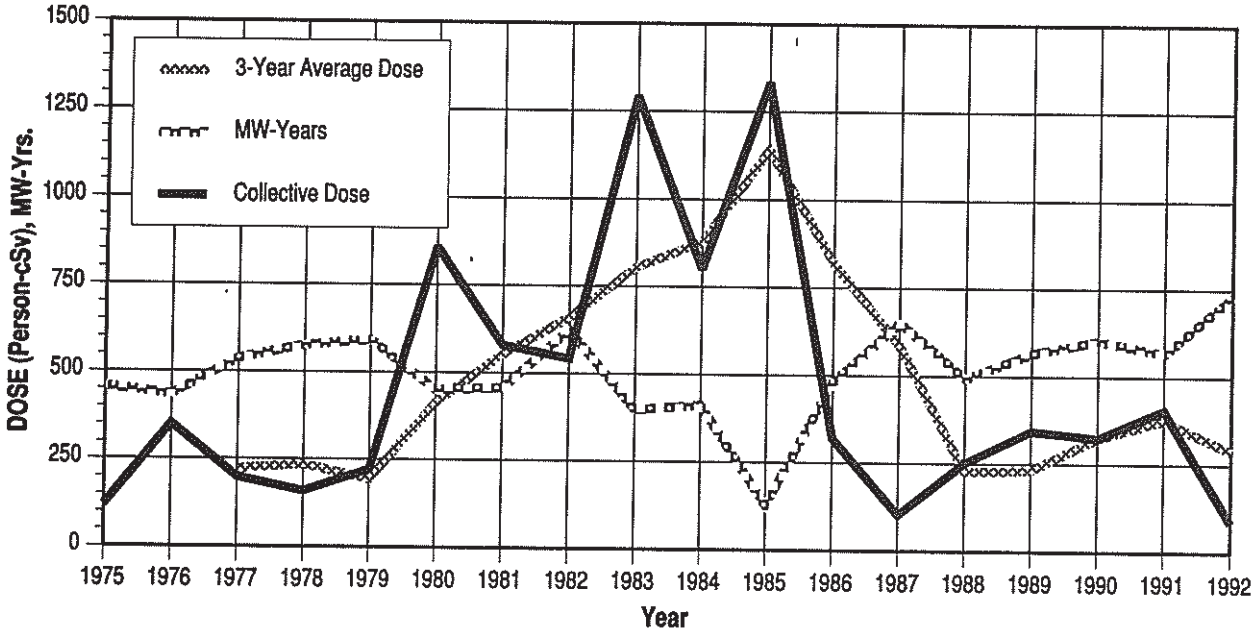


APPENDIX E (continued)

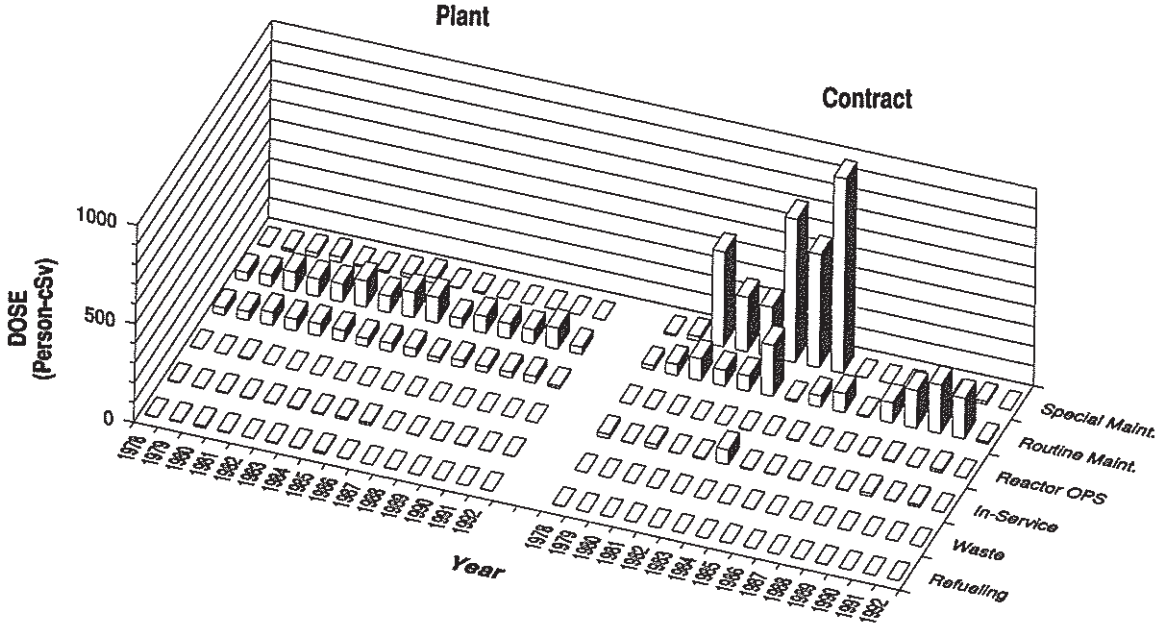
COOPER STATION

Dose-Performance Indicators

BWR



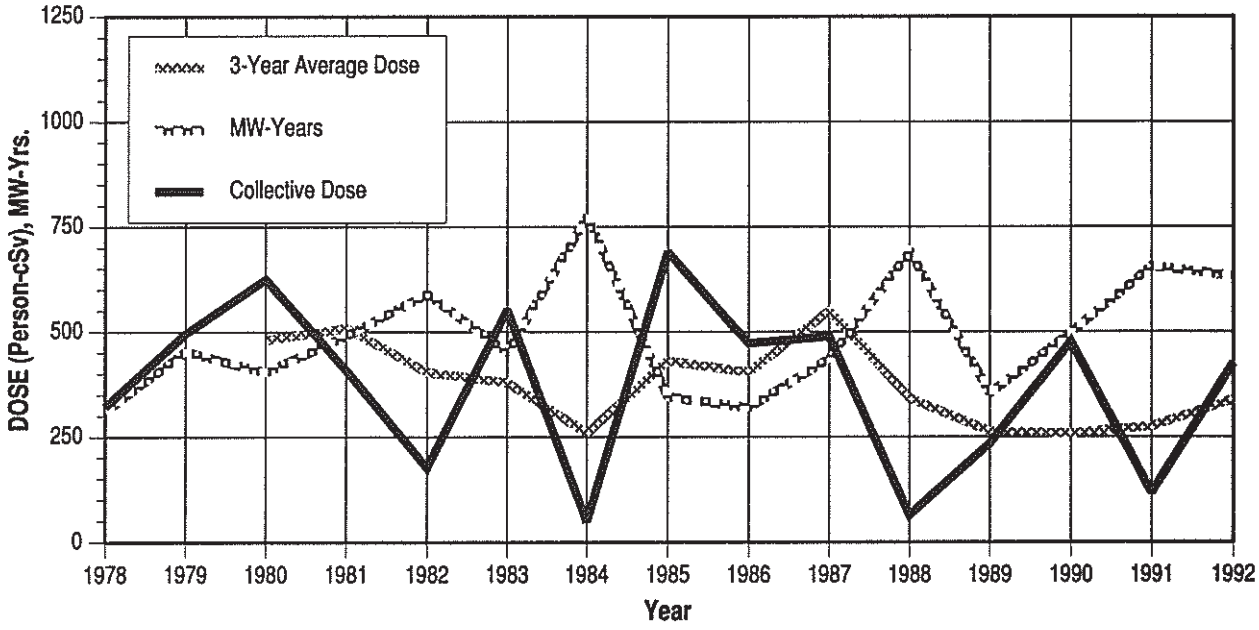
Breakdown by Job Function



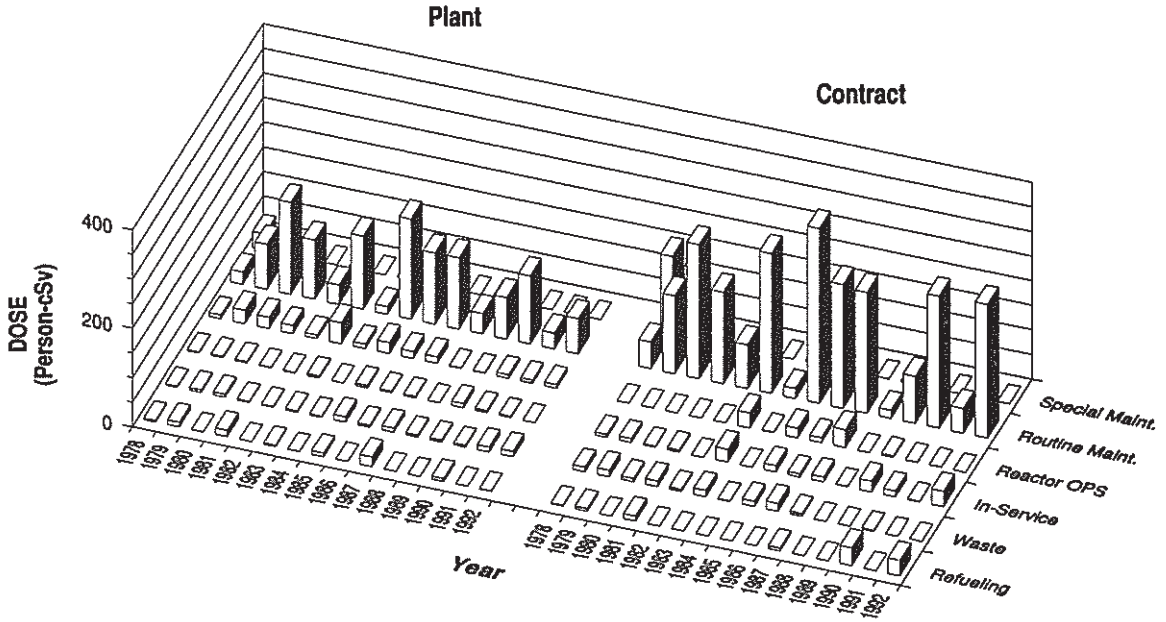
APPENDIX E (continued)

CRYSTAL RIVER 3

Dose-Performance Indicators **PWR**



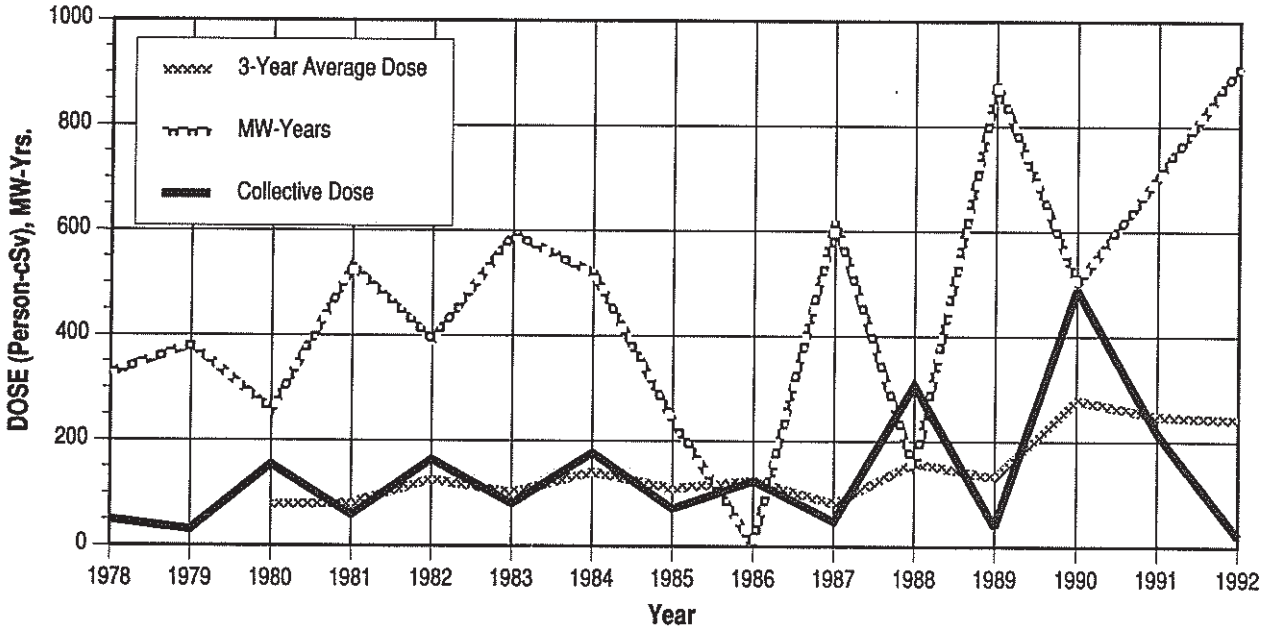
Breakdown by Job Function



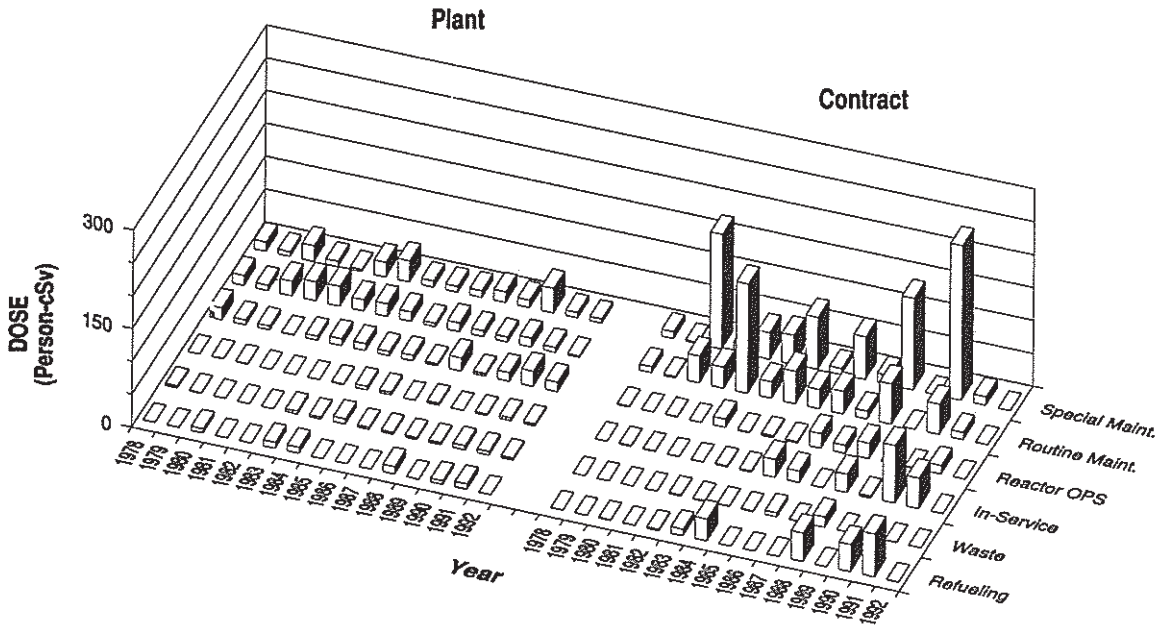
APPENDIX E (continued)

DAVIS-BESSE

Dose-Performance Indicators **PWR**



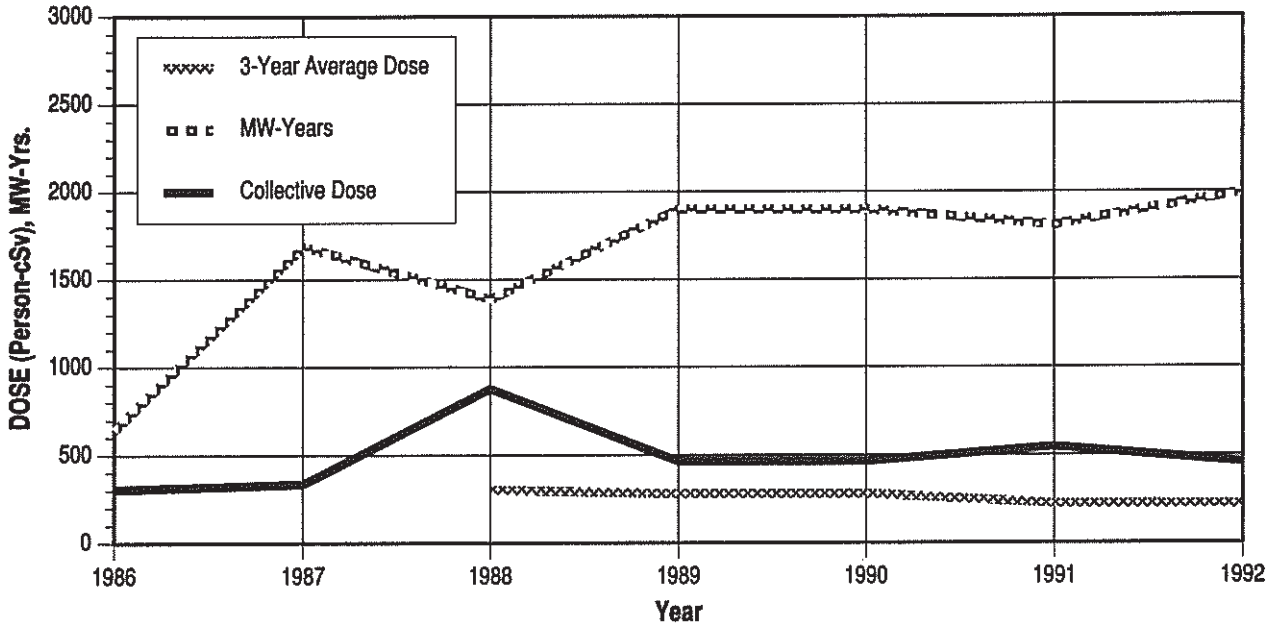
Breakdown by Job Function



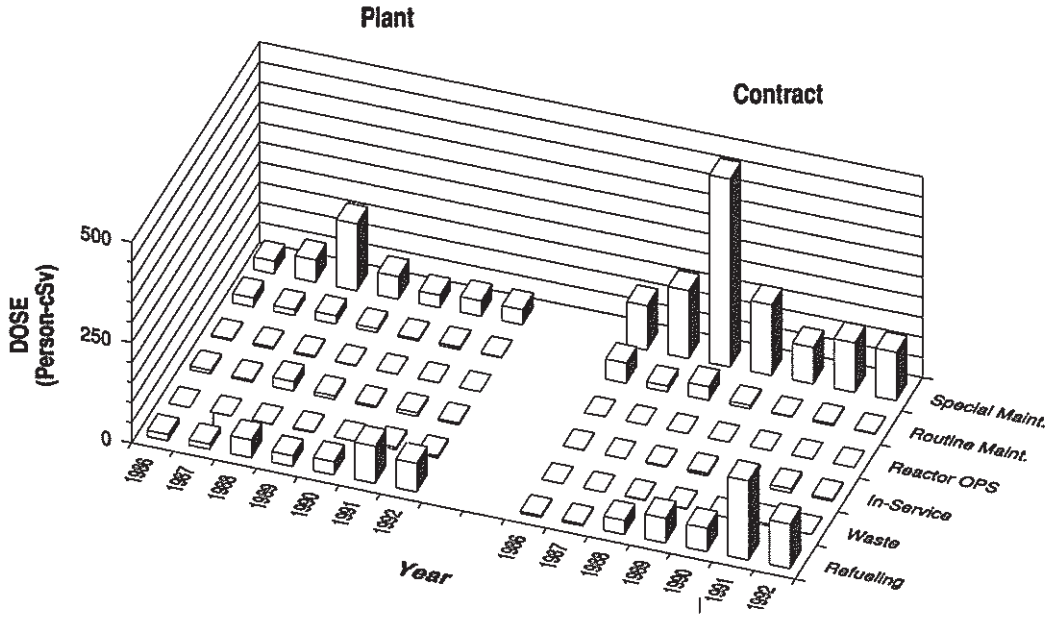
APPENDIX E (continued)

DIABLO CANYON 1, 2

Dose-Performance Indicators **PWR**



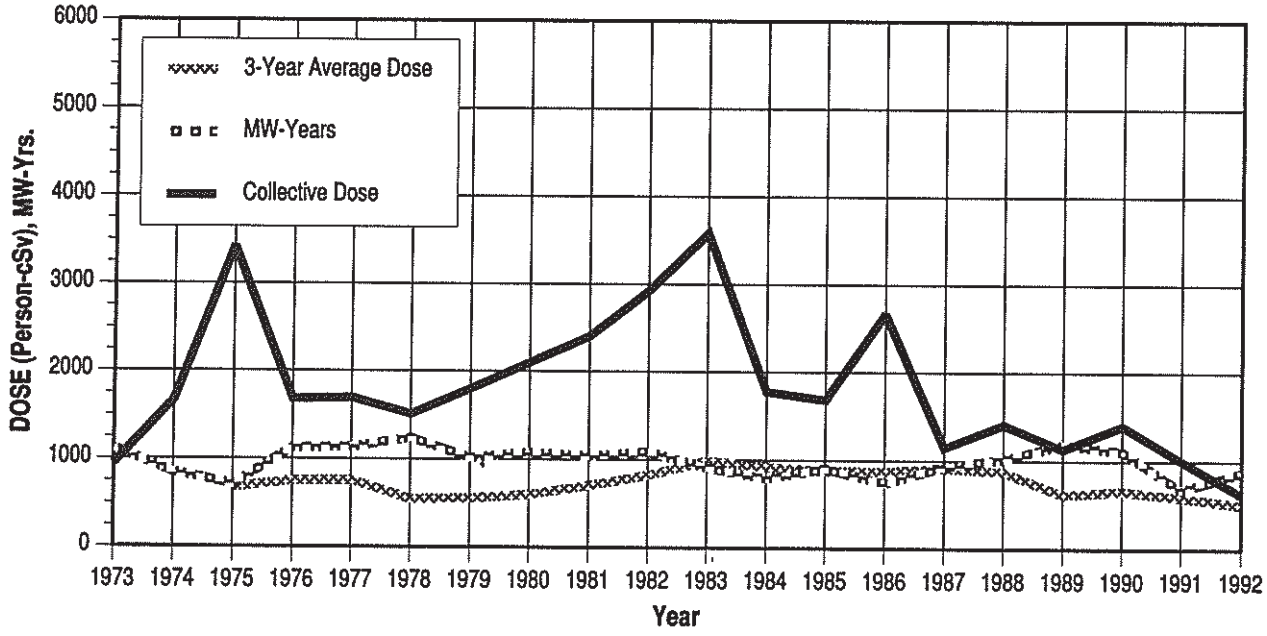
Breakdown by Job Function



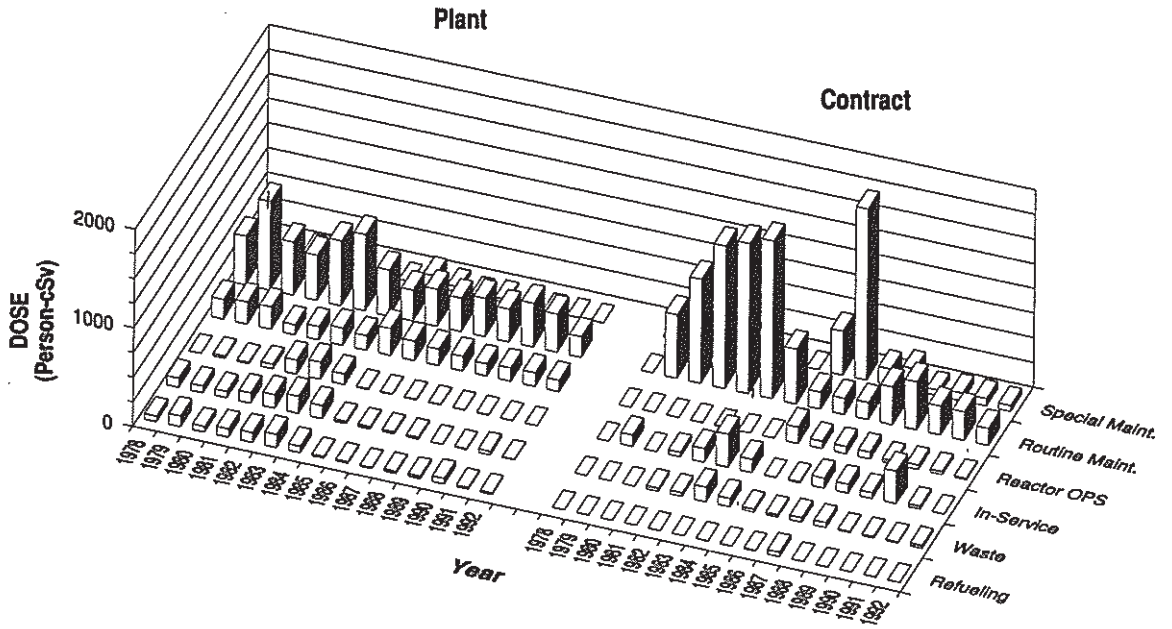
APPENDIX E (continued)

DRESDEN 2, 3

Dose-Performance Indicators **BWR**



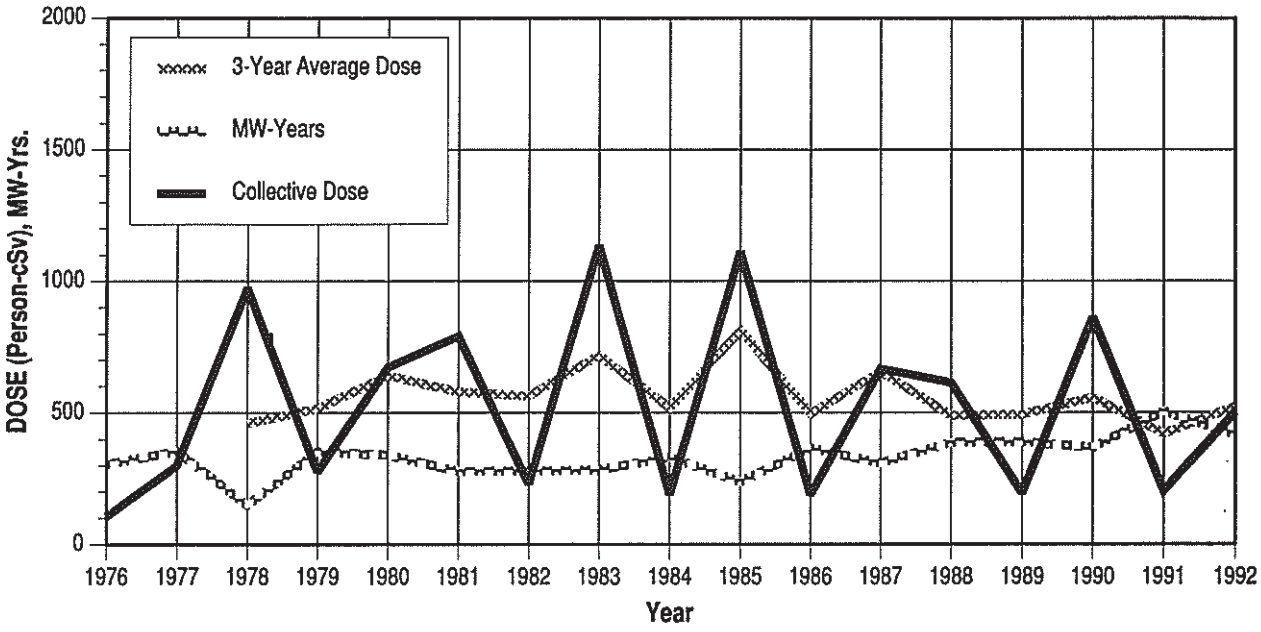
Breakdown by Job Function



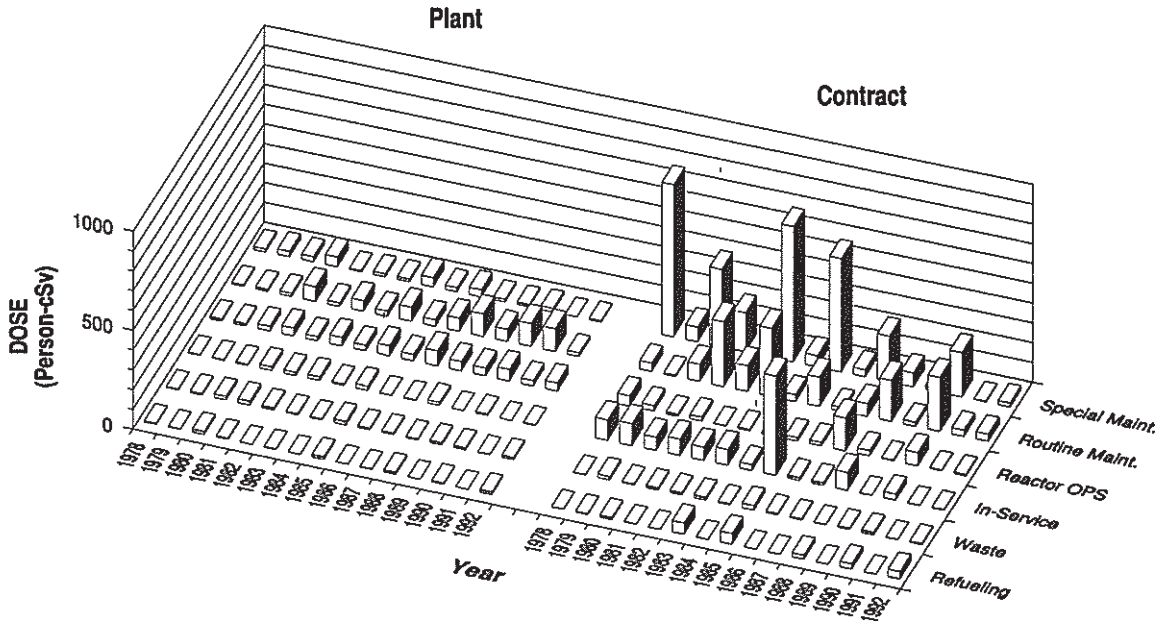
APPENDIX E (continued)

DUANE ARNOLD

Dose-Performance Indicators **BWR**



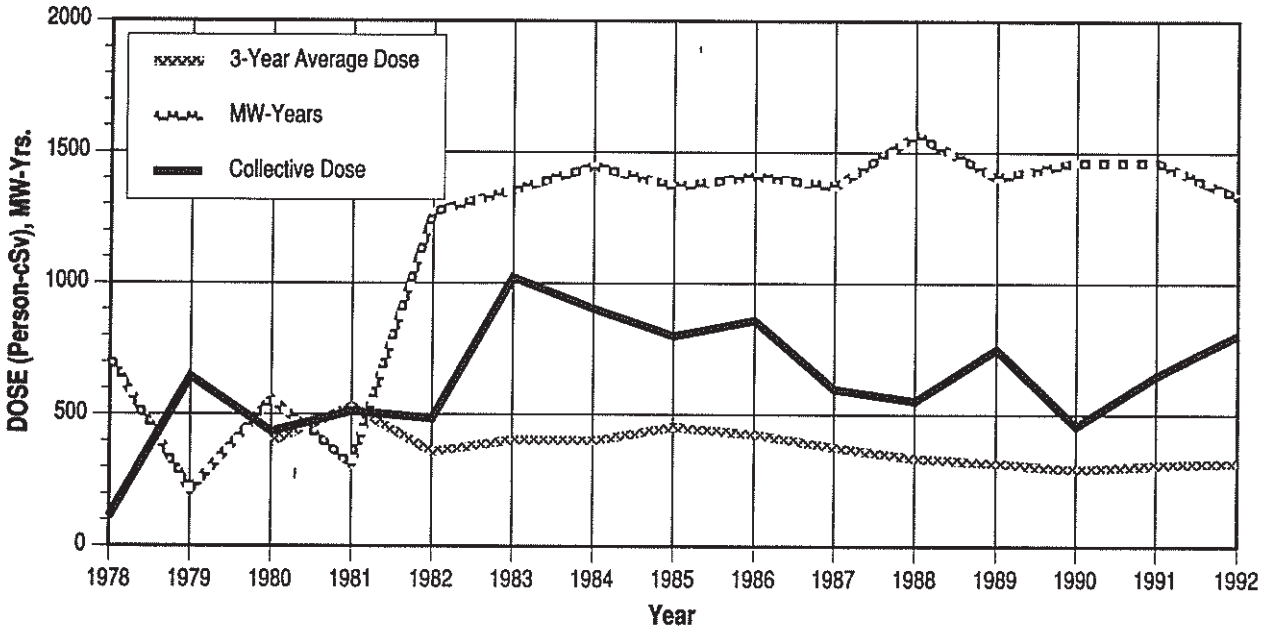
Breakdown by Job Function



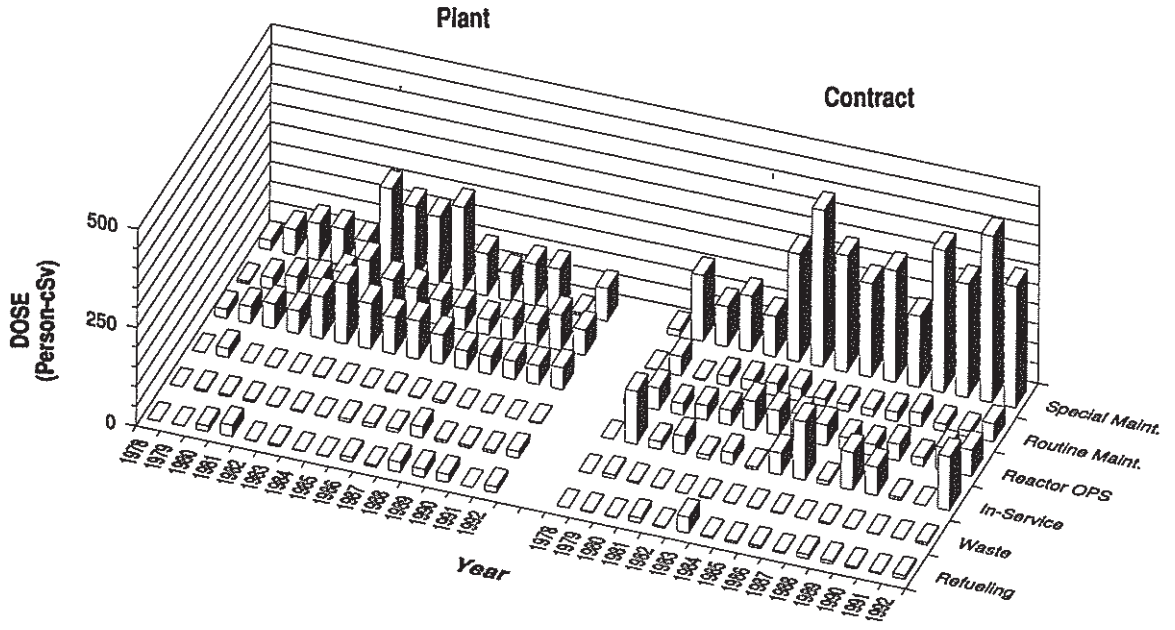
APPENDIX E (continued)

FARLEY 1, 2

Dose-Performance Indicators **PWR**



Breakdown by Job Function

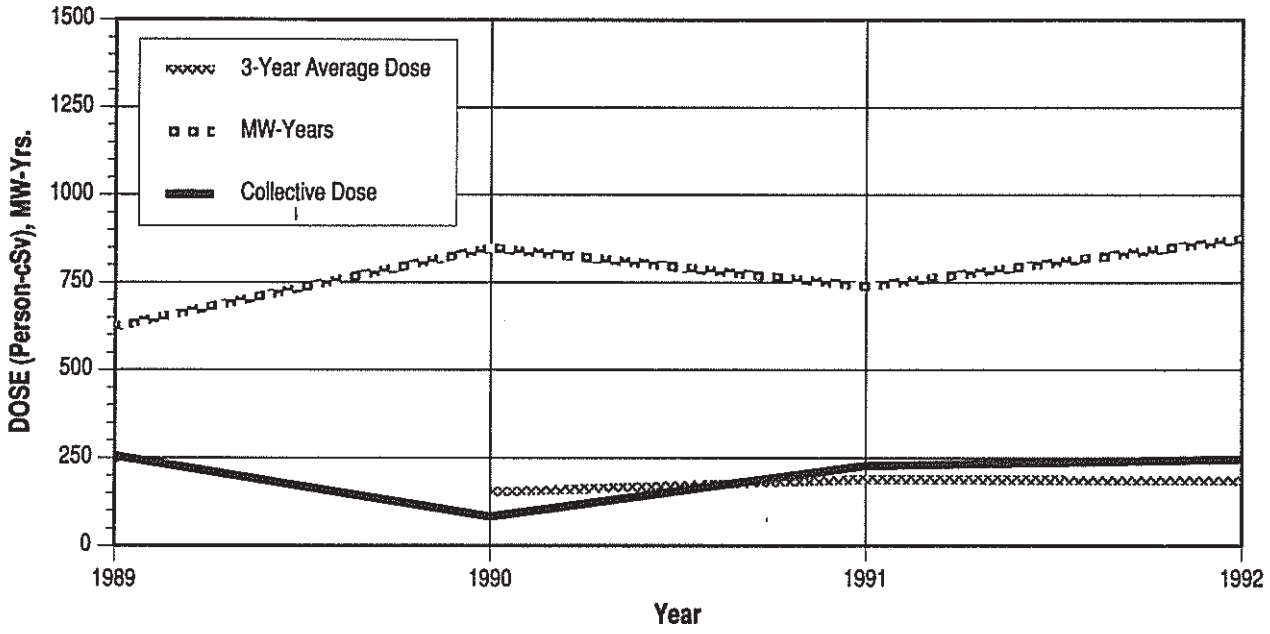


APPENDIX E (continued)

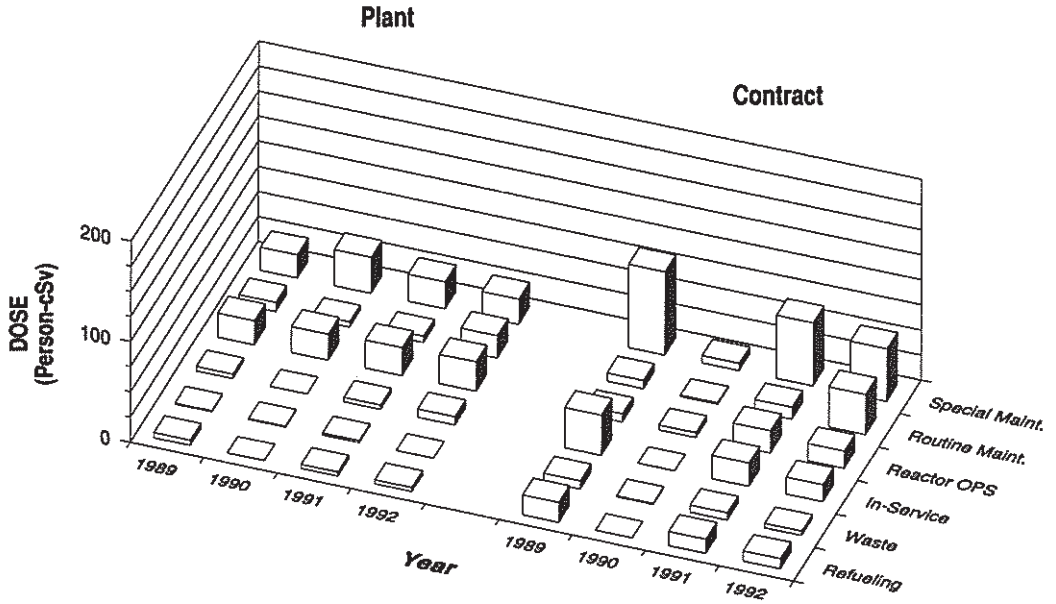
FERMI 2

Dose-Performance Indicators

BWR



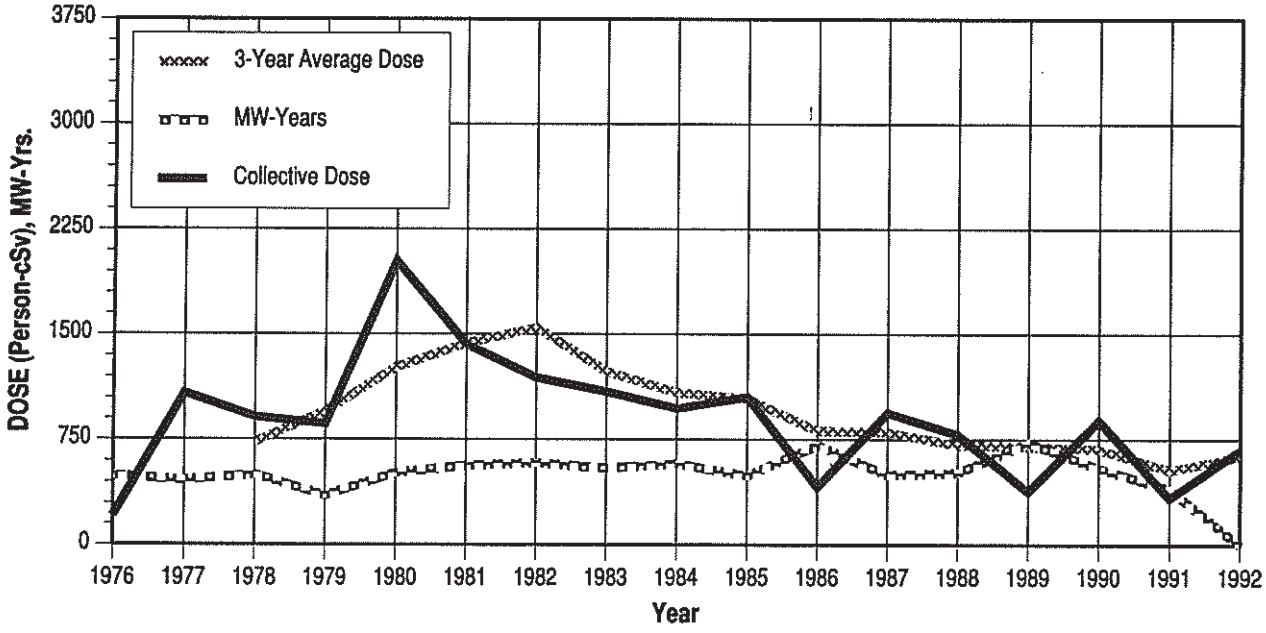
Breakdown by Job Function



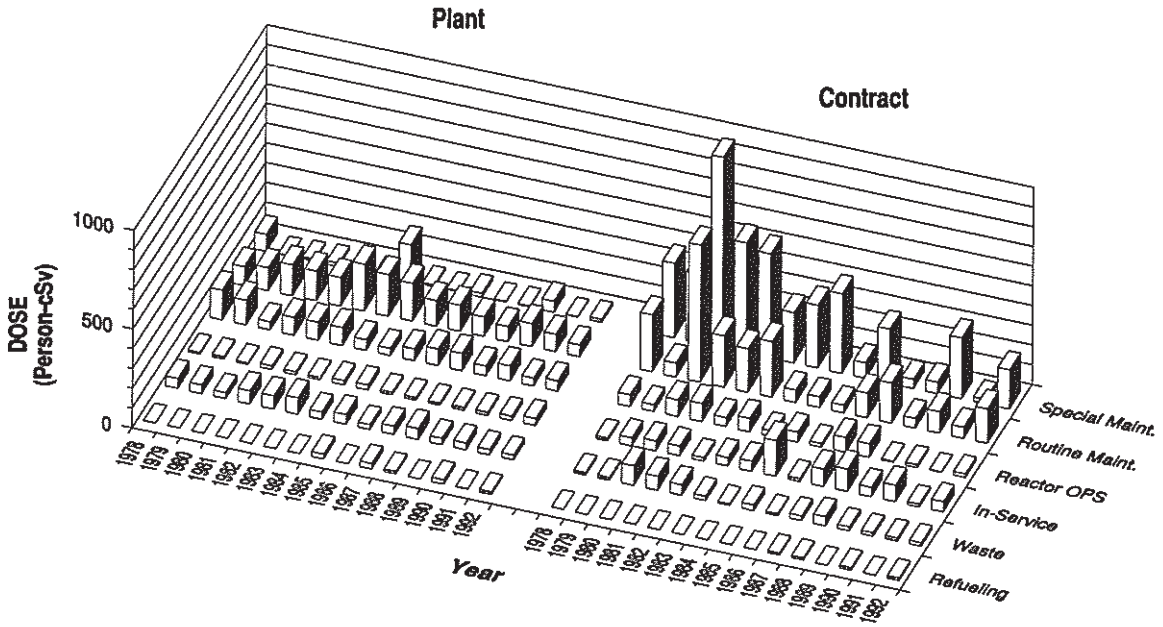
APPENDIX E (continued)

FITZPATRICK

Dose-Performance Indicators **BWR**



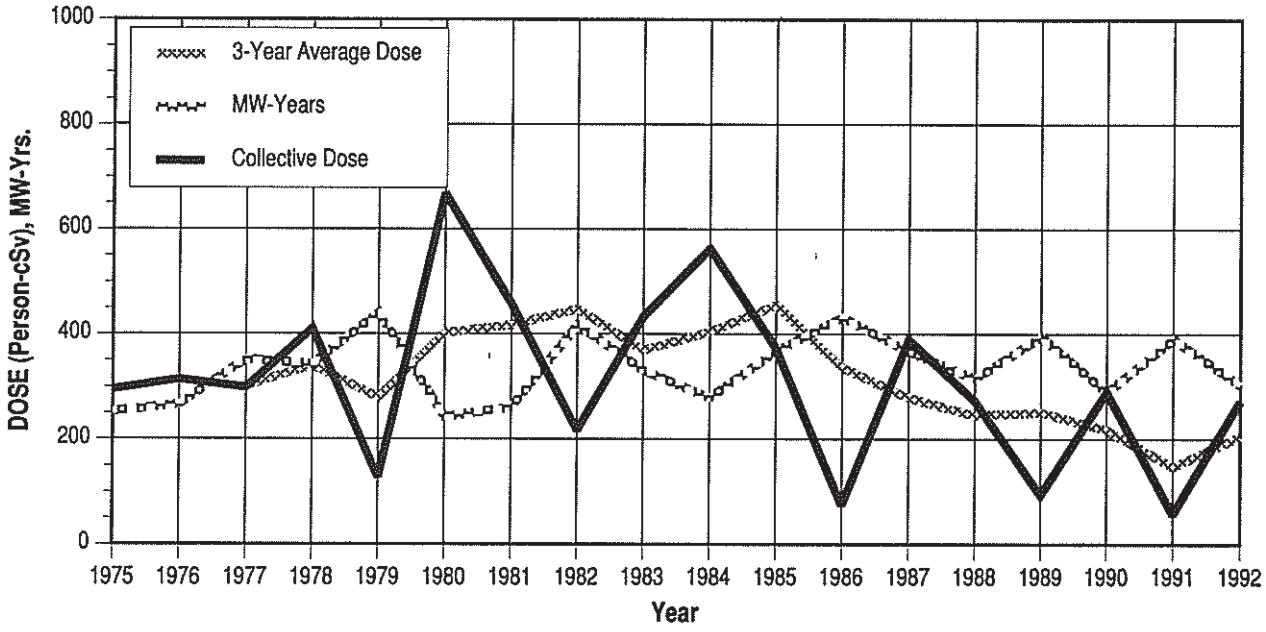
Breakdown by Job Function



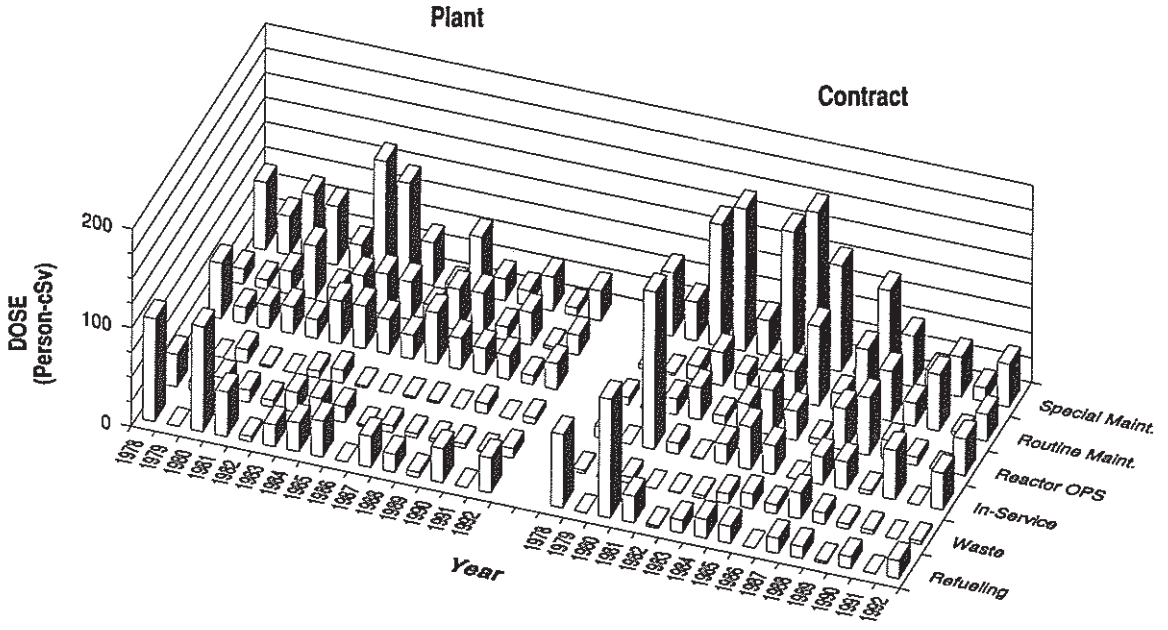
APPENDIX E (continued)

FORT CALHOUN

Dose-Performance Indicators **PWR**



Breakdown by Job Function

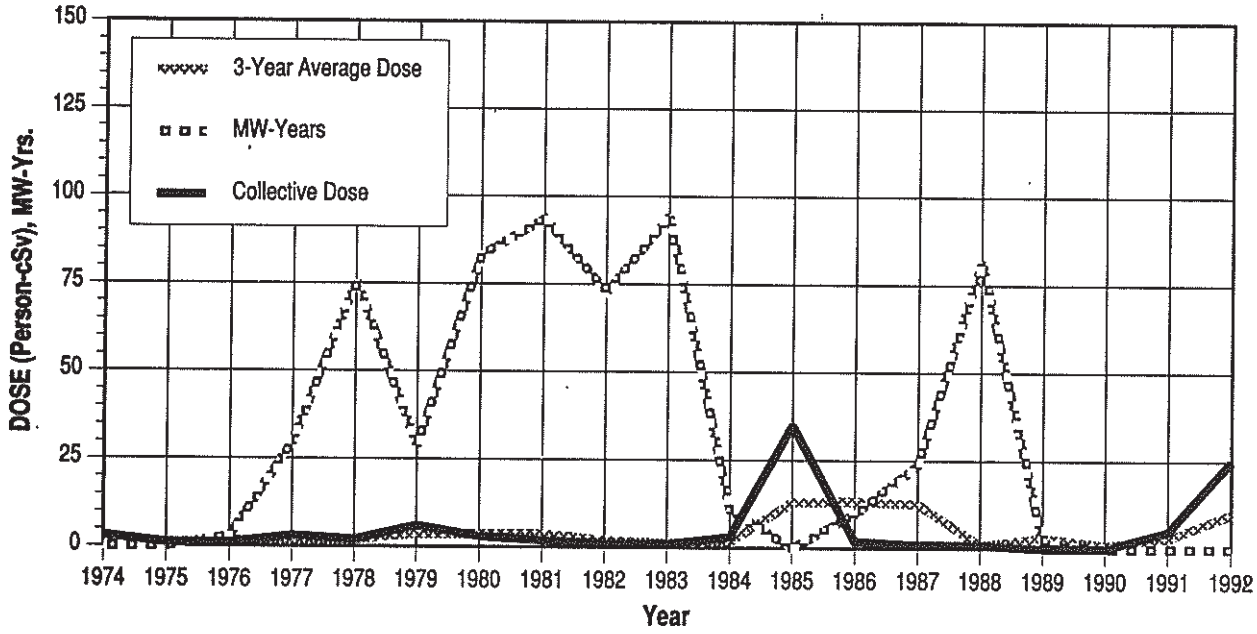


APPENDIX E (continued)

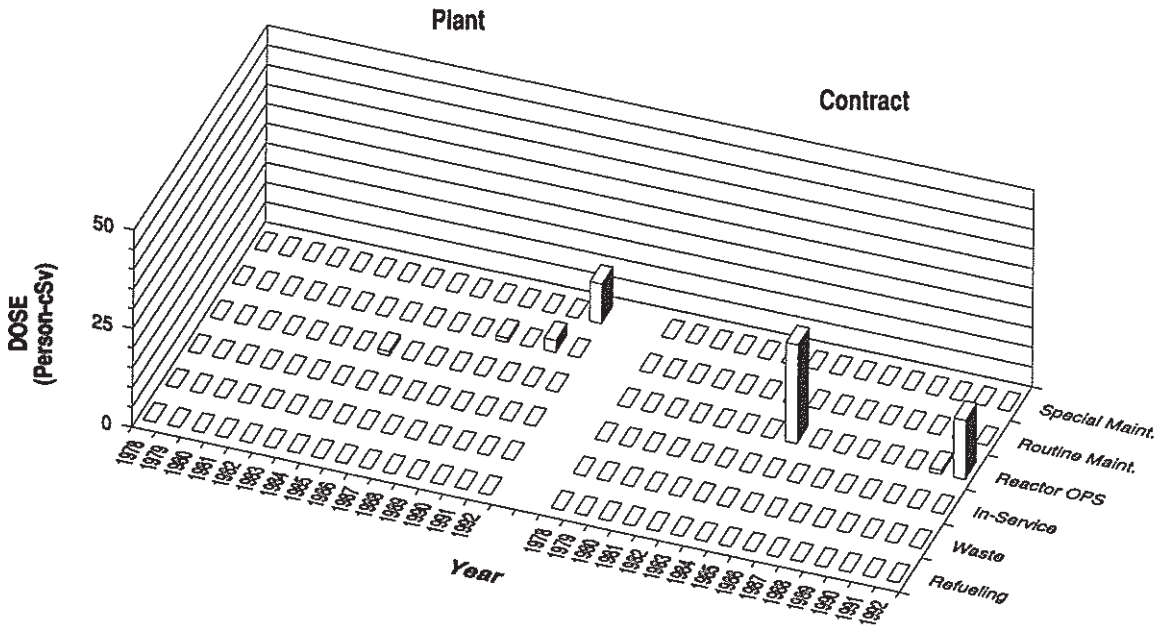
FORT ST. VRAIN

Dose-Performance Indicators

HTGR



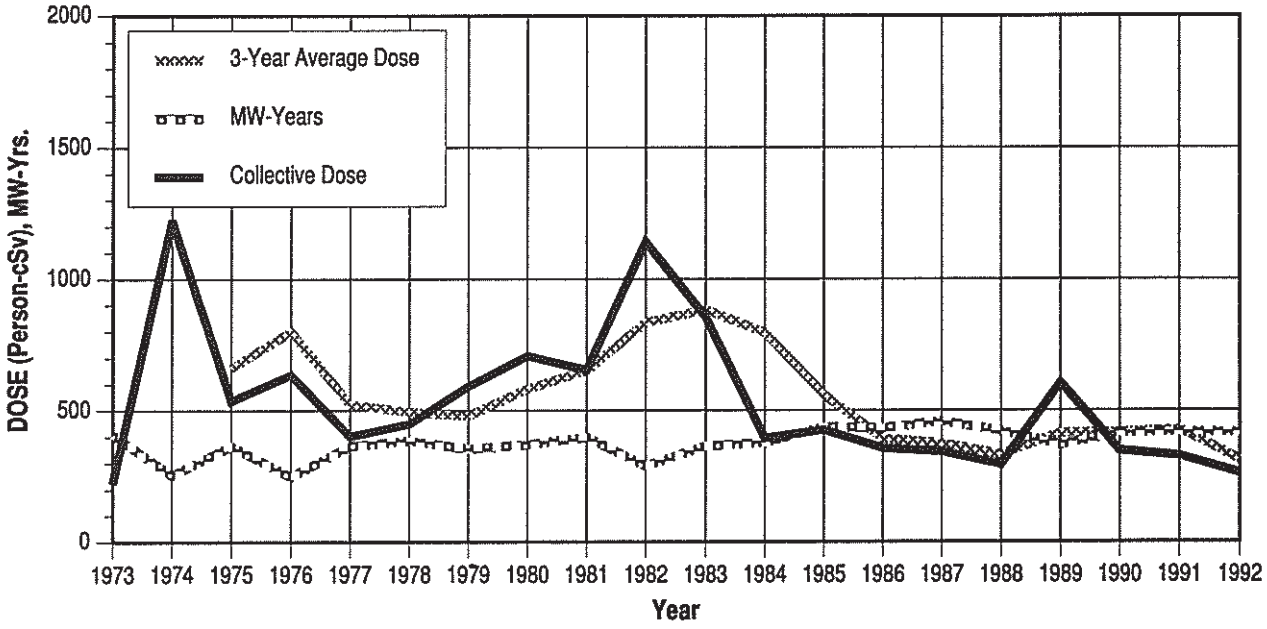
Breakdown by Job Function



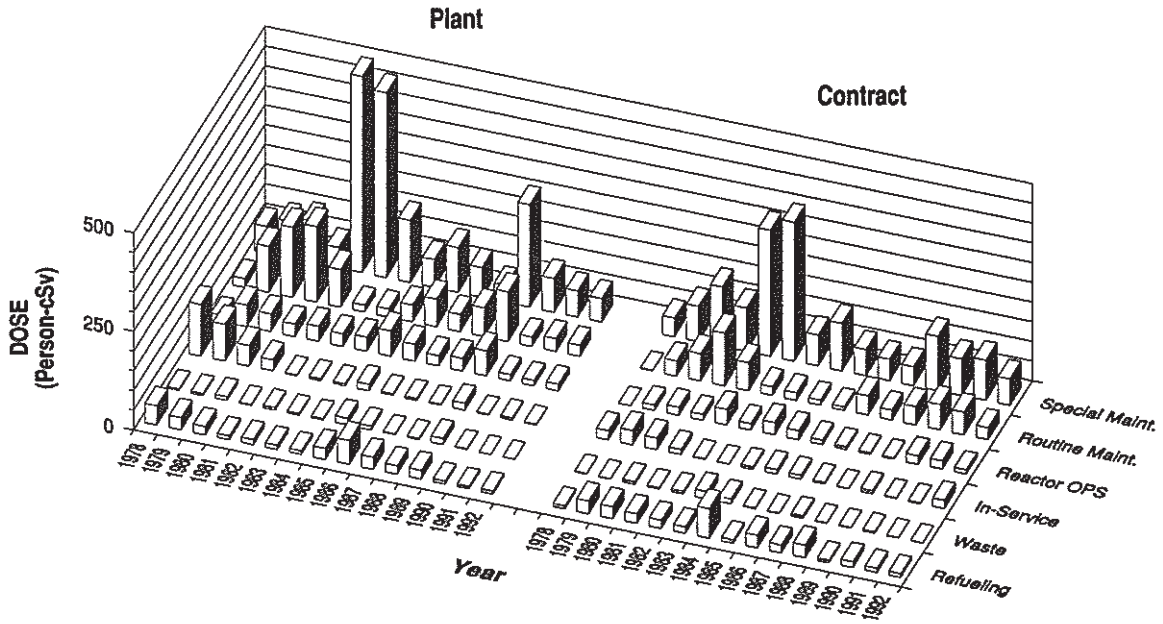
APPENDIX E (continued)

GINNA

Dose-Performance Indicators **PWR**



Breakdown by Job Function

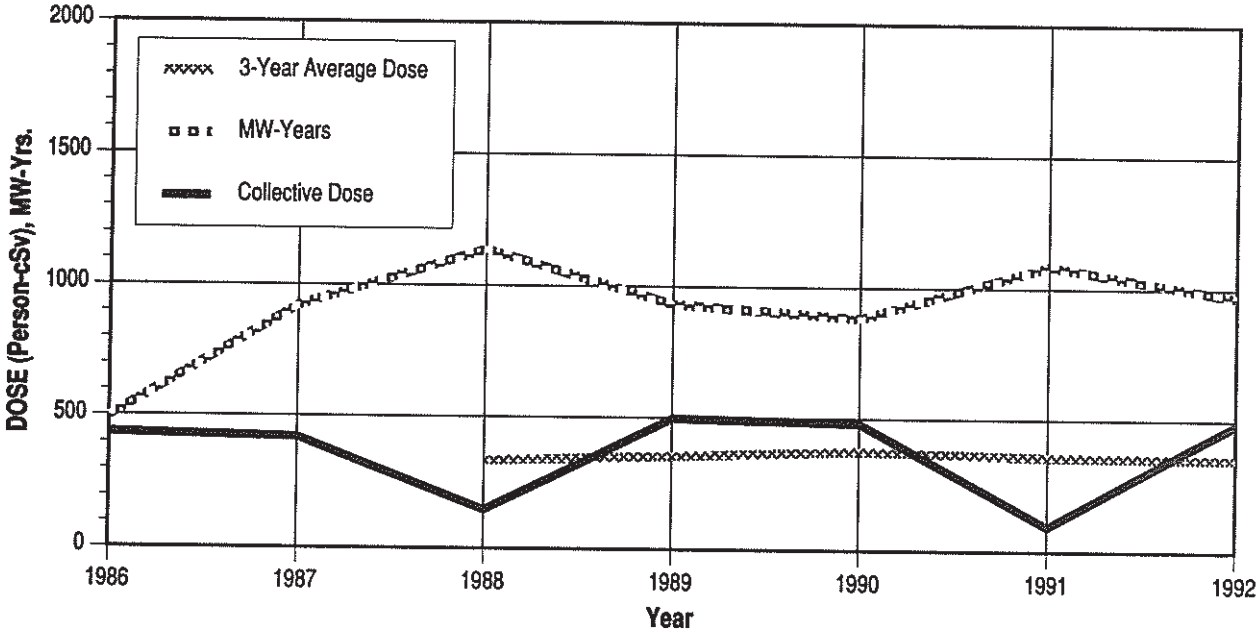


APPENDIX E (continued)

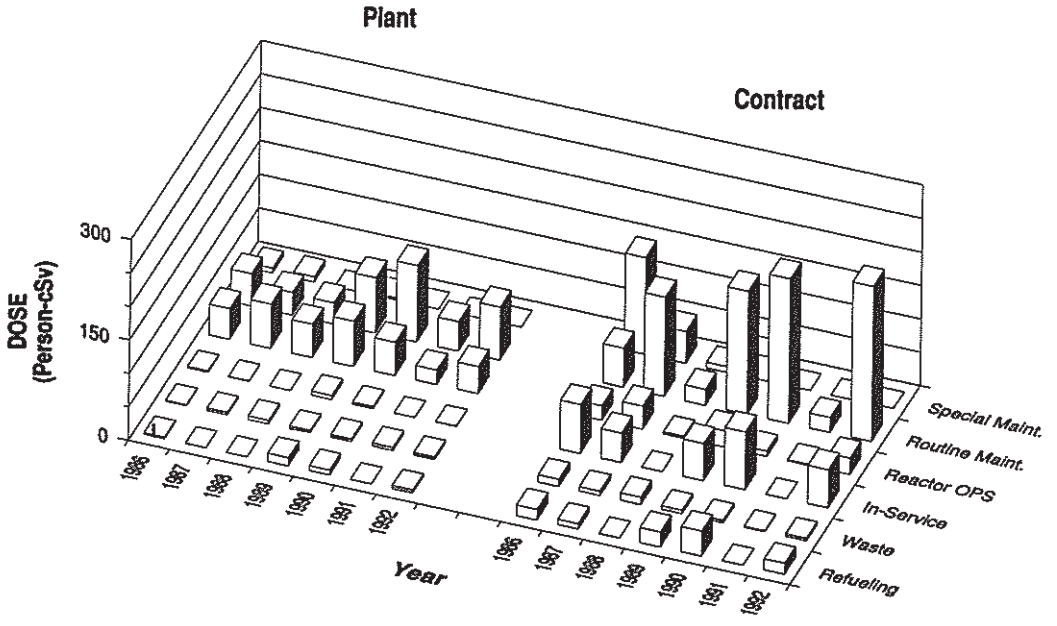
GRAND GULF

Dose-Performance Indicators

BWR



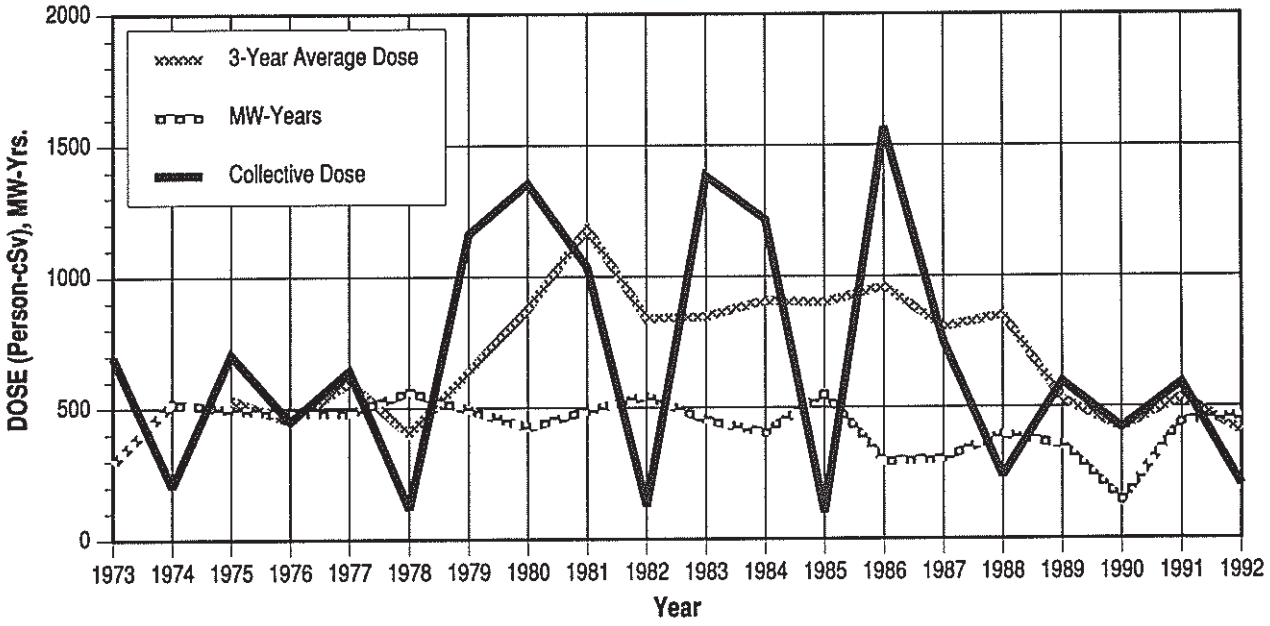
Breakdown by Job Function



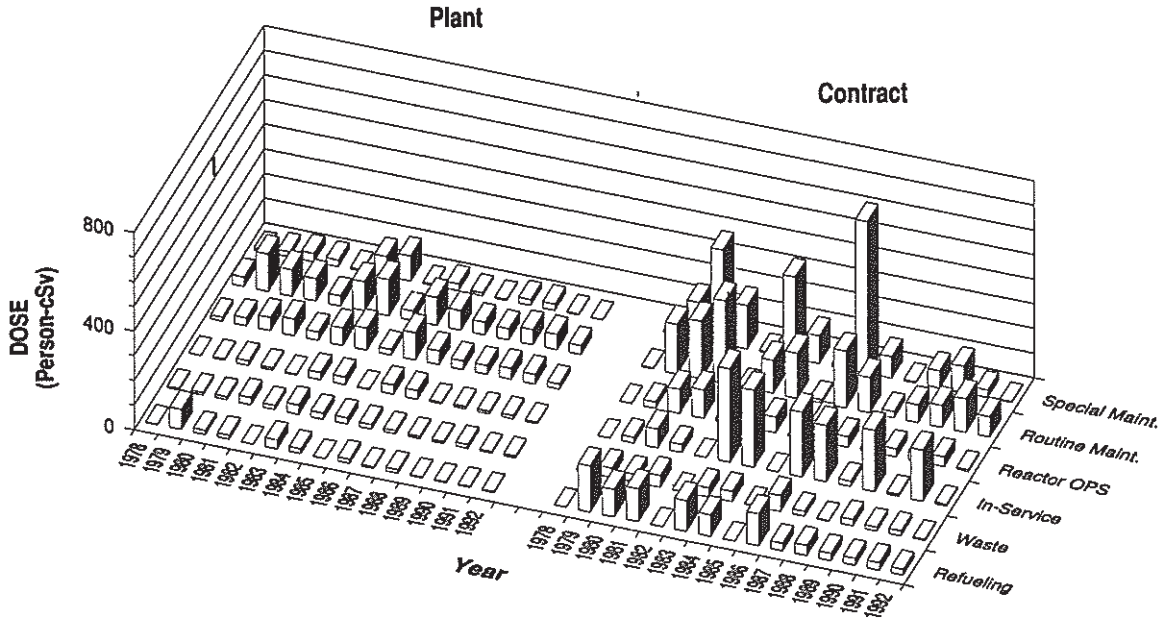
APPENDIX E (continued)

HADDAM NECK

Dose-Performance Indicators **PWR**



Breakdown by Job Function

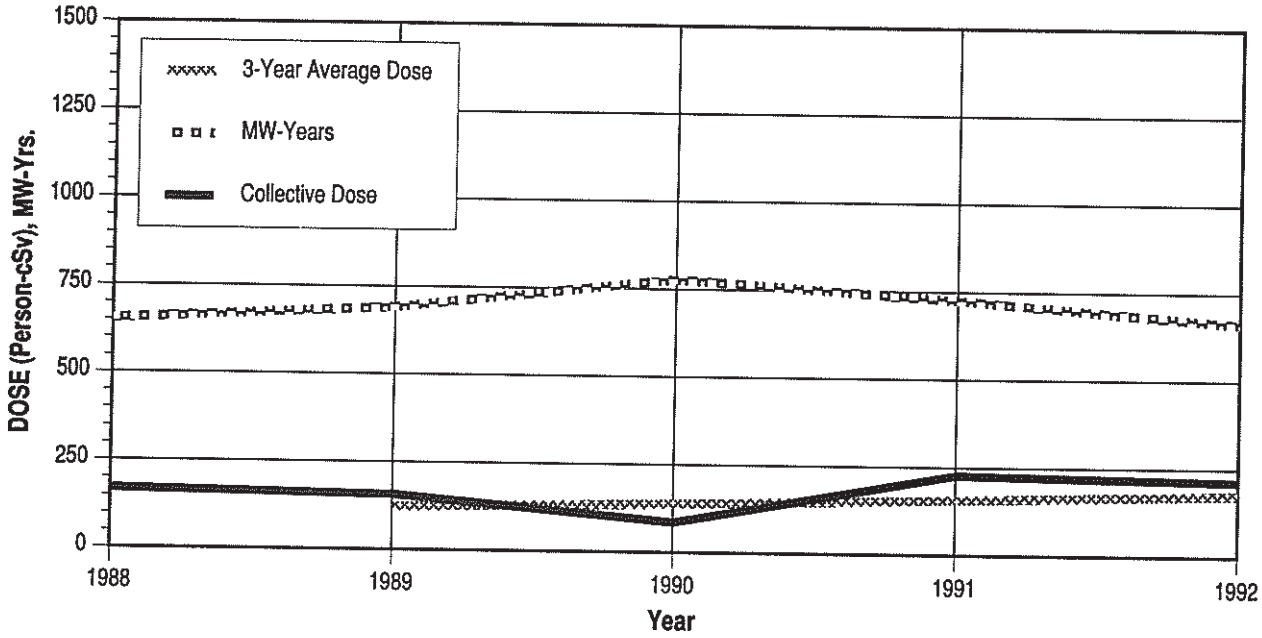


APPENDIX E (continued)

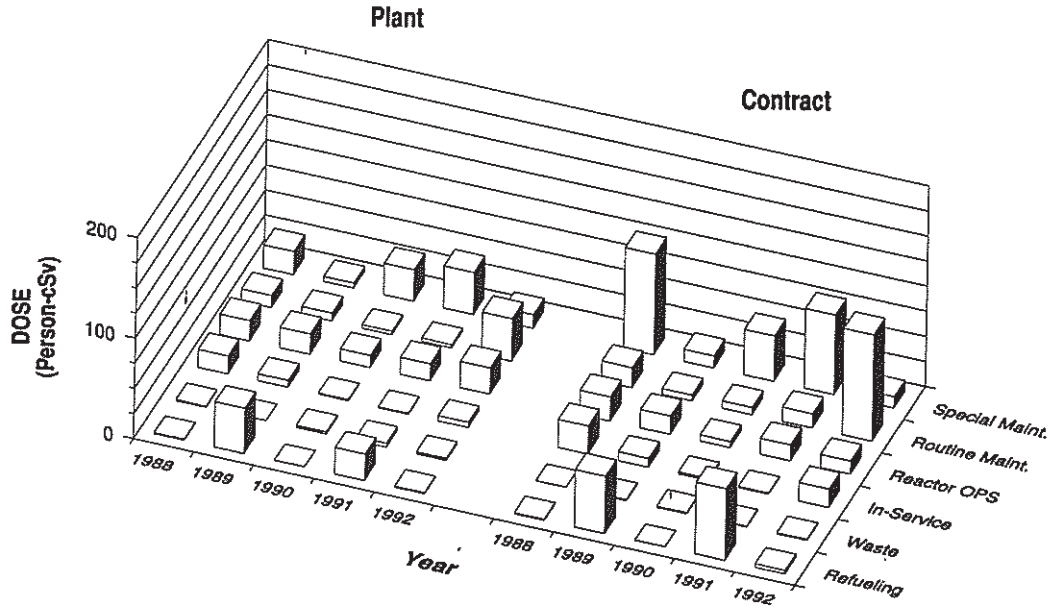
HARRIS

Dose-Performance Indicators

PWR



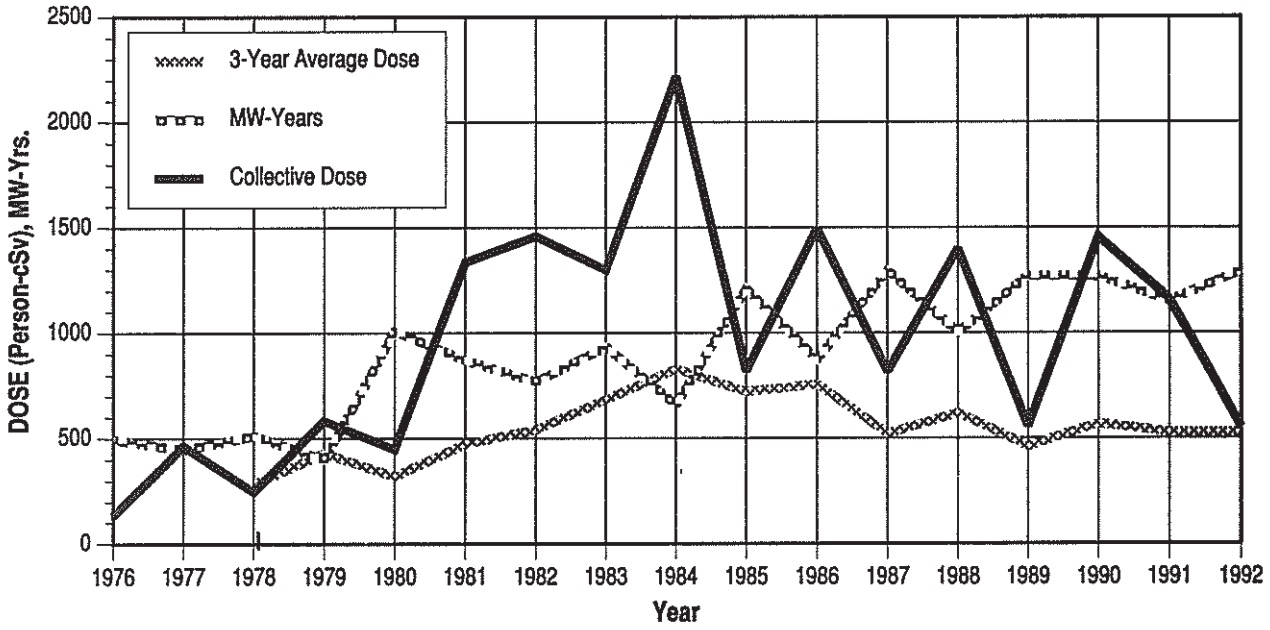
Breakdown by Job Function



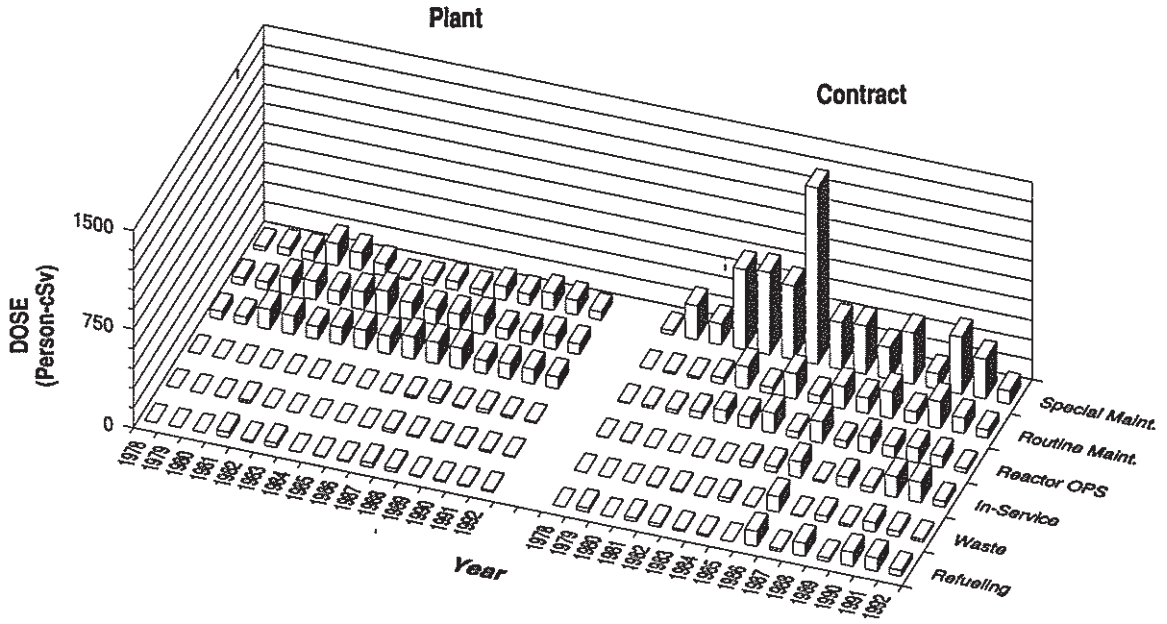
APPENDIX E (continued)

HATCH 1, 2

Dose-Performance Indicators **BWR**



Breakdown by Job Function

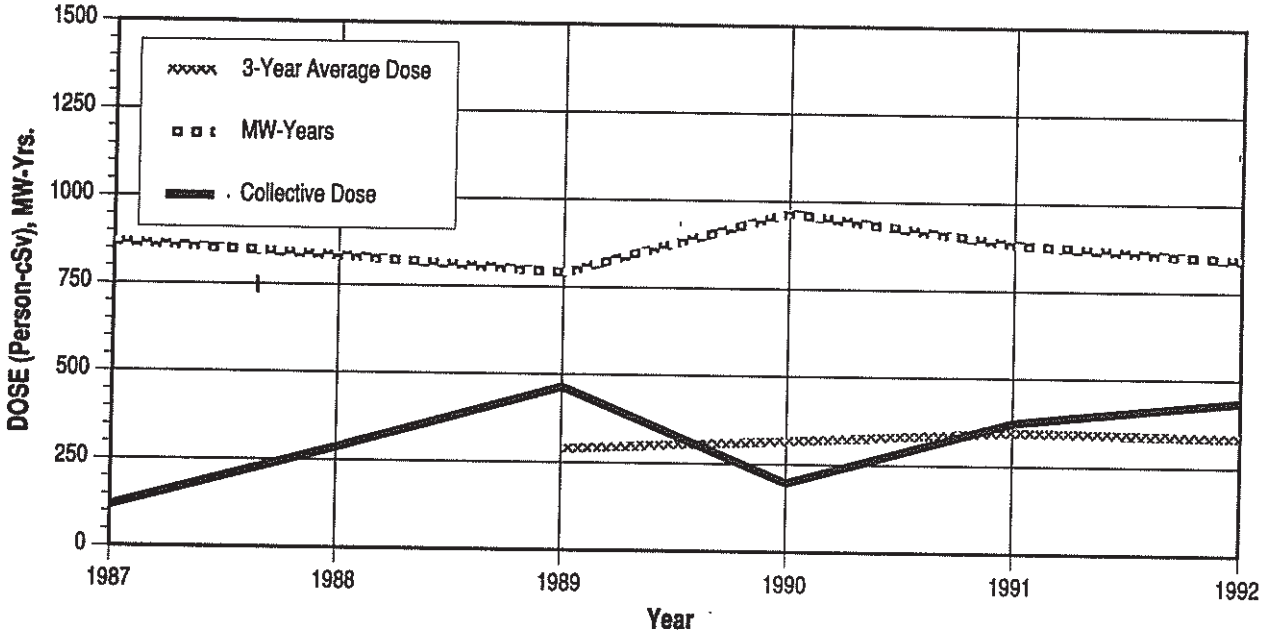


APPENDIX E (continued)

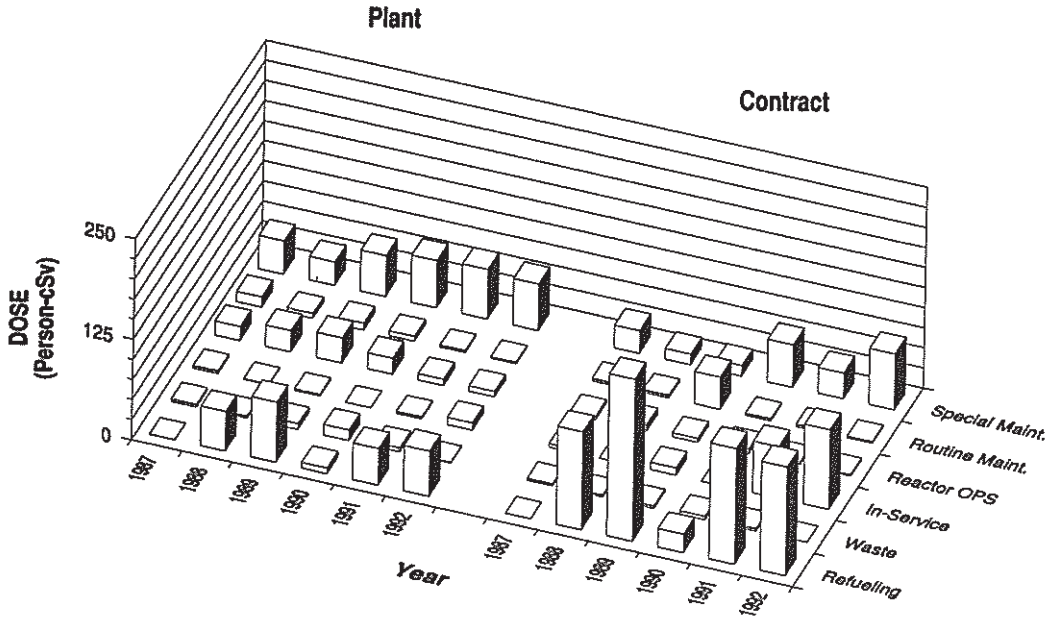
HOPE CREEK 1

Dose-Performance Indicators

BWR



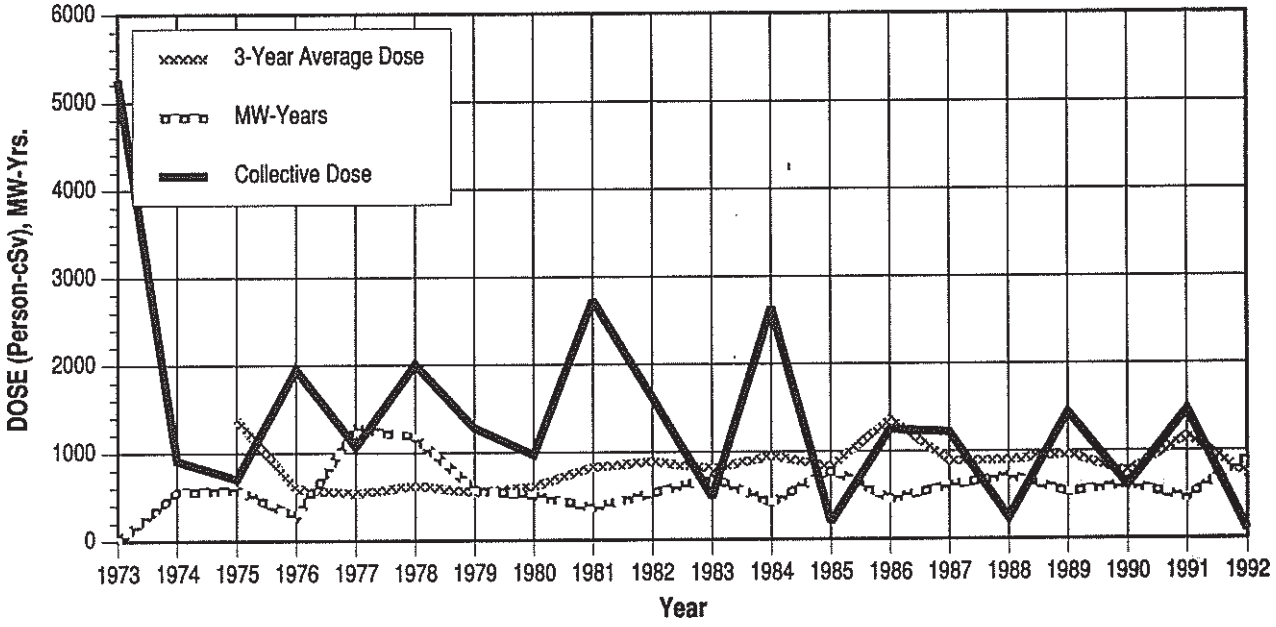
Breakdown by Job Function



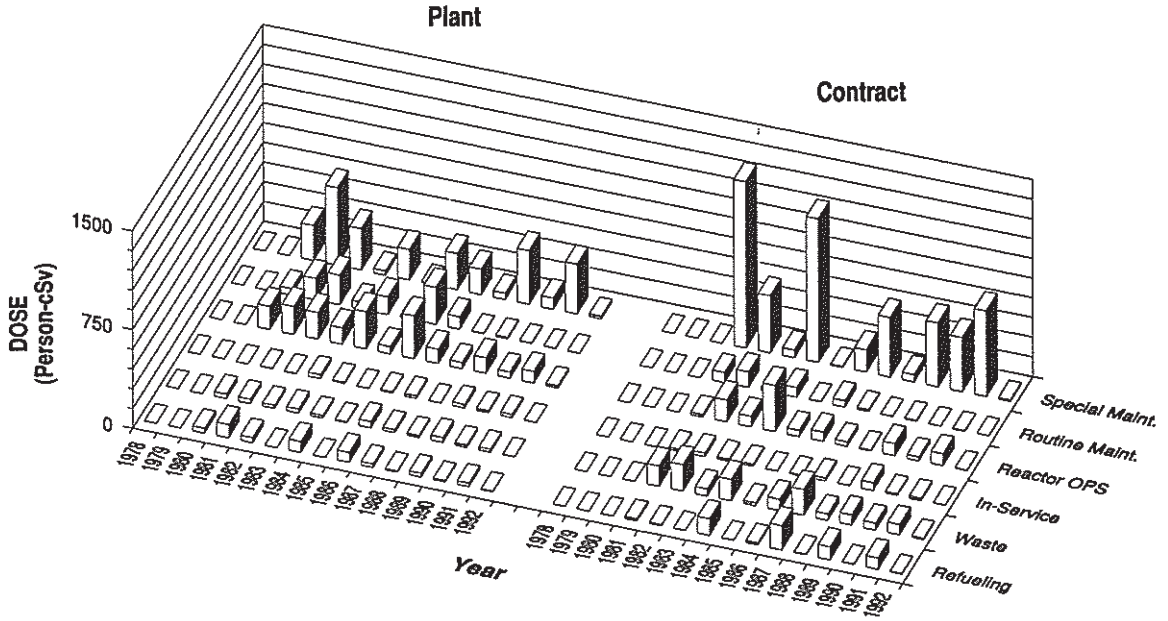
APPENDIX E (continued)

INDIAN POINT 2

Dose-Performance Indicators **PWR**



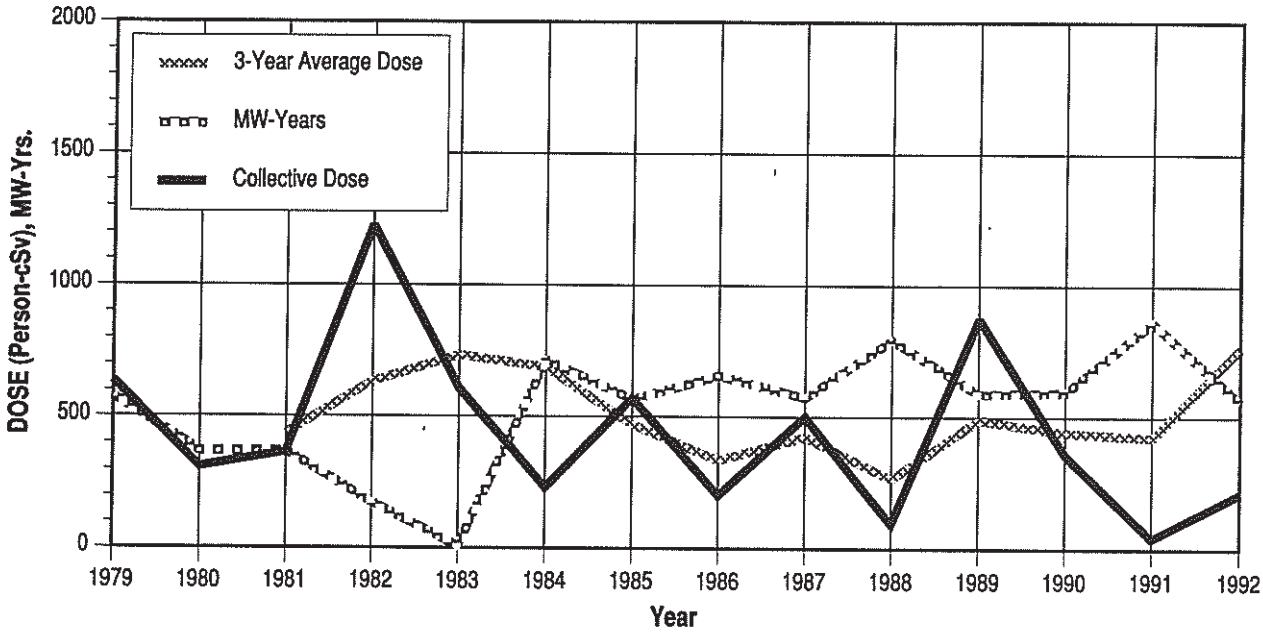
Breakdown by Job Function



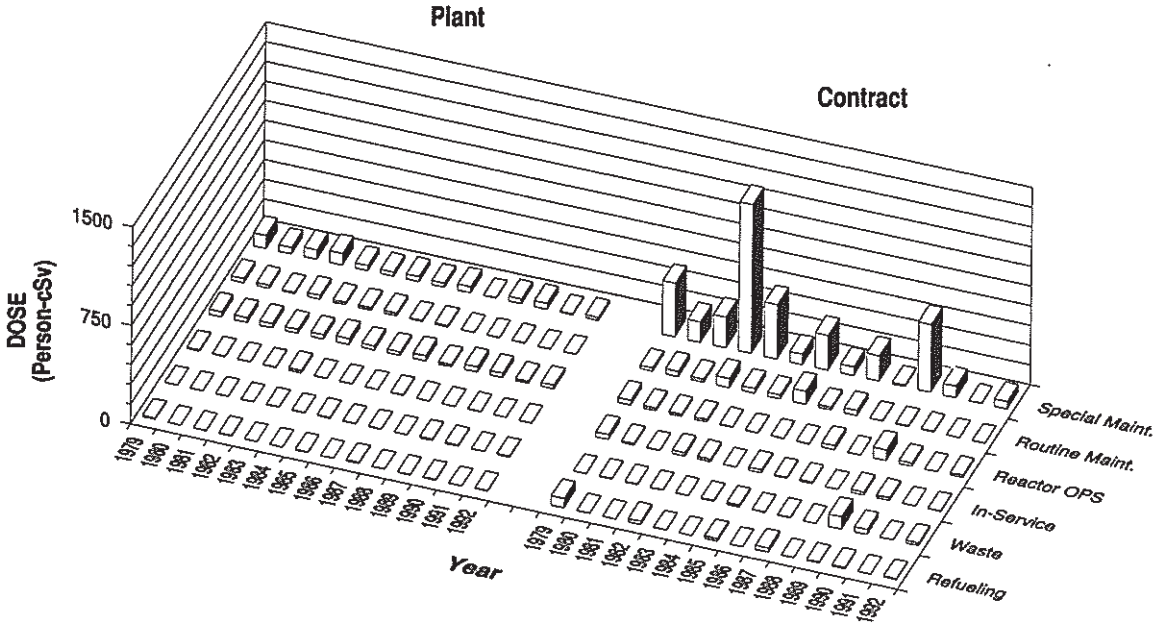
APPENDIX E (continued)

INDIAN POINT 3

Dose-Performance Indicators **PWR**



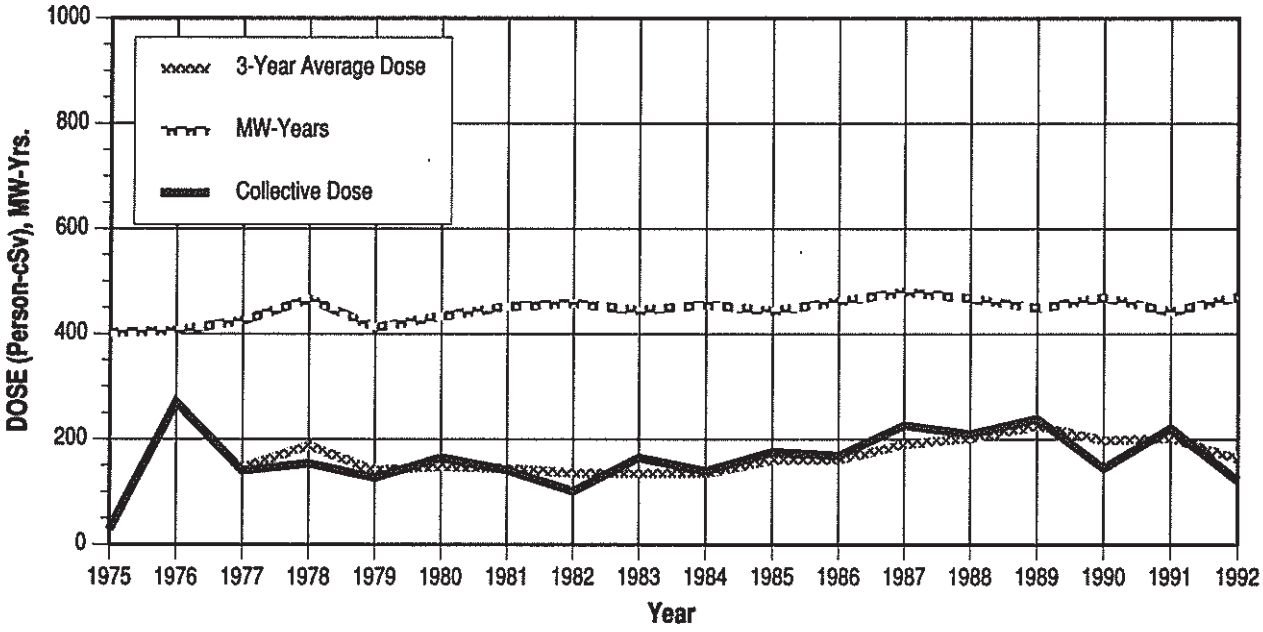
Breakdown by Job Function



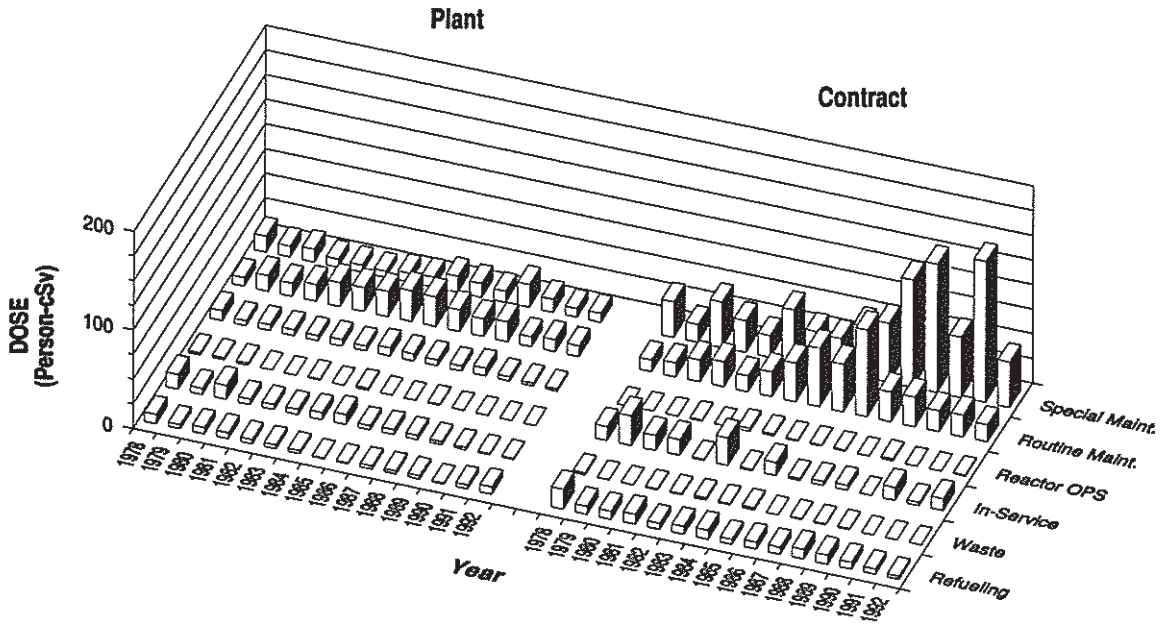
APPENDIX E (continued)

KEWAUNEE

Dose-Performance Indicators **PWR**



Breakdown by Job Function

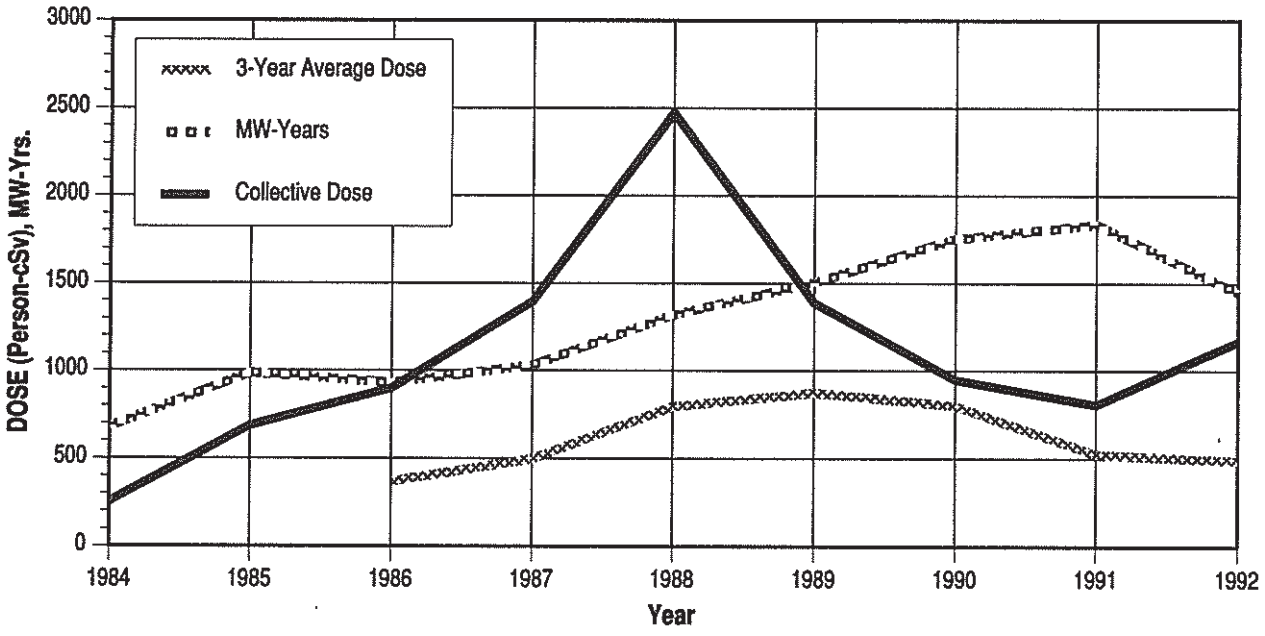


APPENDIX E (continued)

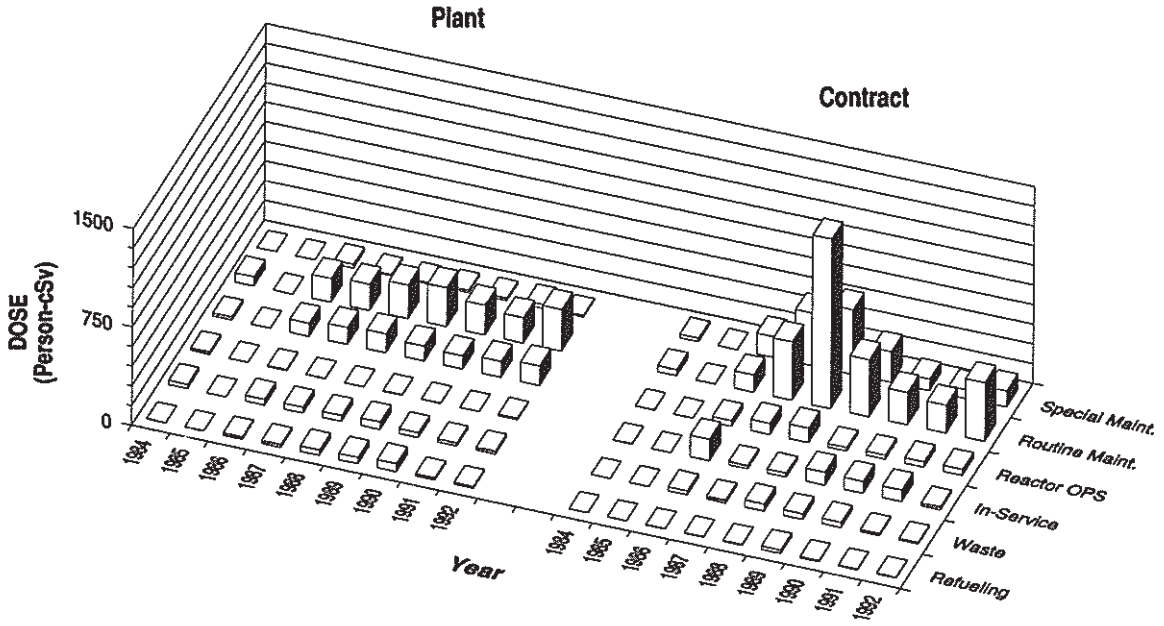
LASALLE 1, 2

Dose-Performance Indicators

BWR



Breakdown by Job Function

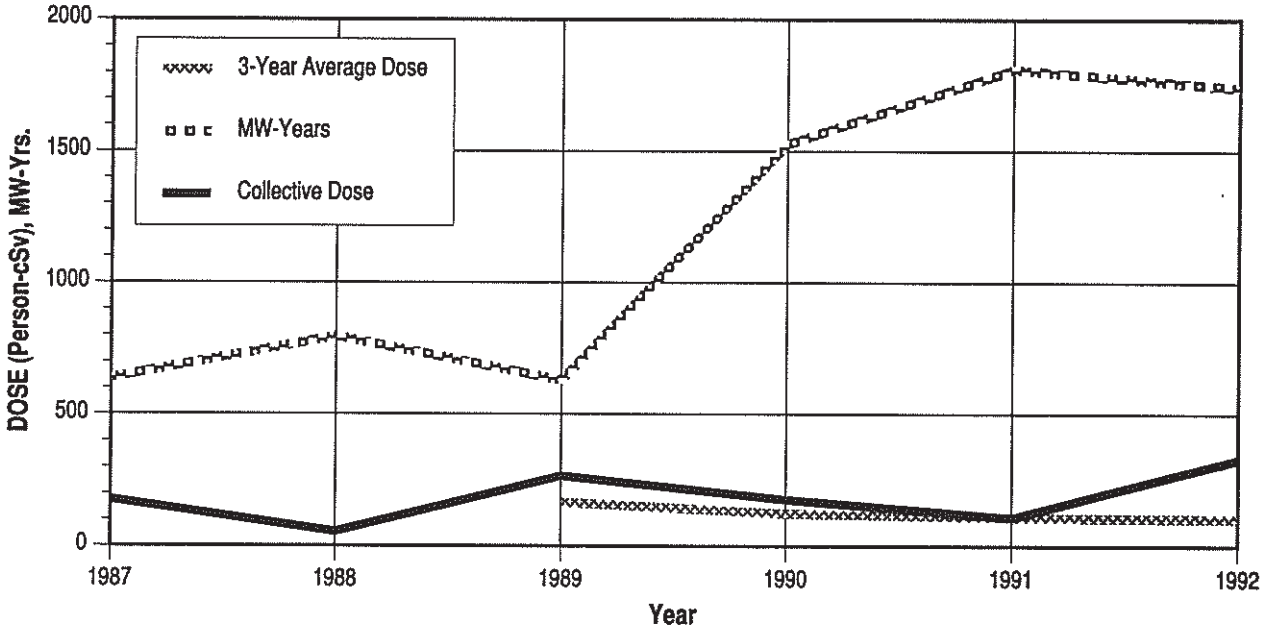


APPENDIX E (continued)

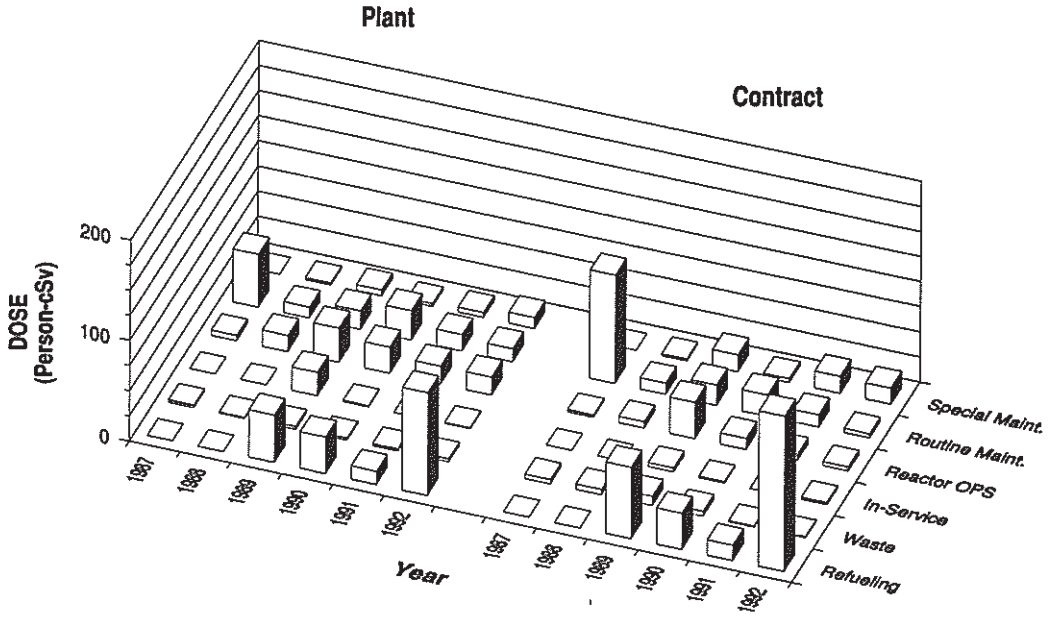
LIMERICK 1, 2

Dose-Performance Indicators

BWR



Breakdown by Job Function

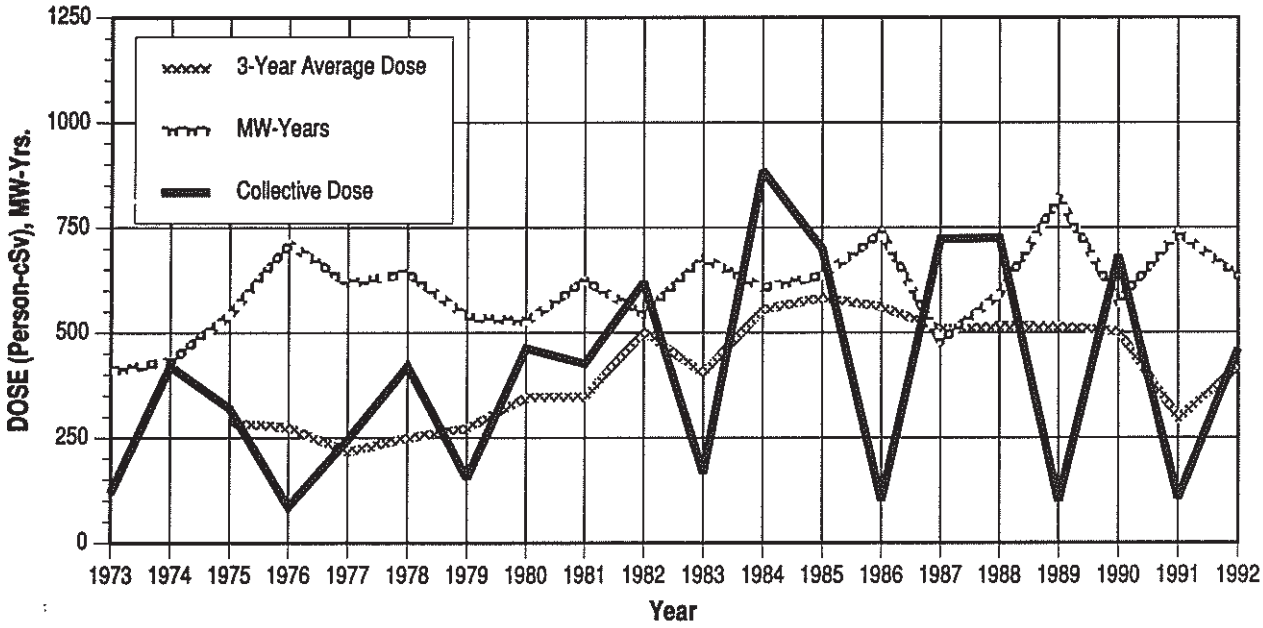


APPENDIX E (continued)

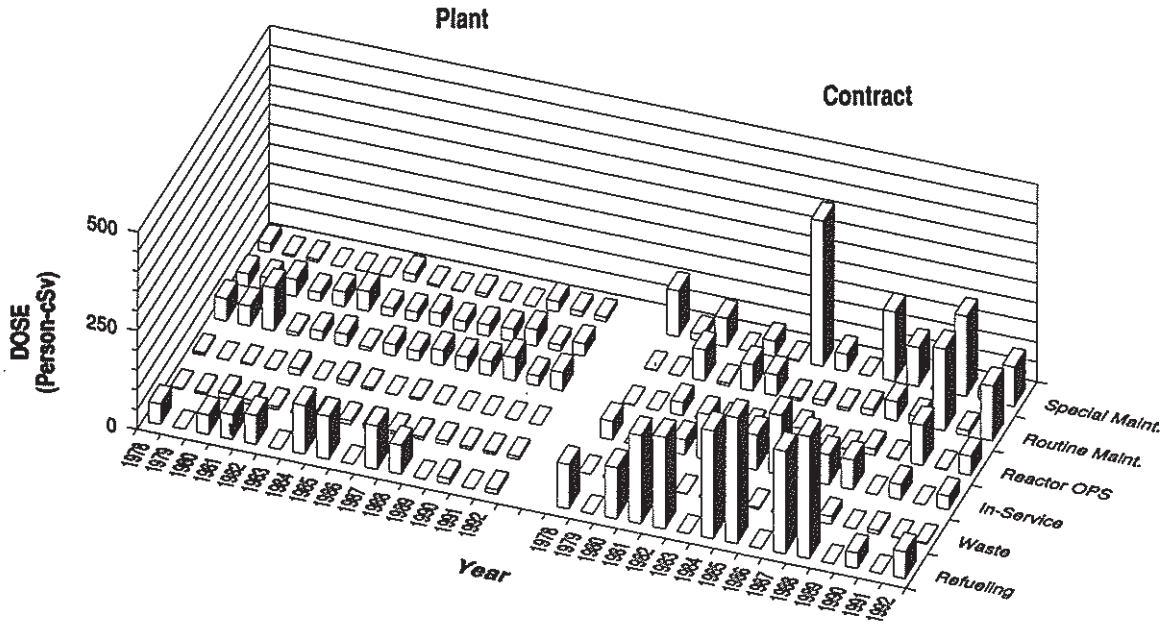
MAINE YANKEE

Dose-Performance Indicators

PWR



Breakdown by Job Function

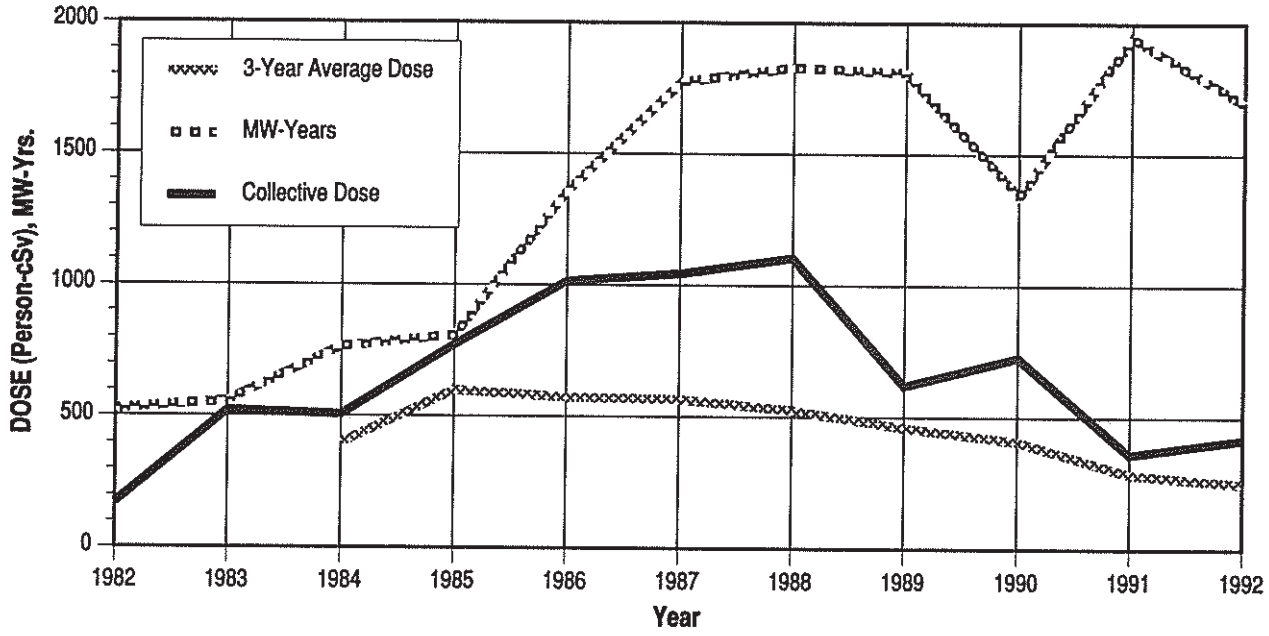


APPENDIX E (continued)

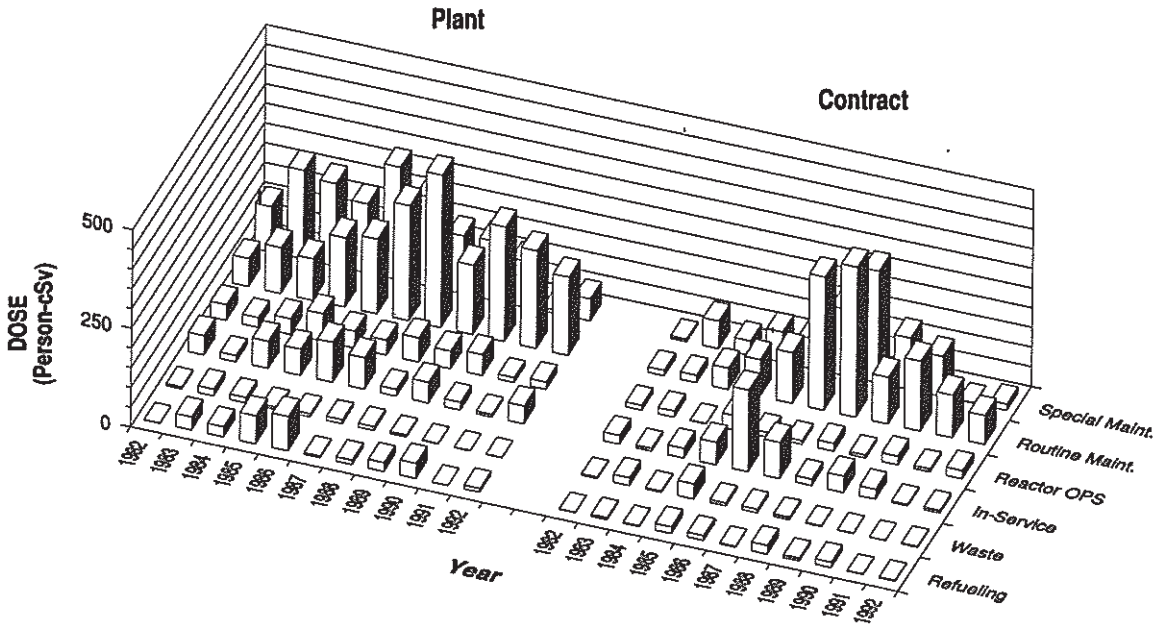
MCGUIRE 1, 2

Dose-Performance Indicators

PWR



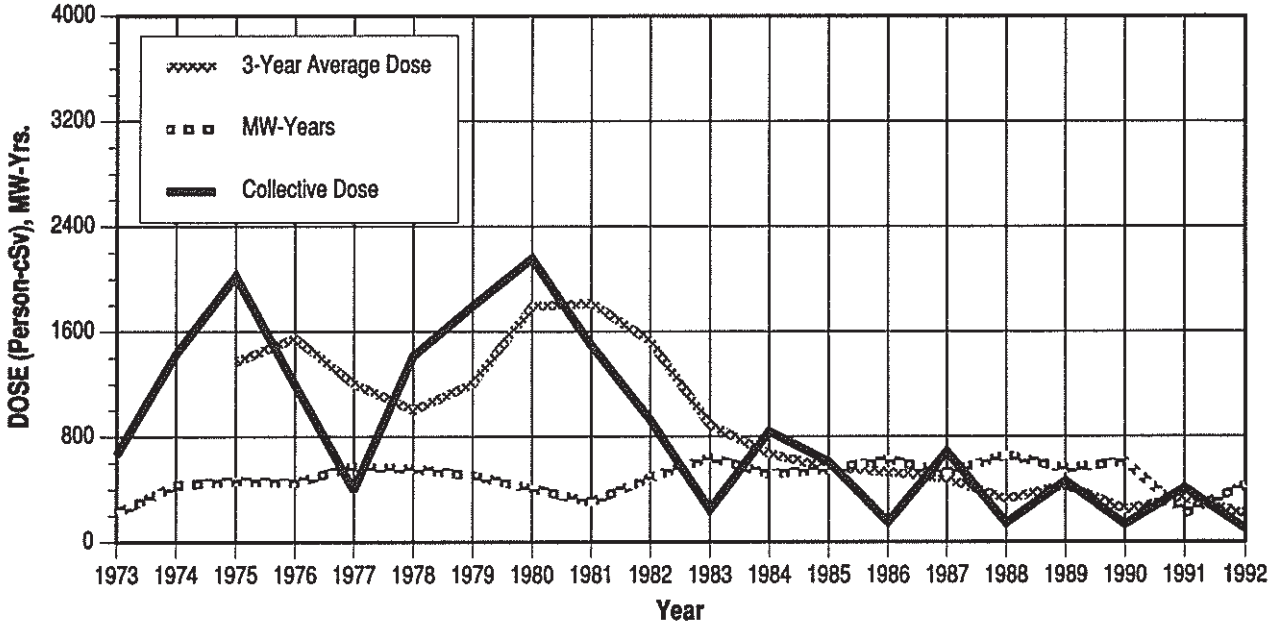
Breakdown by Job Function



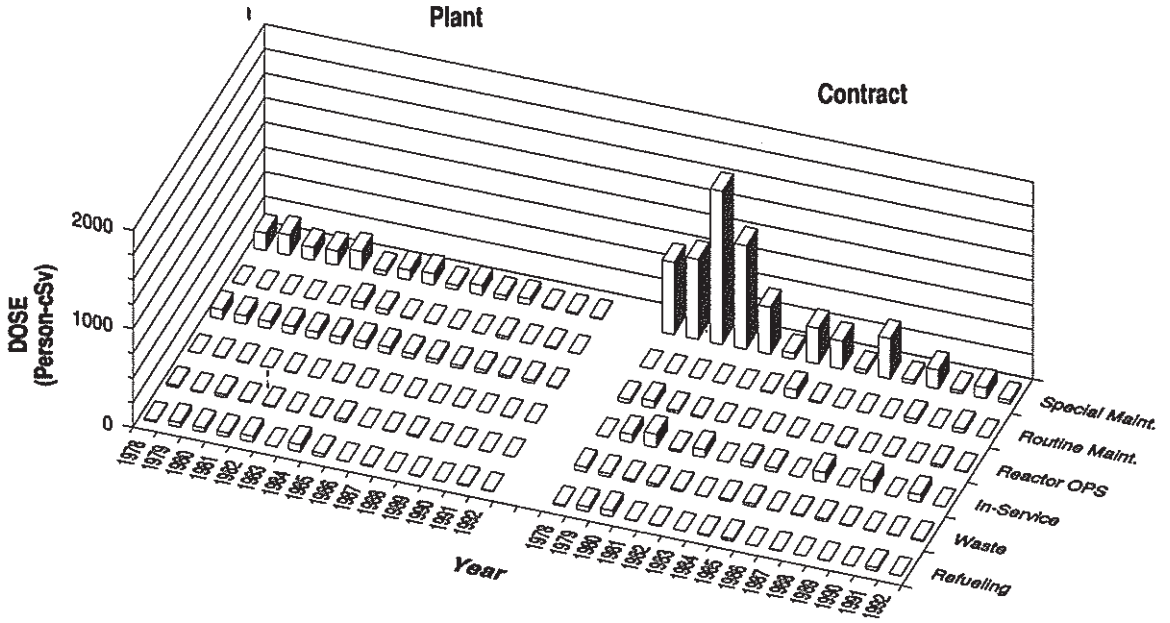
APPENDIX E (continued)

MILLSTONE POINT 1

Dose-Performance Indicators **BWR**



Breakdown by Job Function

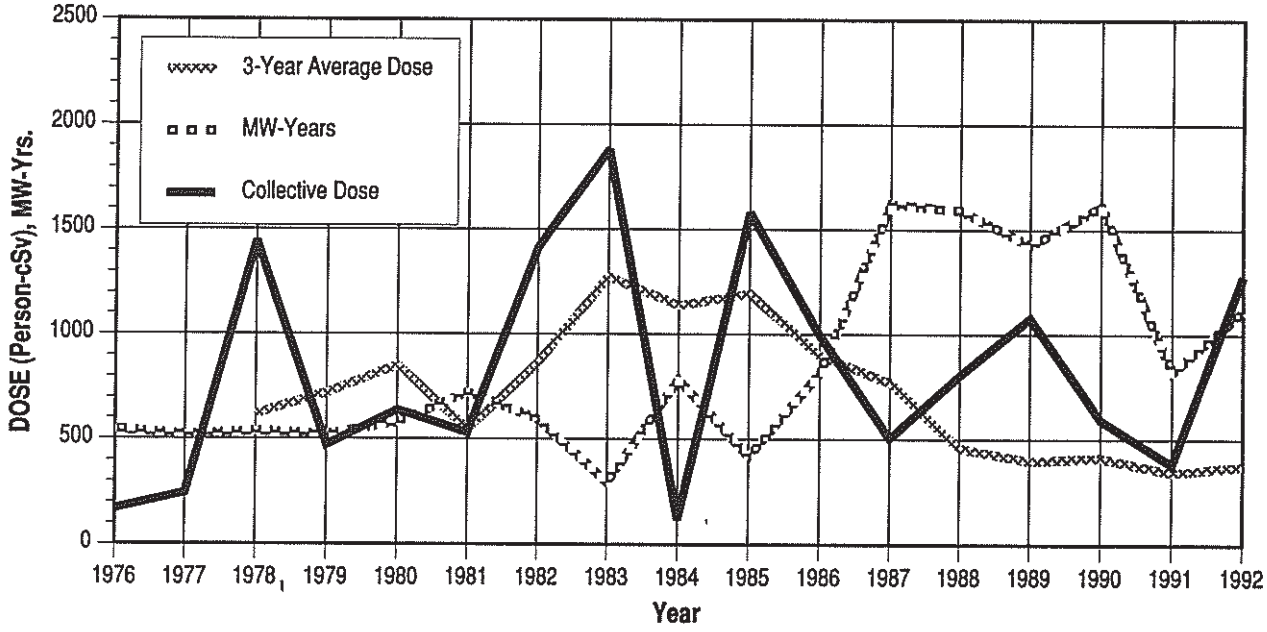


APPENDIX E (continued)

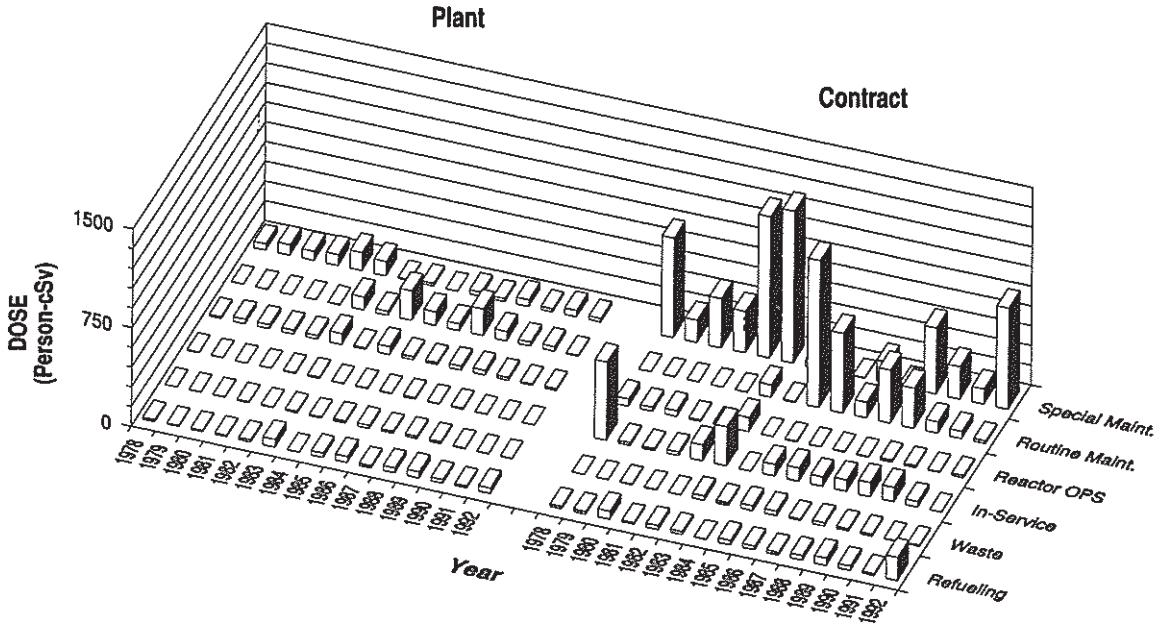
MILLSTONE POINT 2, 3

Dose-Performance Indicators

PWR



Breakdown by Job Function

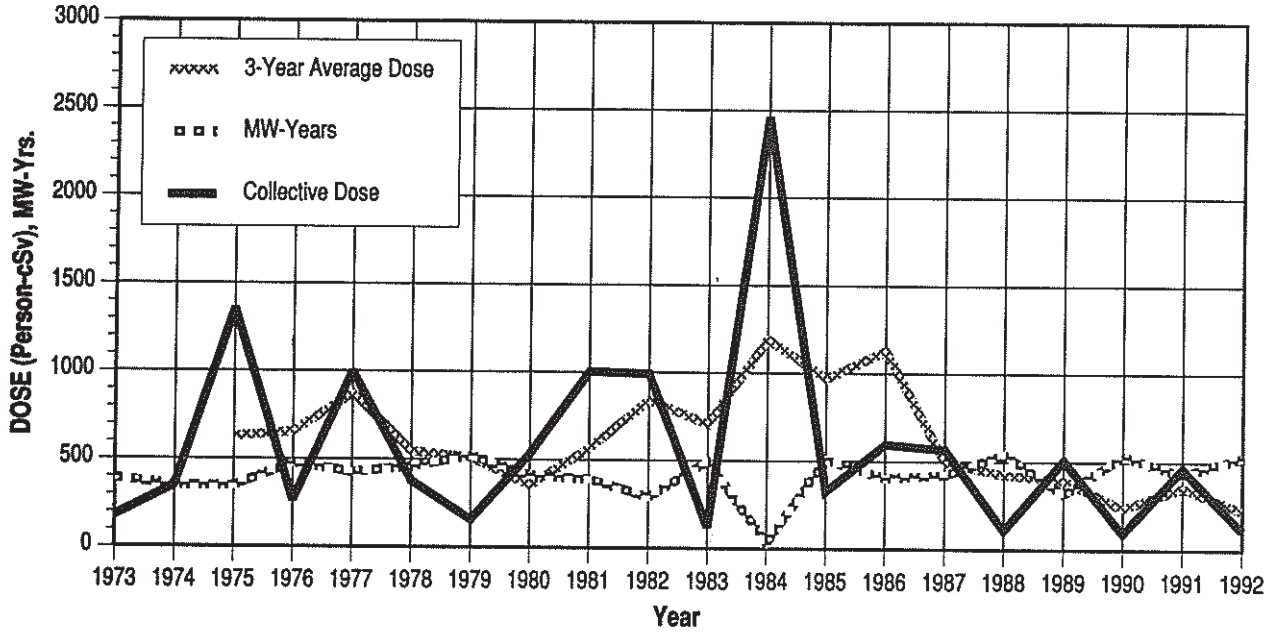


APPENDIX E (continued)

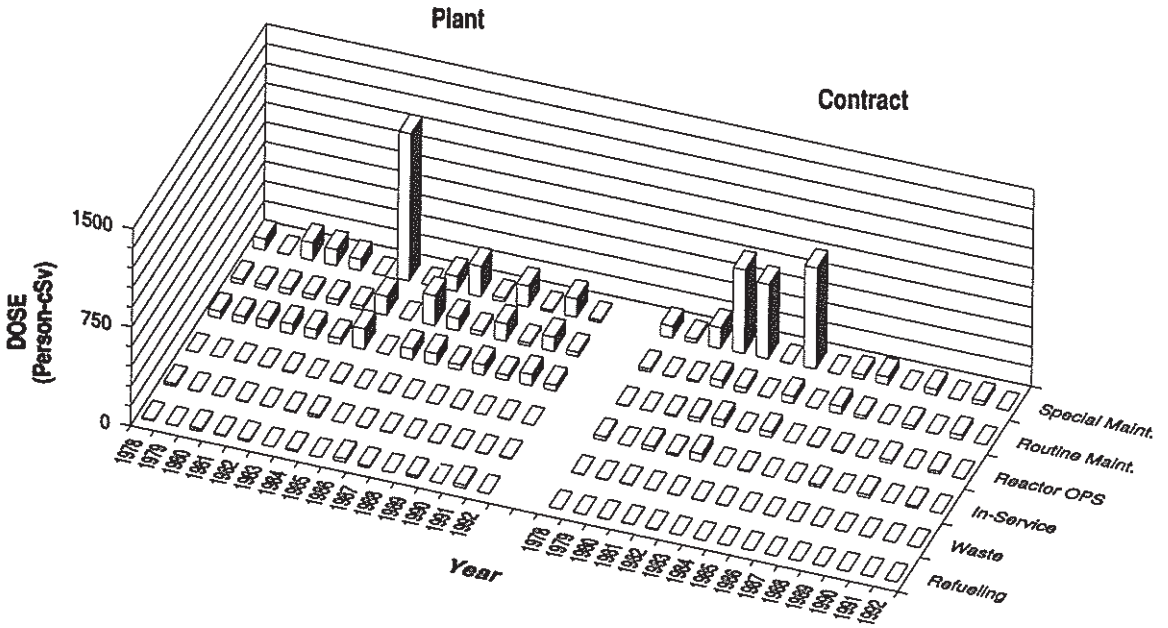
MONTICELLO

Dose-Performance Indicators

BWR



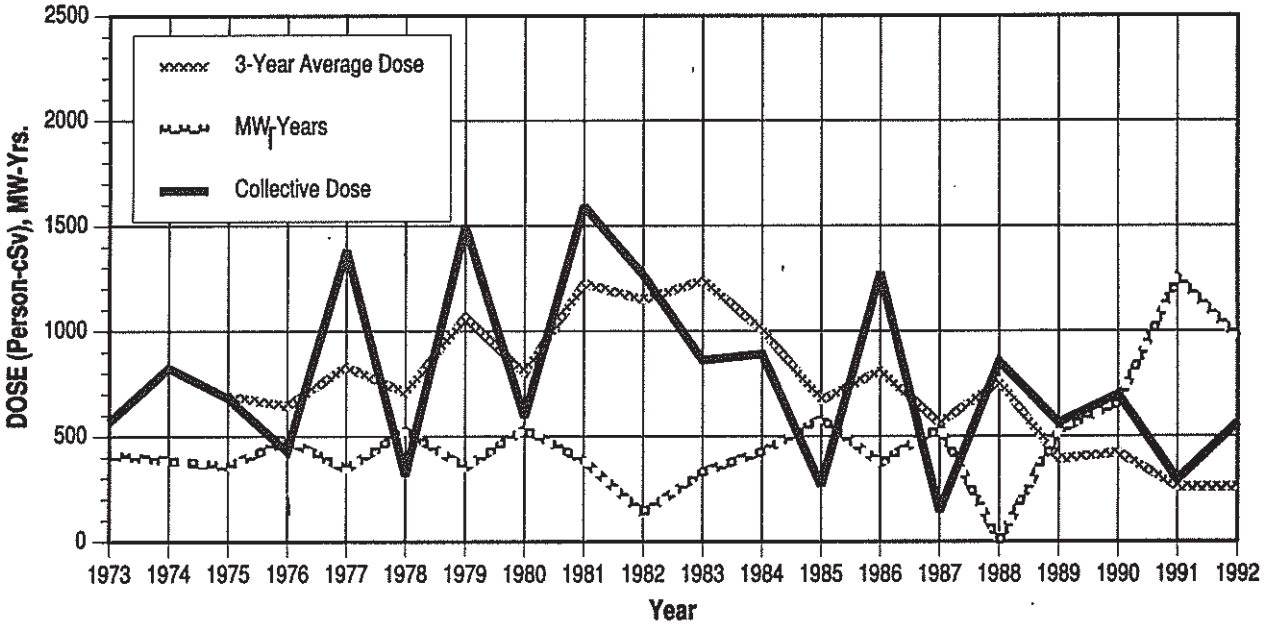
Breakdown by Job Function



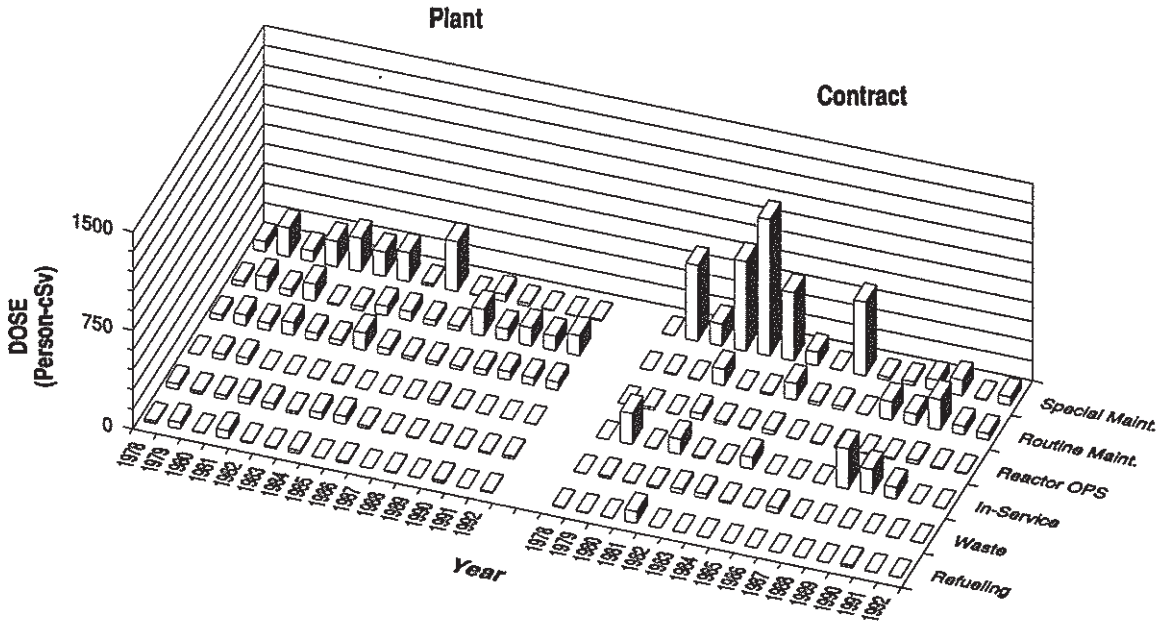
APPENDIX E (continued)

NINE MILE POINT 1, 2

Dose-Performance Indicators **BWR**



Breakdown by Job Function

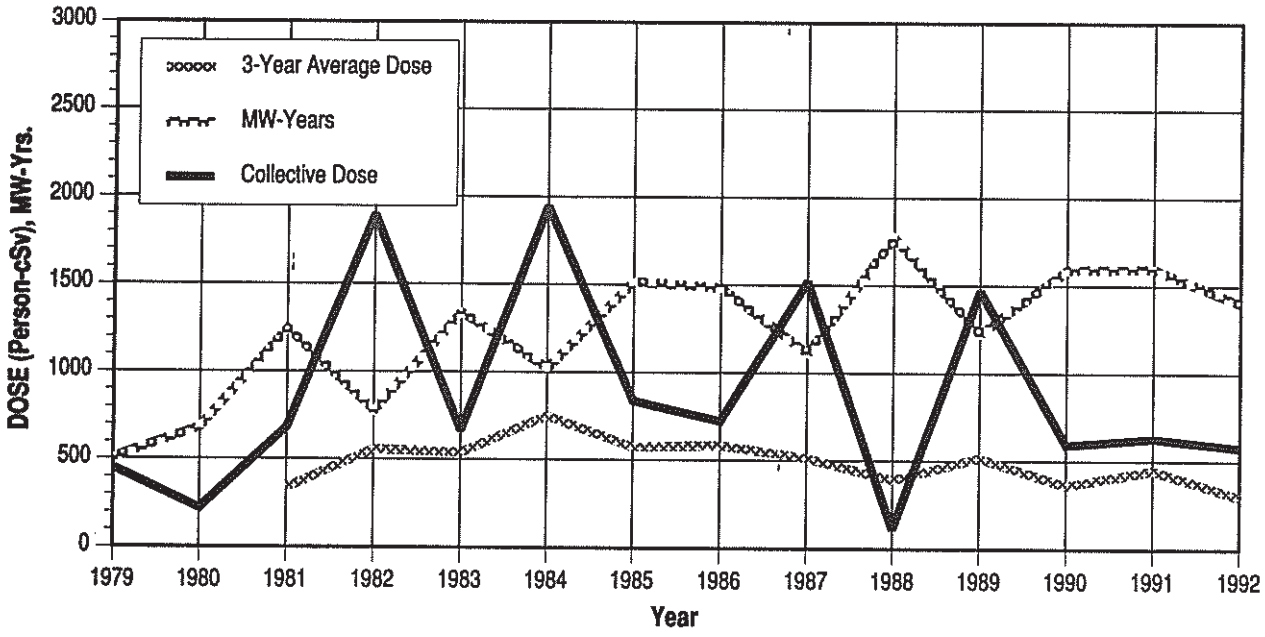


APPENDIX E (continued)

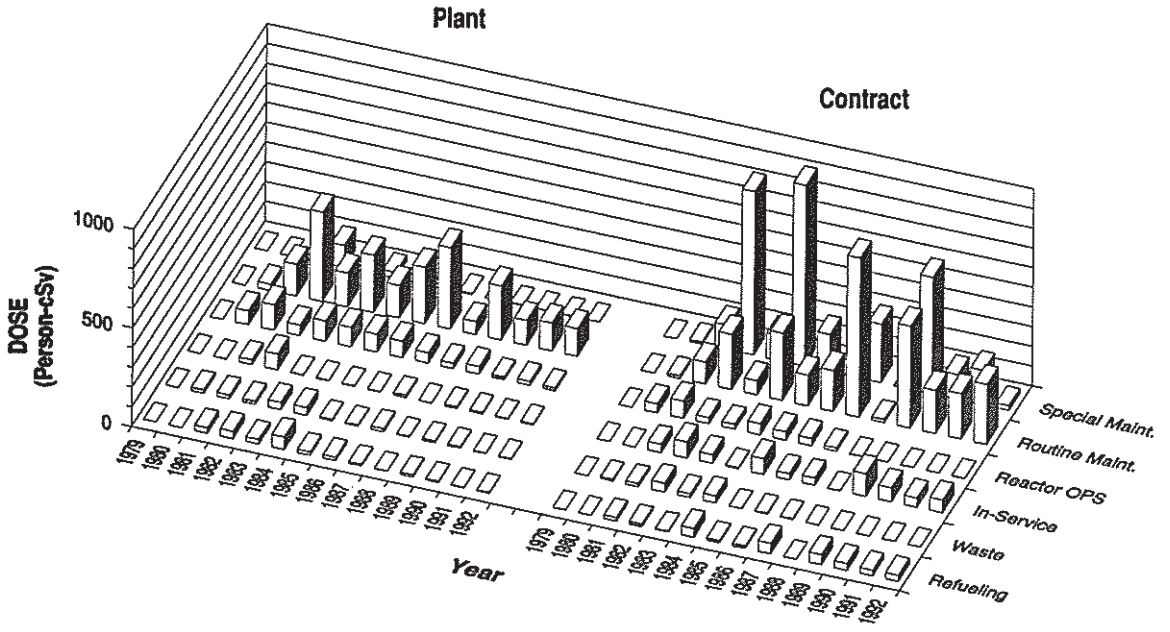
NORTH ANNA 1, 2

Dose-Performance Indicators

PWR



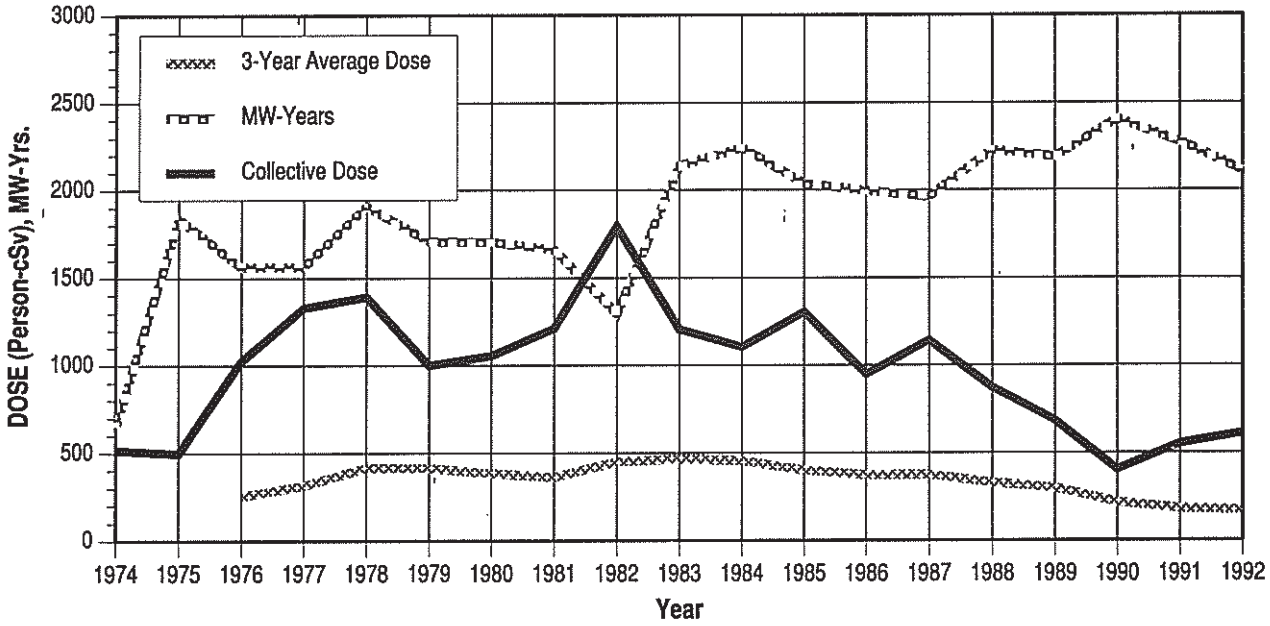
Breakdown by Job Function



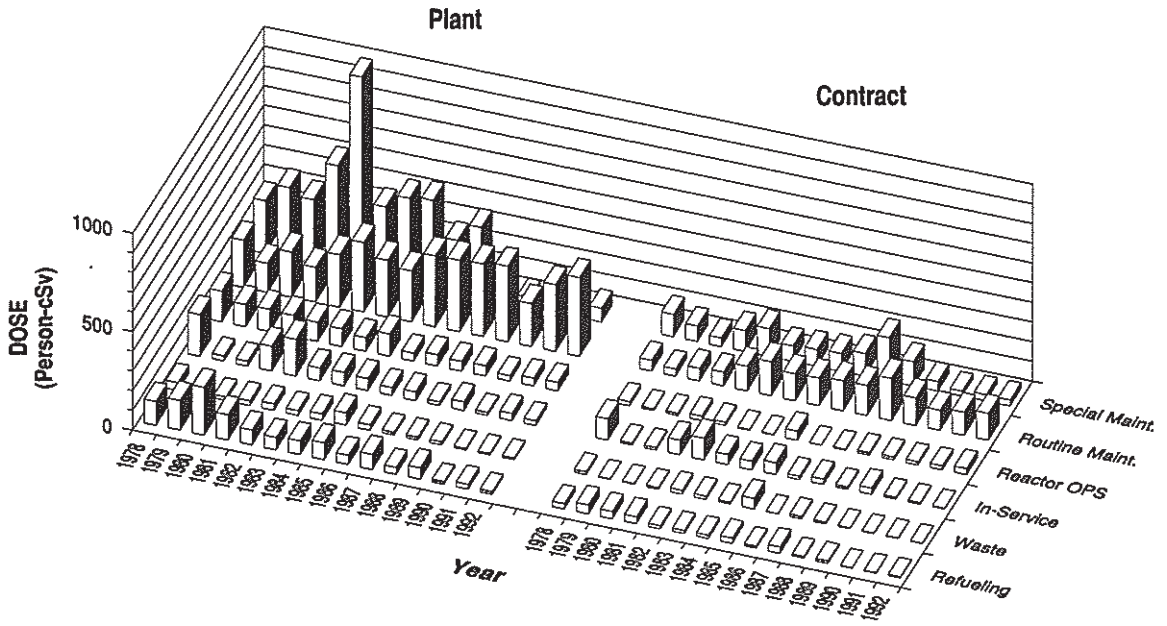
APPENDIX E (continued)

OCONEE 1, 2, 3

Dose-Performance Indicators **PWR**



Breakdown by Job Function

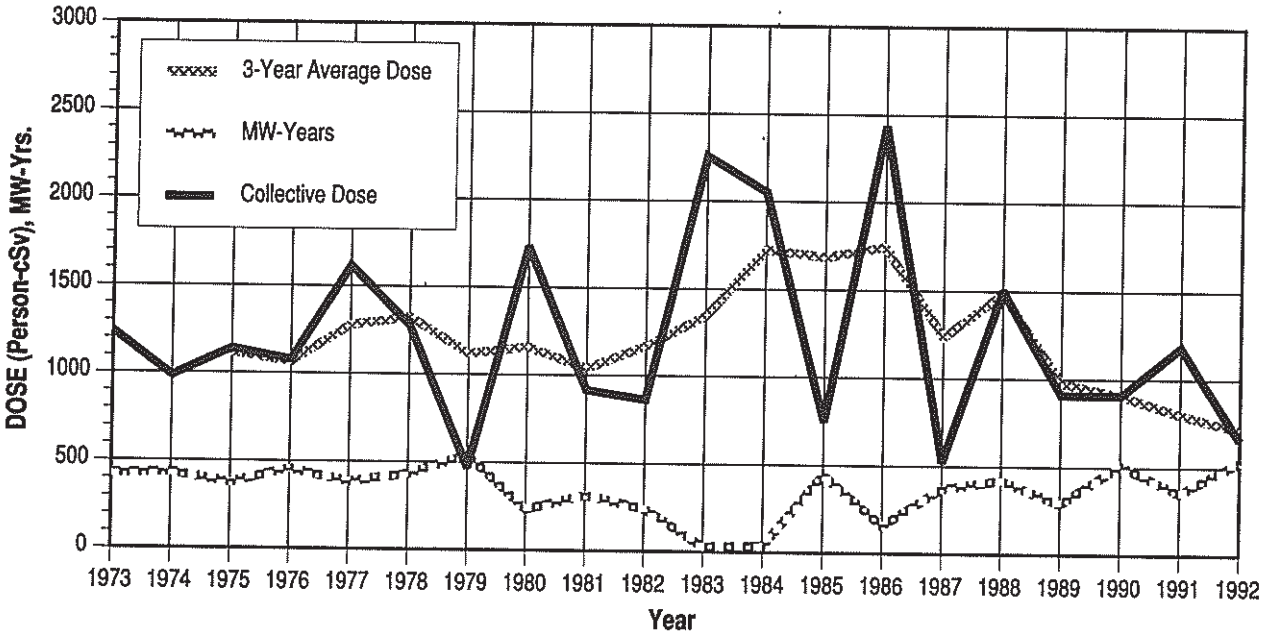


APPENDIX E (continued)

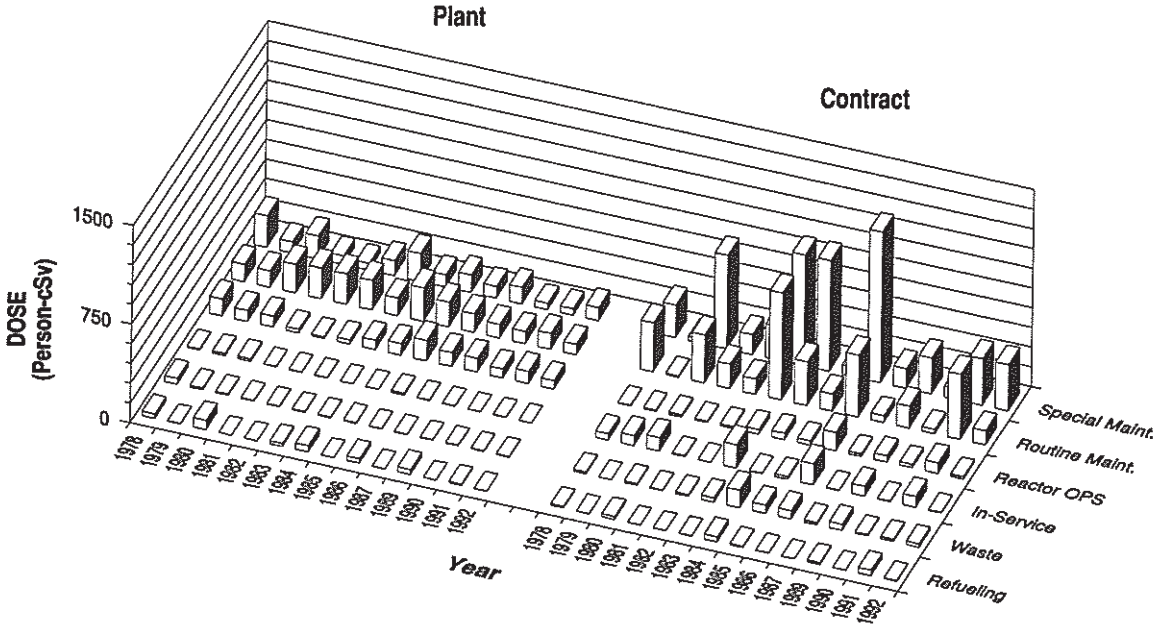
OYSTER CREEK

Dose-Performance Indicators

BWR



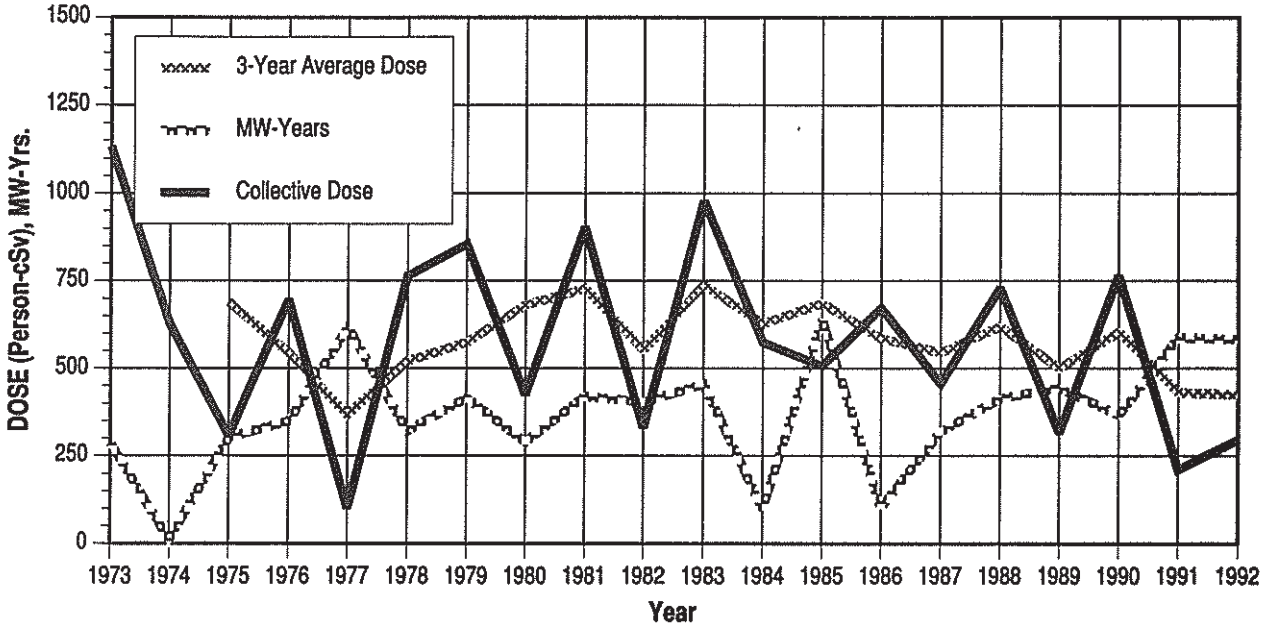
Breakdown by Job Function



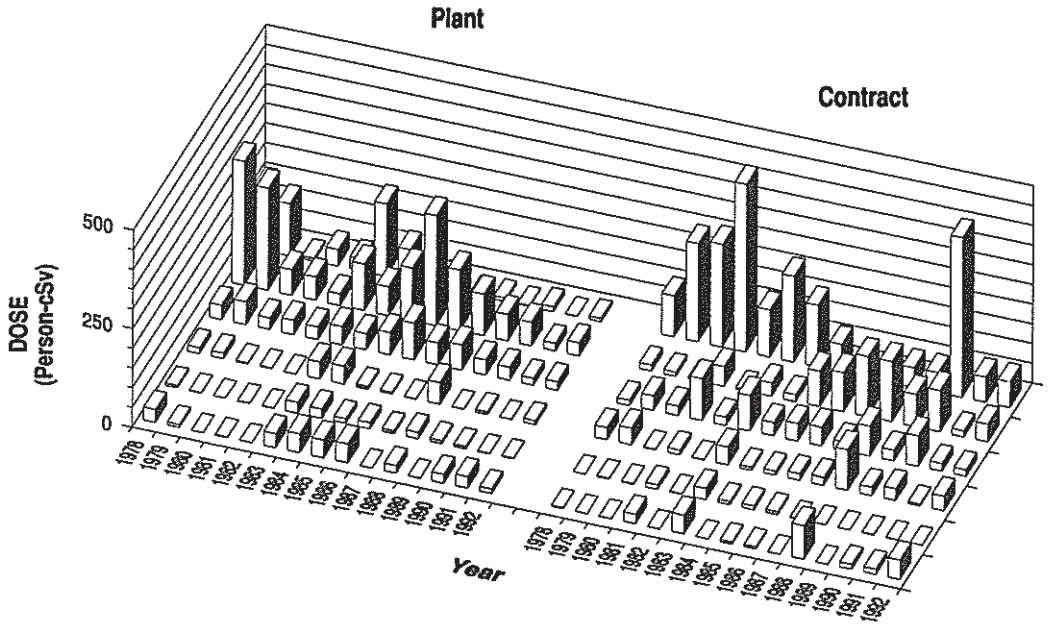
APPENDIX E (continued)

PALISADES

Dose-Performance Indicators **PWR**



Breakdown by Job Function

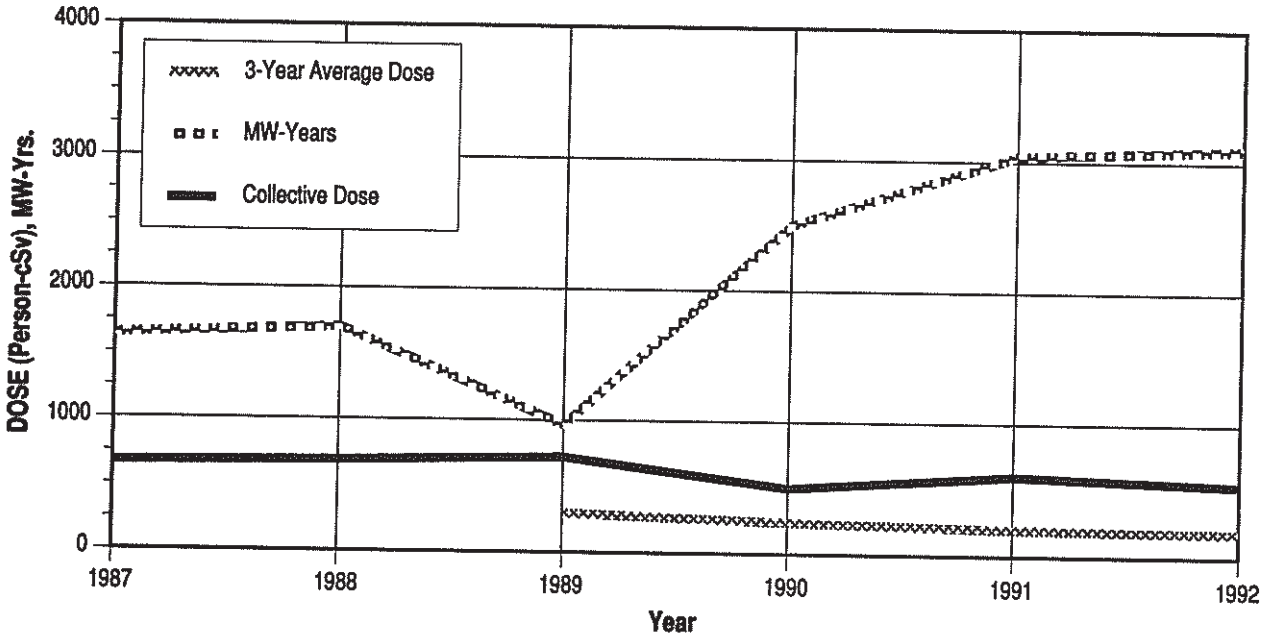


APPENDIX E (continued)

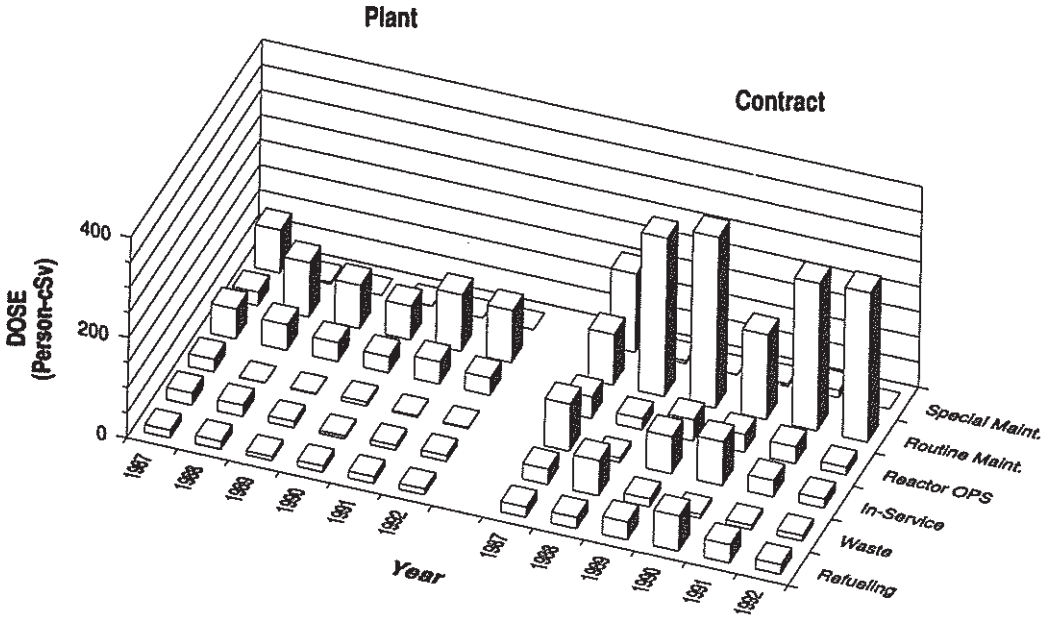
PALO VERDE 1, 2, 3

Dose-Performance Indicators

PWR



Breakdown by Job Function

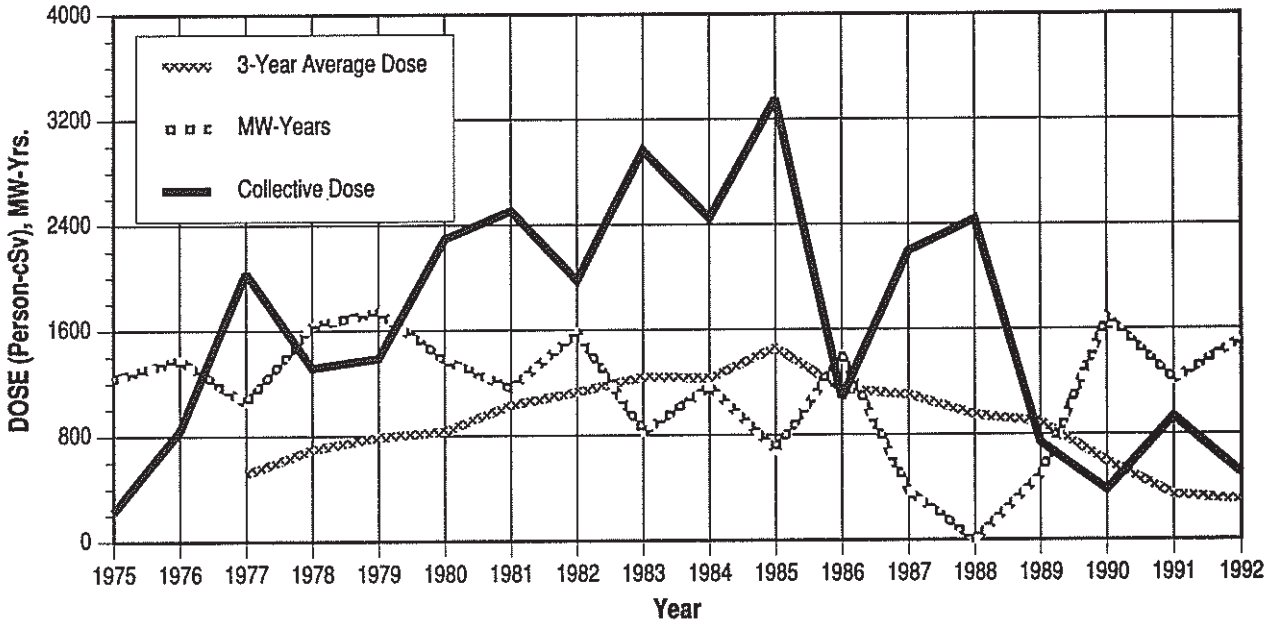


APPENDIX E (continued)

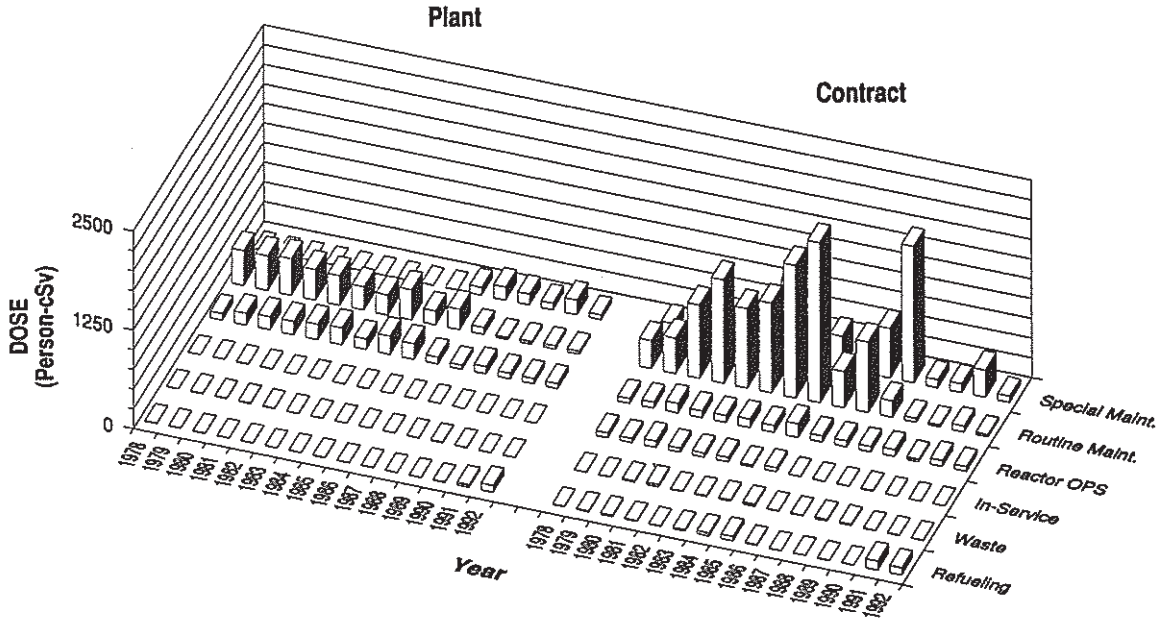
PEACH BOTTOM 2, 3

Dose-Performance Indicators

BWR



Breakdown by Job Function

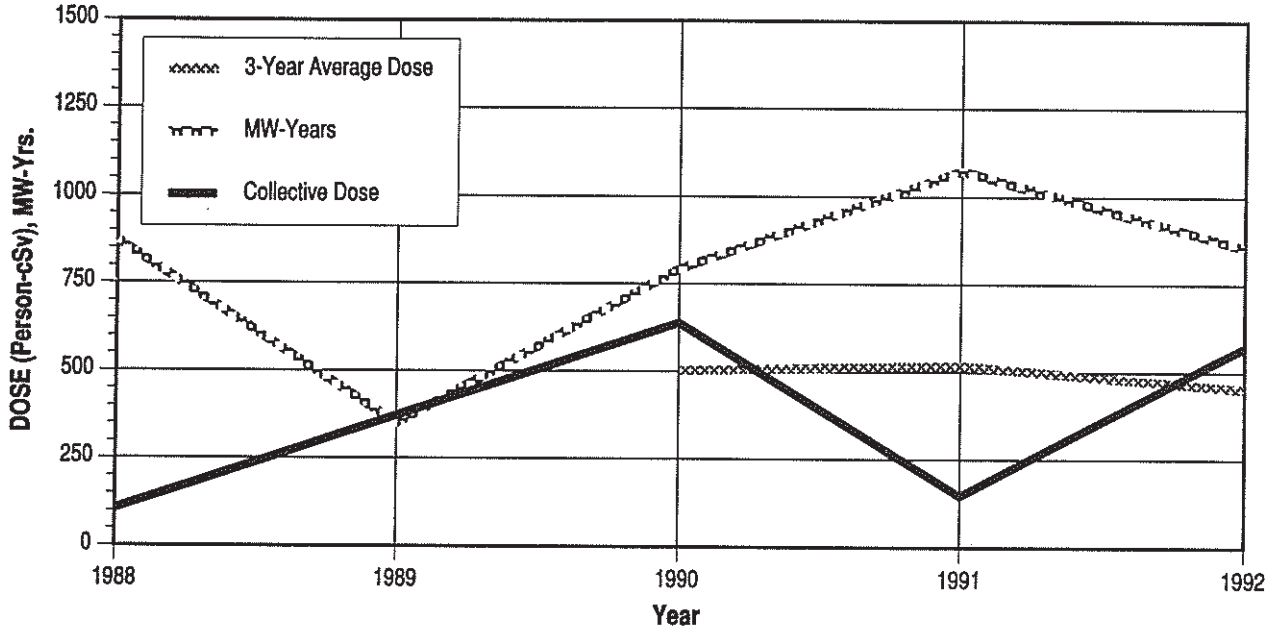


APPENDIX E (continued)

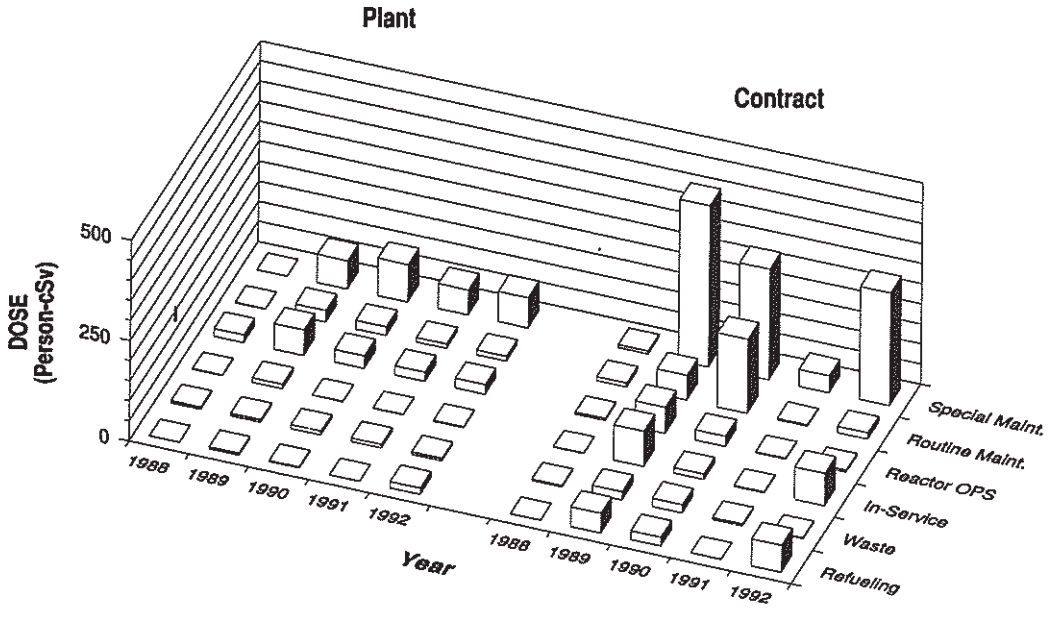
PERRY

Dose-Performance Indicators

BWR



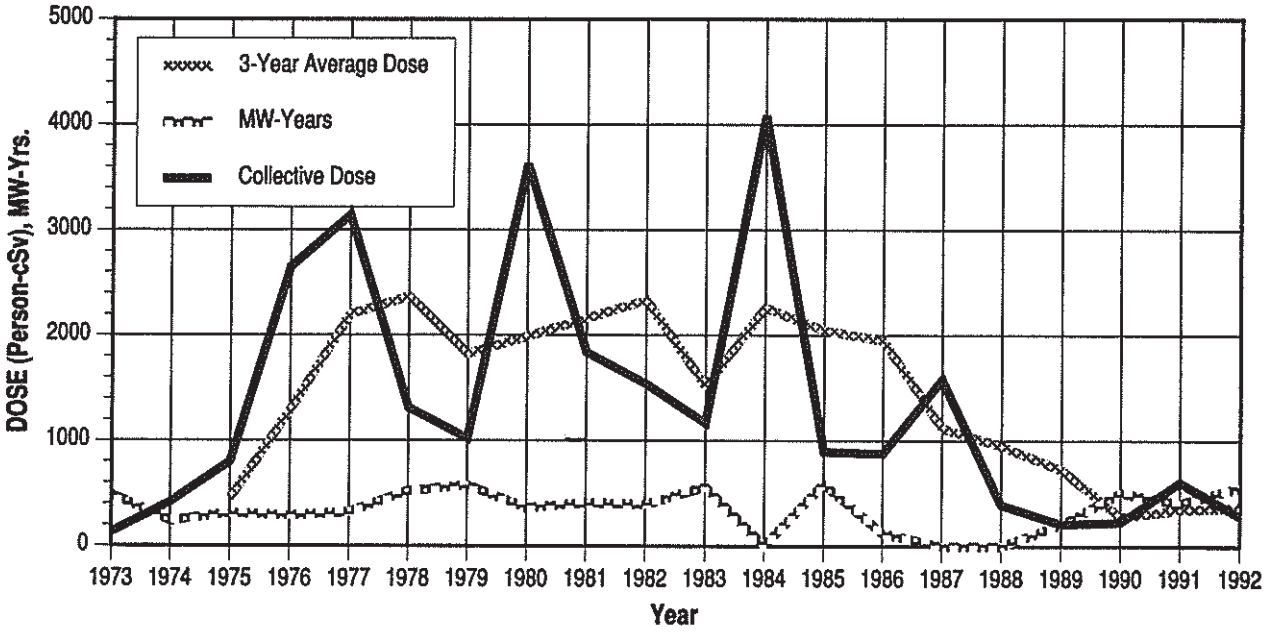
Breakdown by Job Function



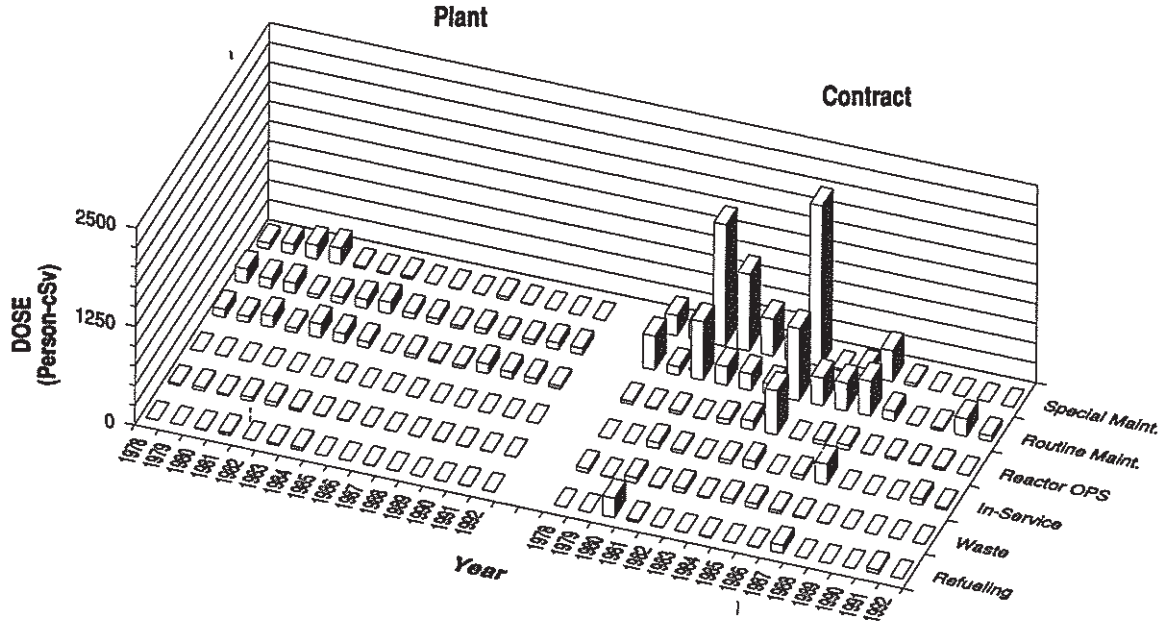
APPENDIX E (continued)

PILGRIM

Dose-Performance Indicators **BWR**



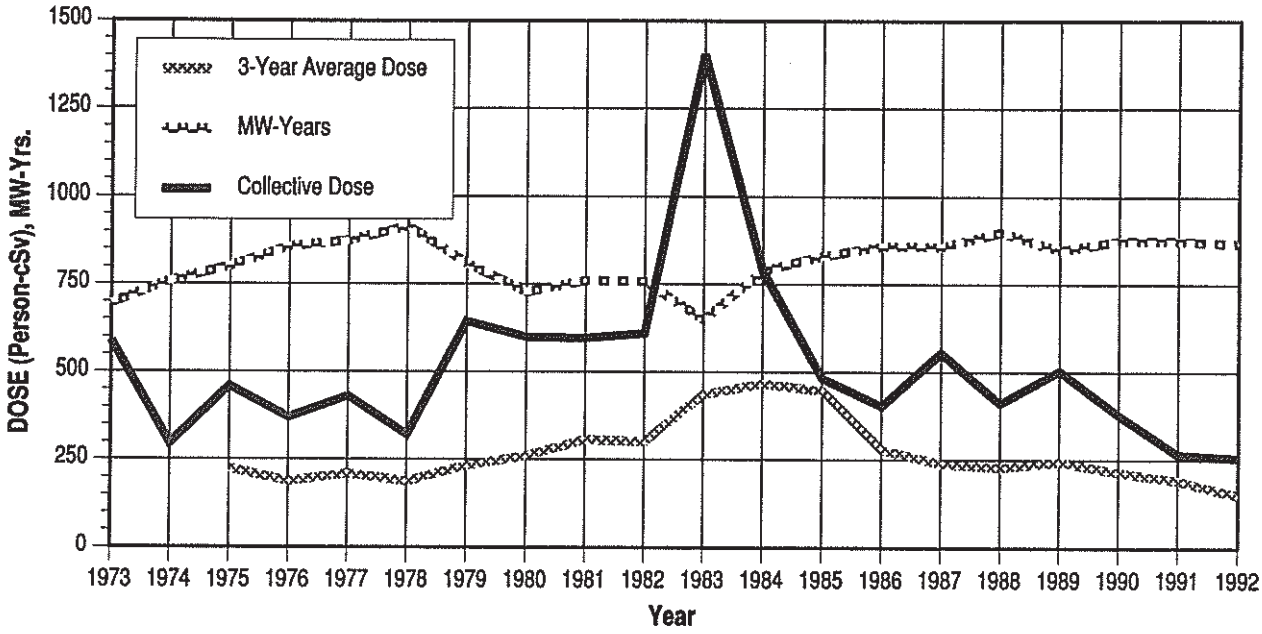
Breakdown by Job Function



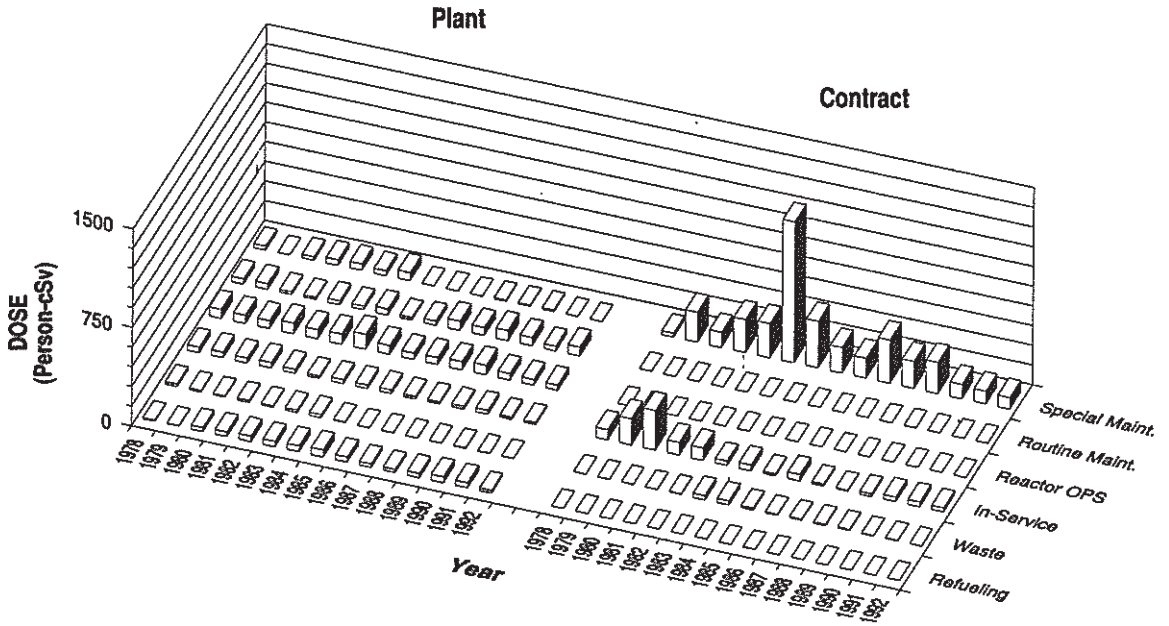
APPENDIX E (continued)

POINT BEACH 1, 2

Dose-Performance Indicators **PWR**



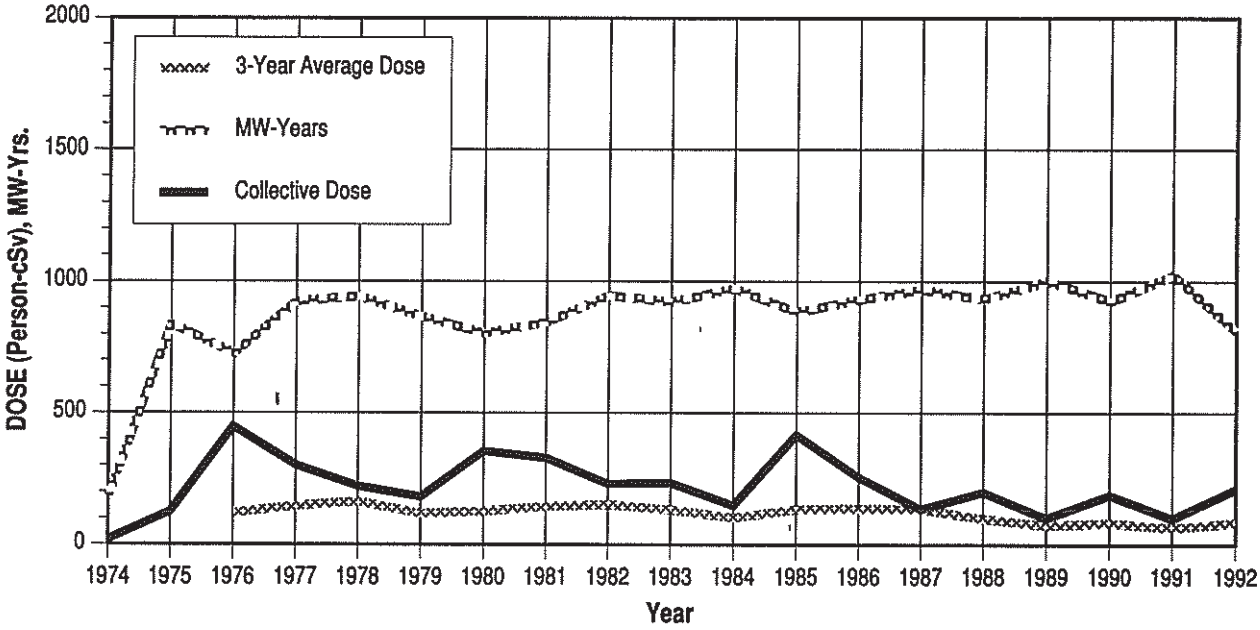
Breakdown by Job Function



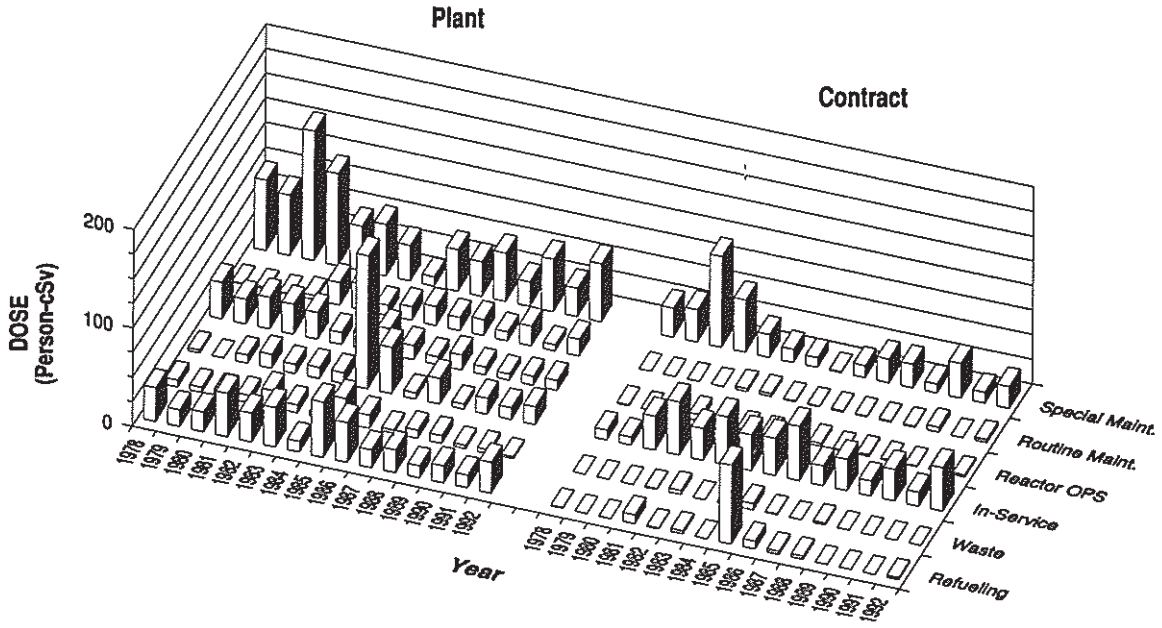
APPENDIX E (continued)

PRAIRIE ISLAND 1, 2

Dose-Performance Indicators **PWR**



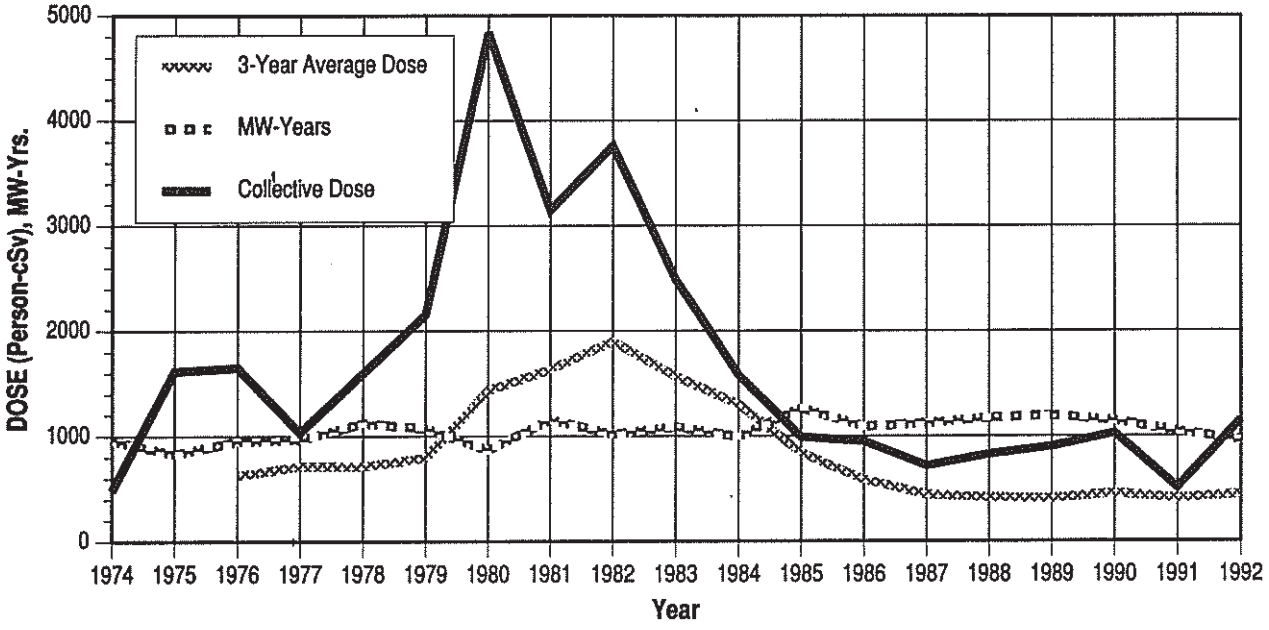
Breakdown by Job Function



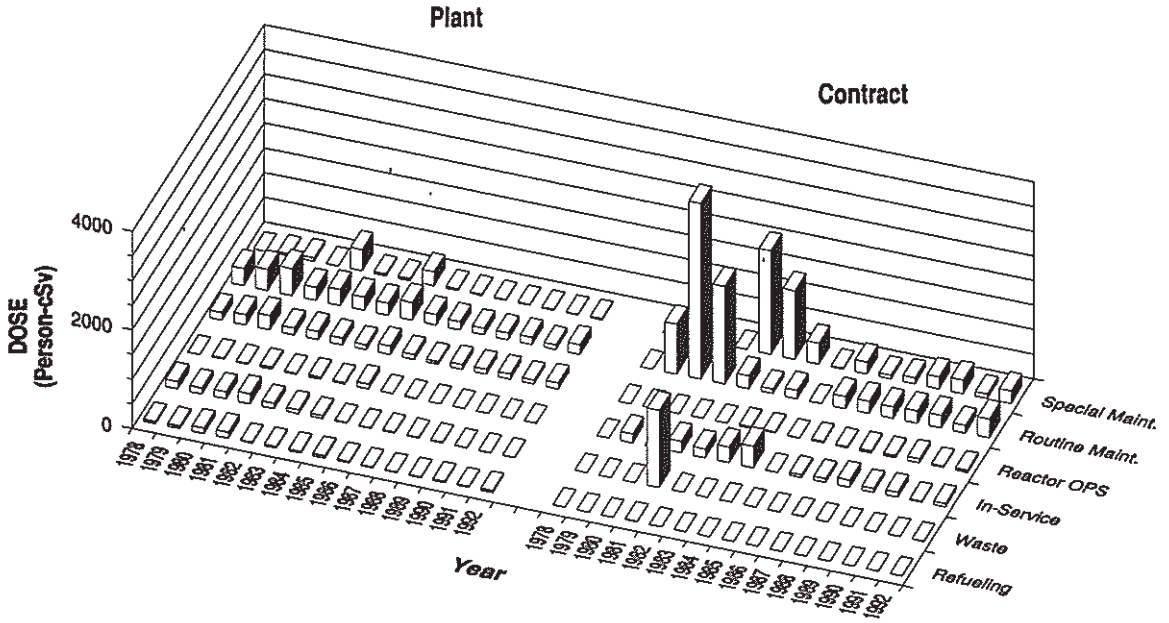
APPENDIX E (continued)

QUAD CITIES 1, 2

Dose-Performance Indicators **BWR**



Breakdown by Job Function

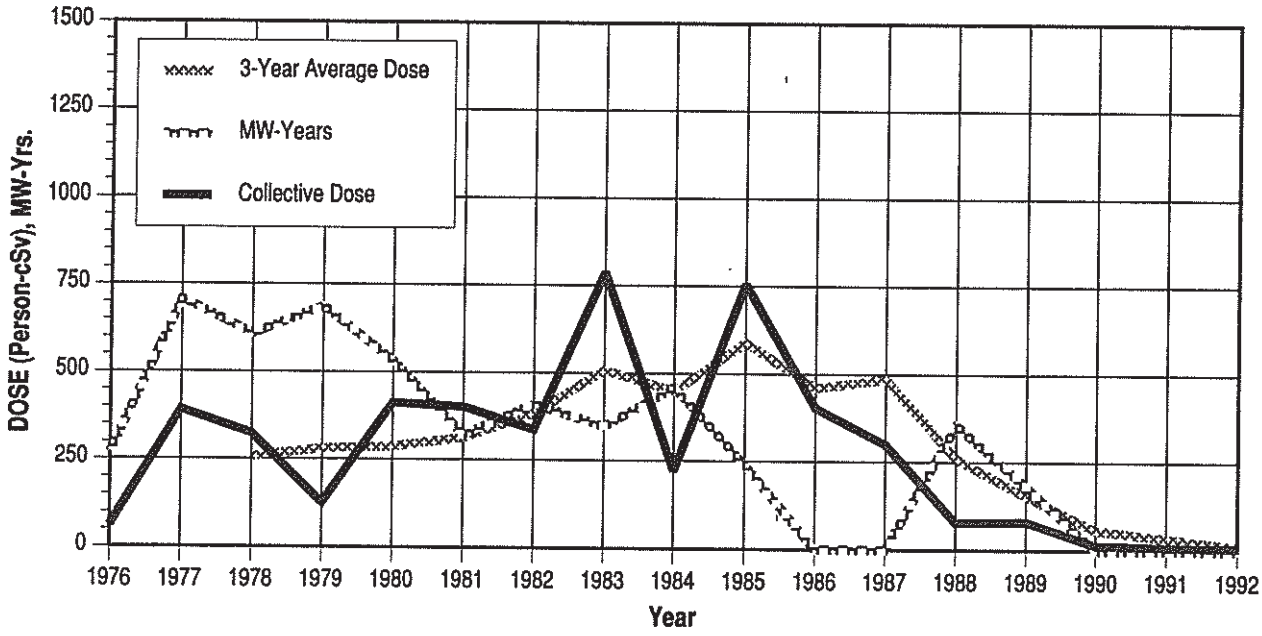


APPENDIX E (continued)

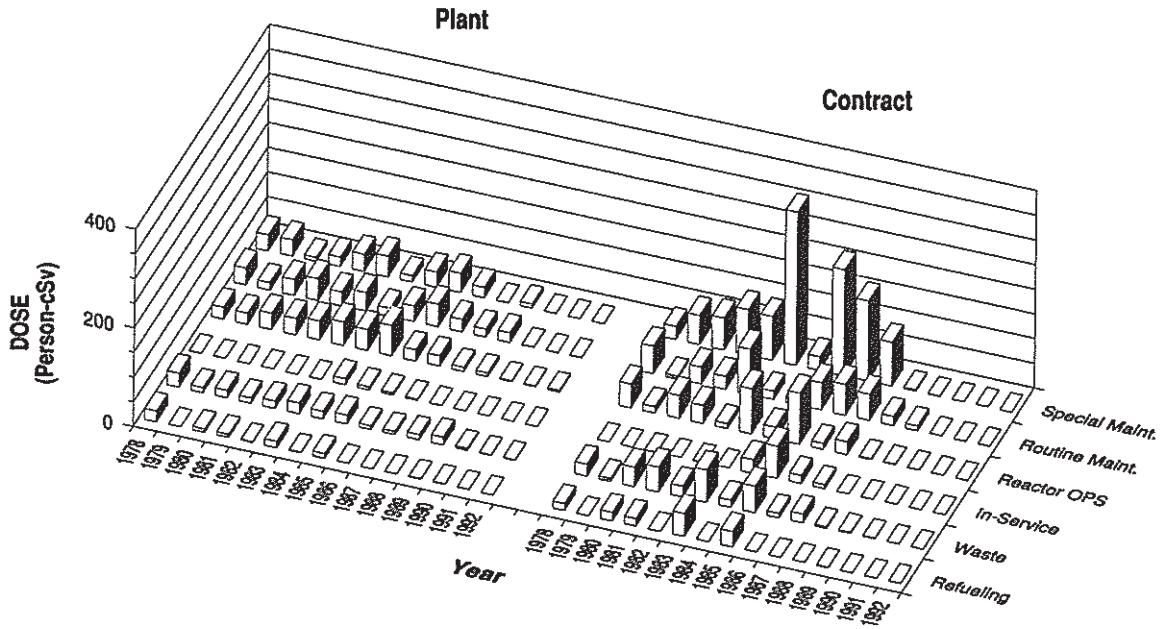
RANCHO SECO

Dose-Performance Indicators

PWR



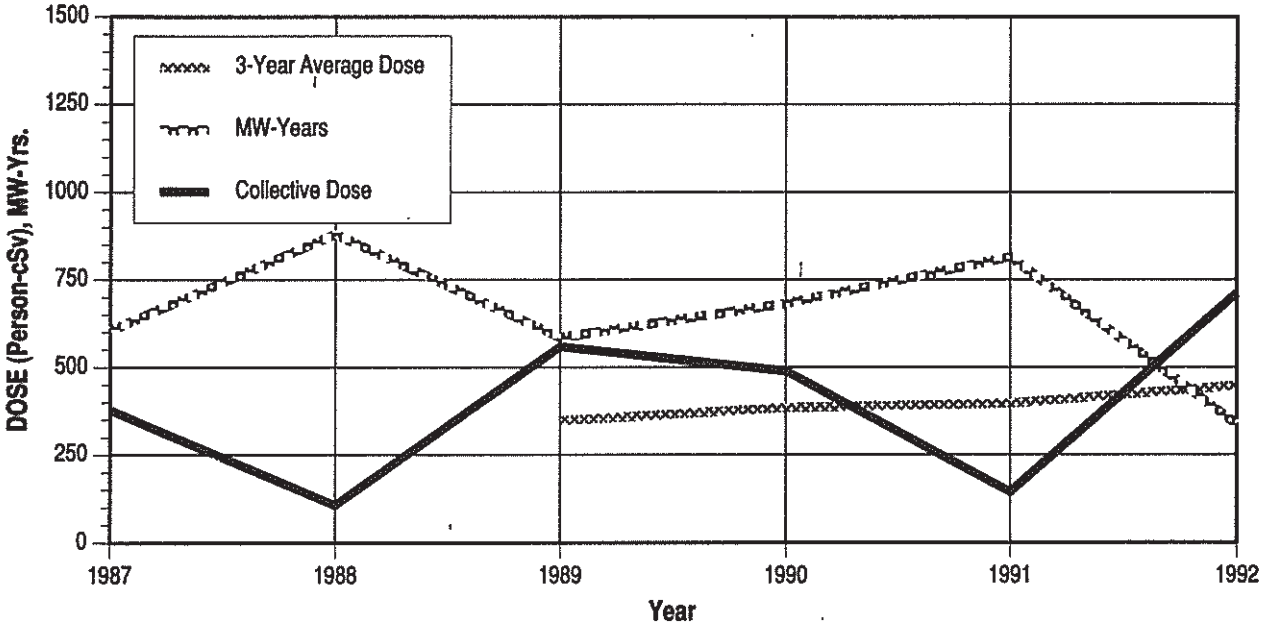
Breakdown by Job Function



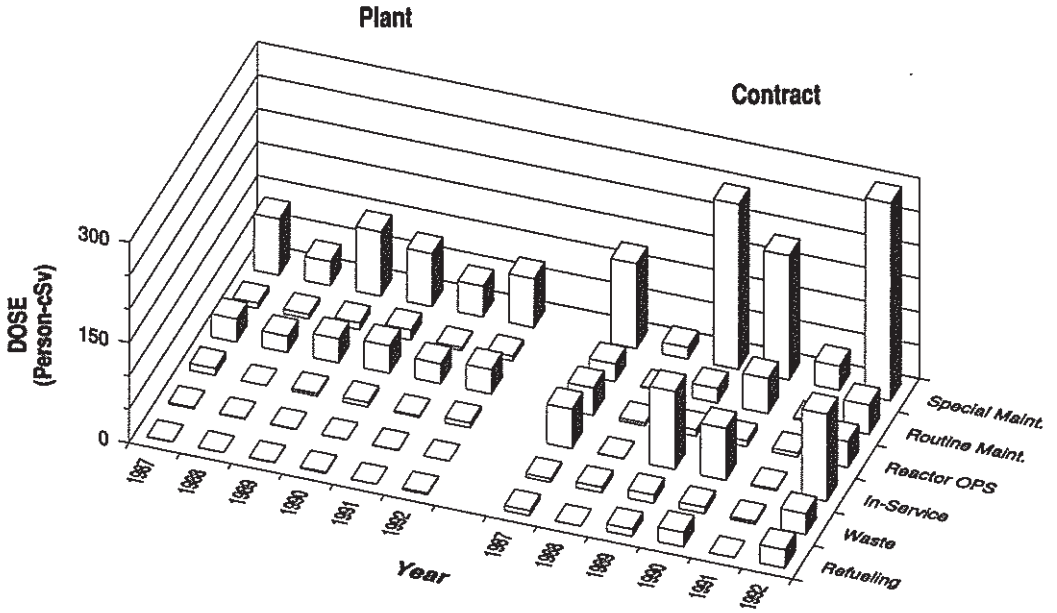
APPENDIX E (continued)

RIVER BEND 1

Dose-Performance Indicators **BWR**



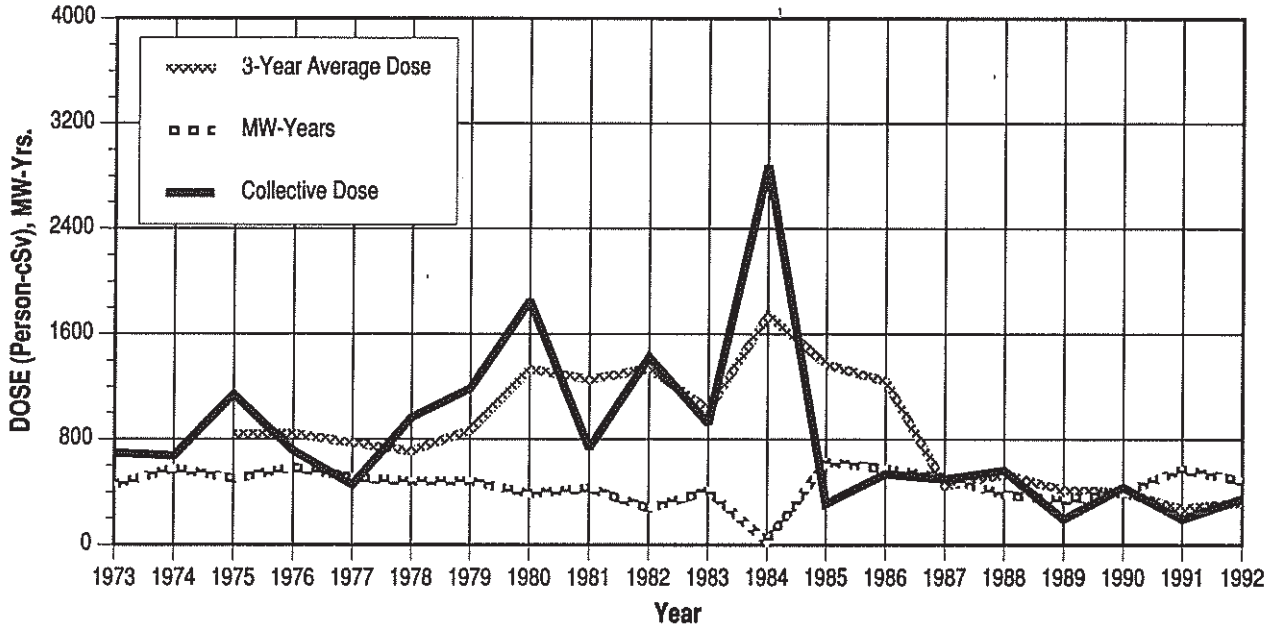
Breakdown by Job Function



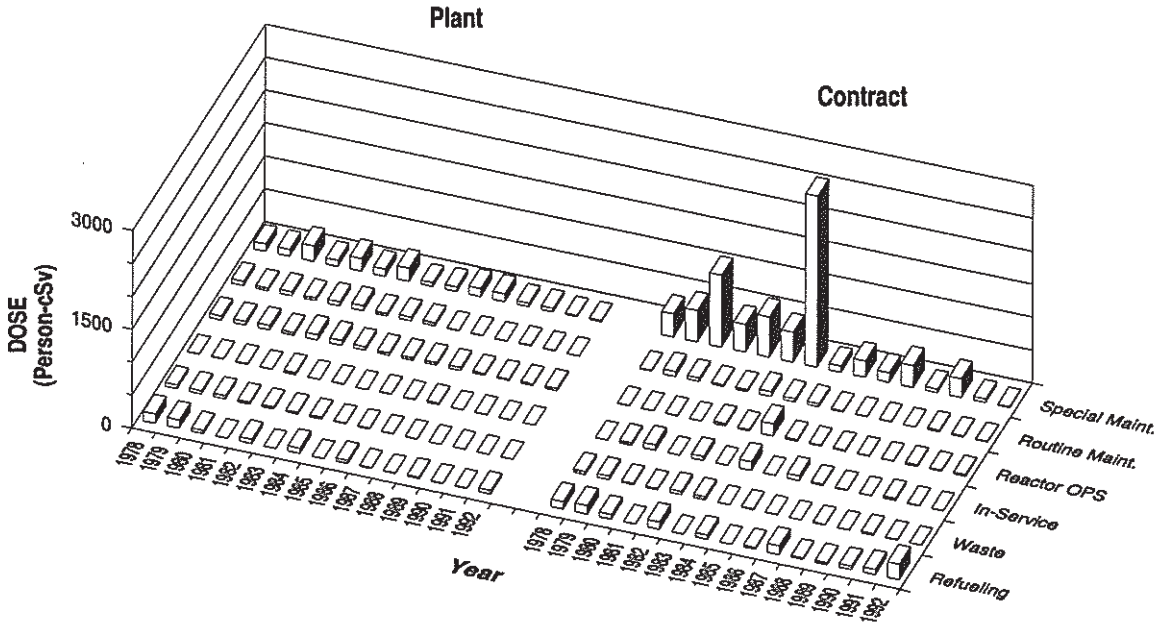
APPENDIX E (continued)

ROBINSON 2

Dose-Performance Indicators **PWR**



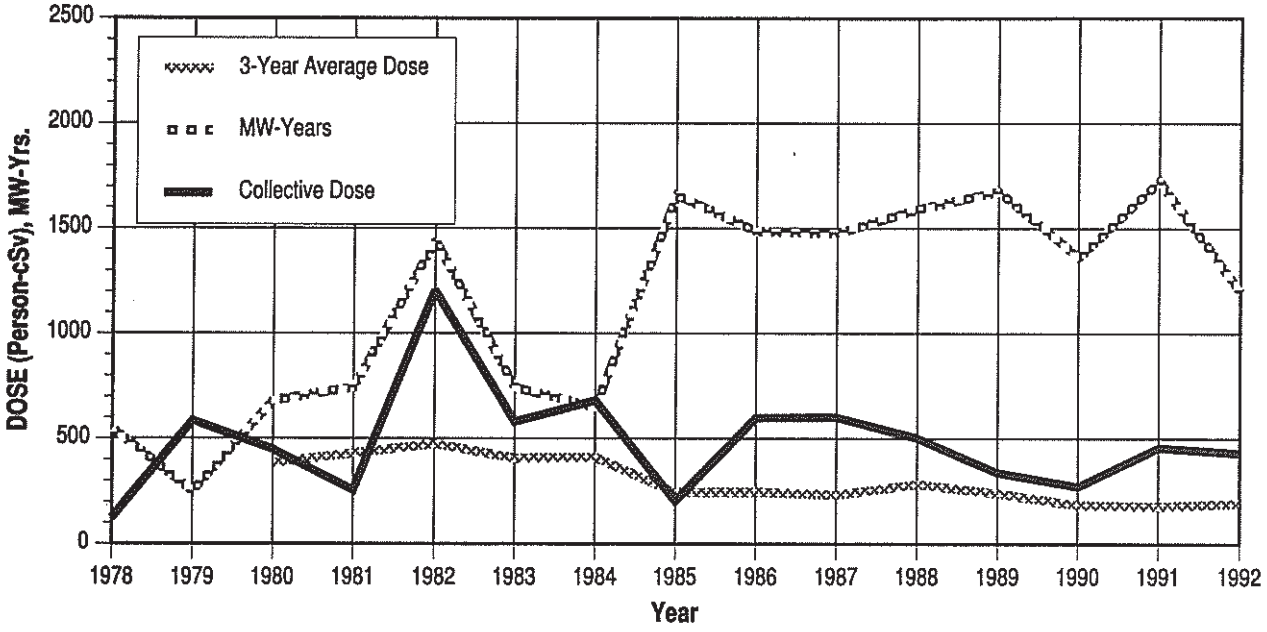
Breakdown by Job Function



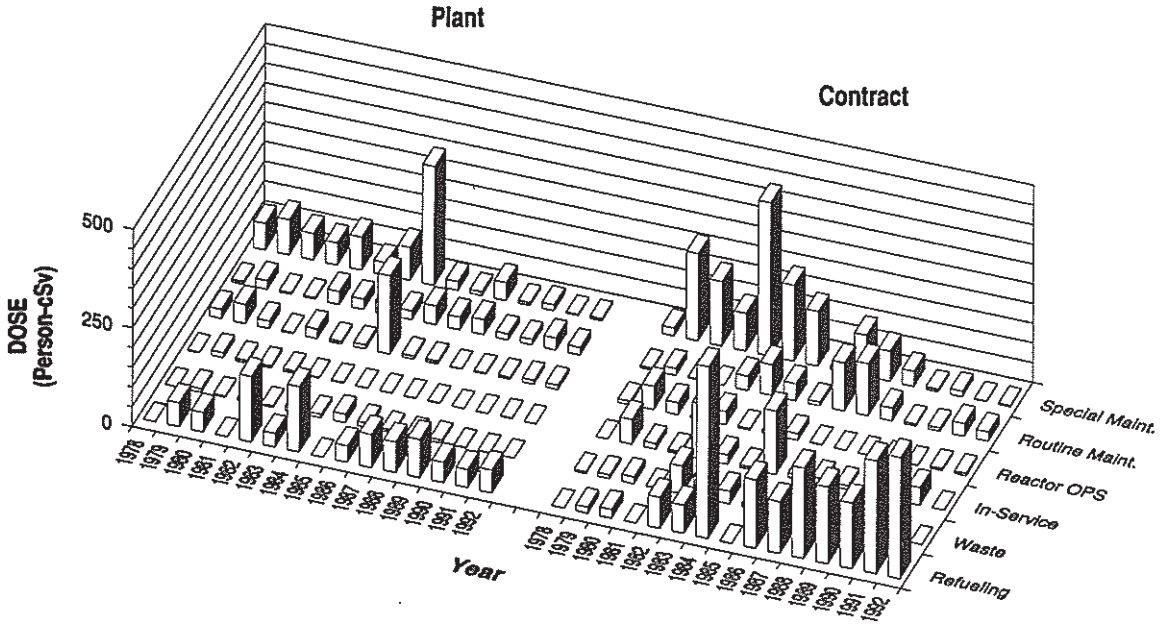
APPENDIX E (continued)

SALEM 1, 2

Dose-Performance Indicators **PWR**



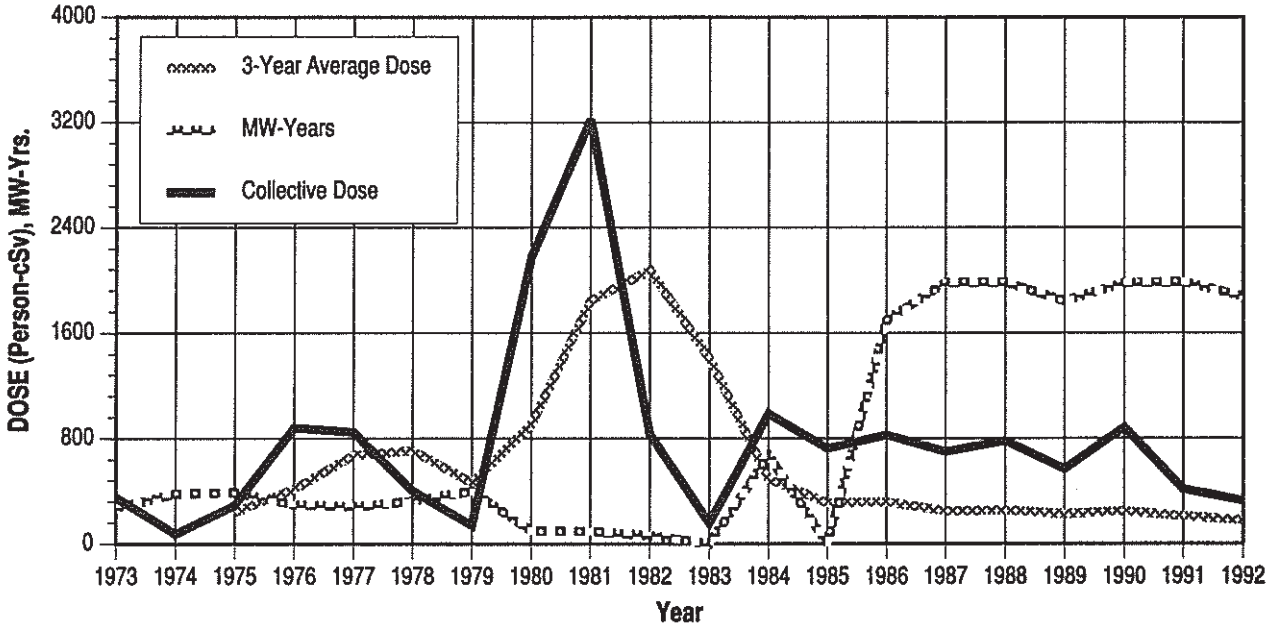
Breakdown by Job Function



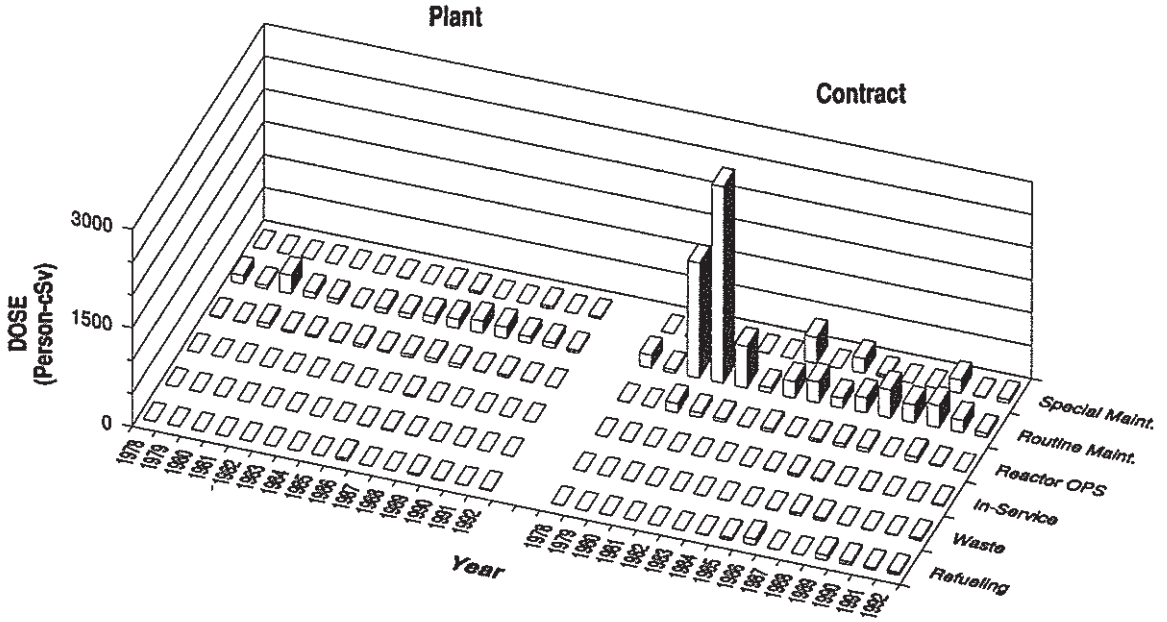
APPENDIX E (continued)

SAN ONOFRE 1, 2, 3

Dose-Performance Indicators **PWR**



Breakdown by Job Function

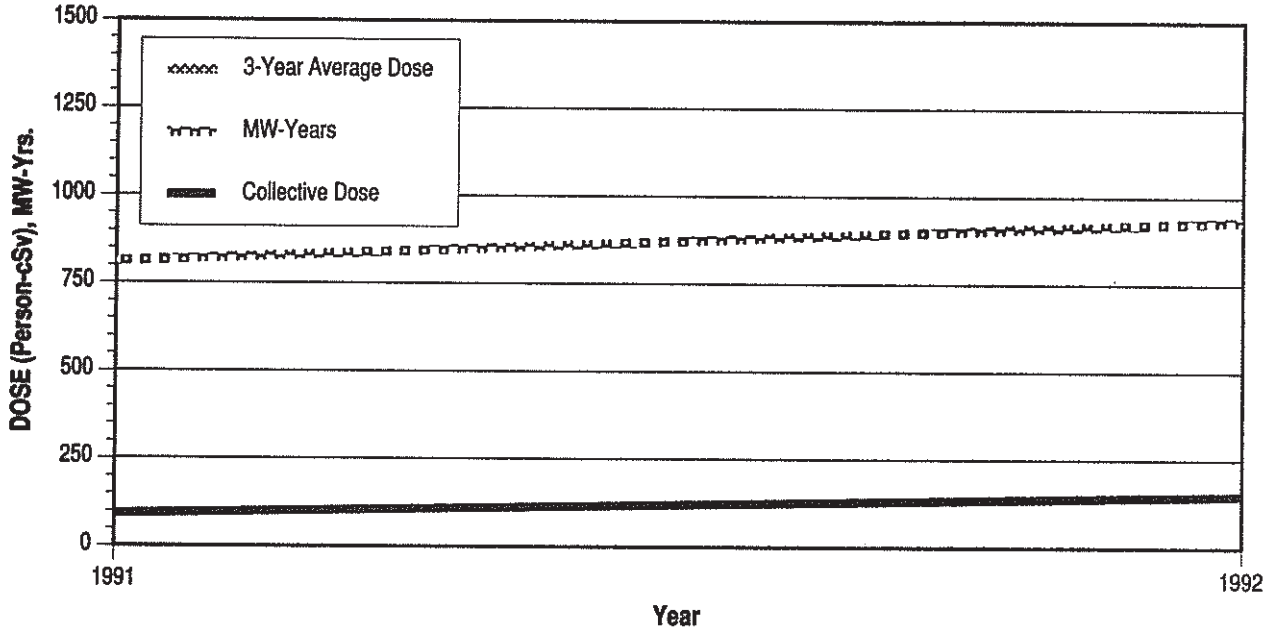


APPENDIX E (continued)

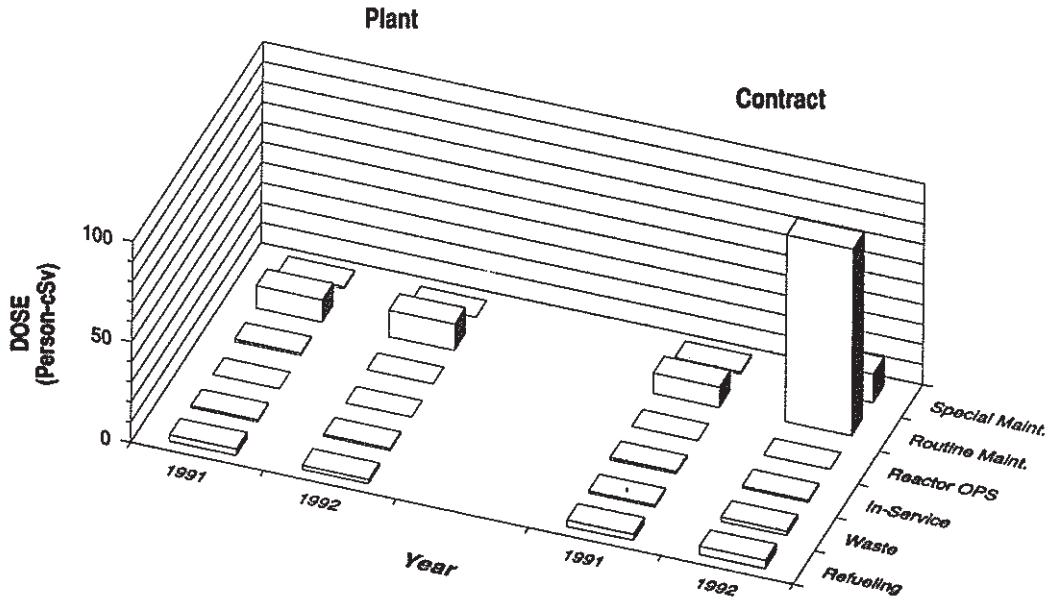
SEABROOK

Dose-Performance Indicators

PWR



Breakdown by Job Function

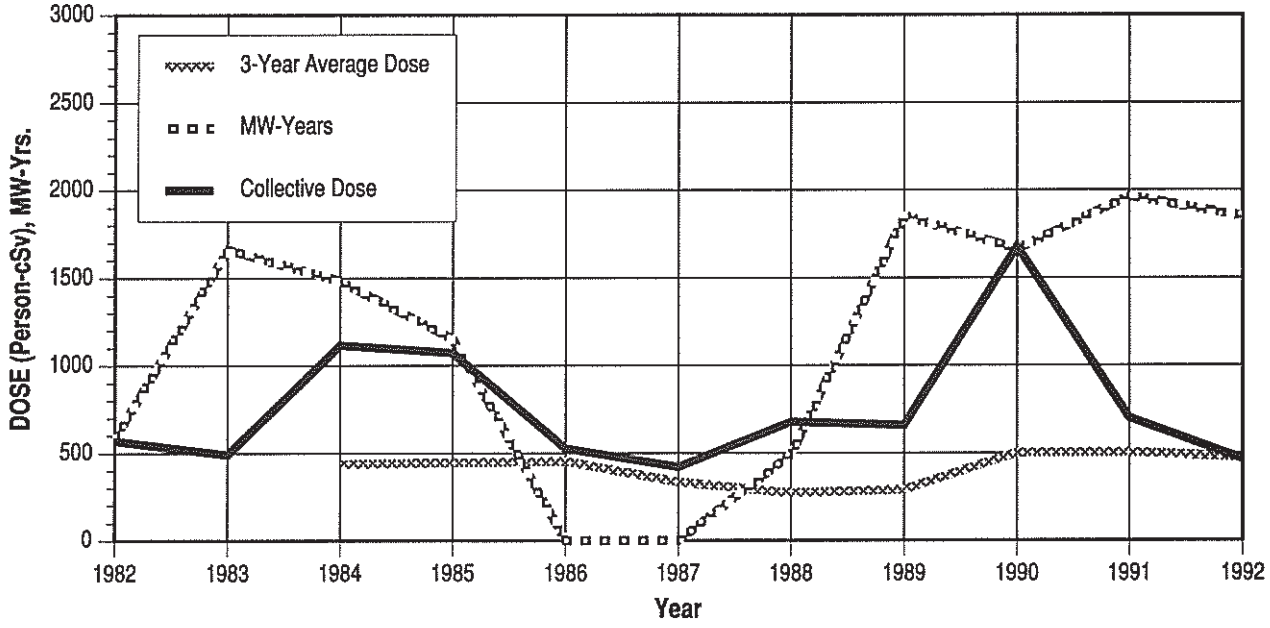


APPENDIX E (continued)

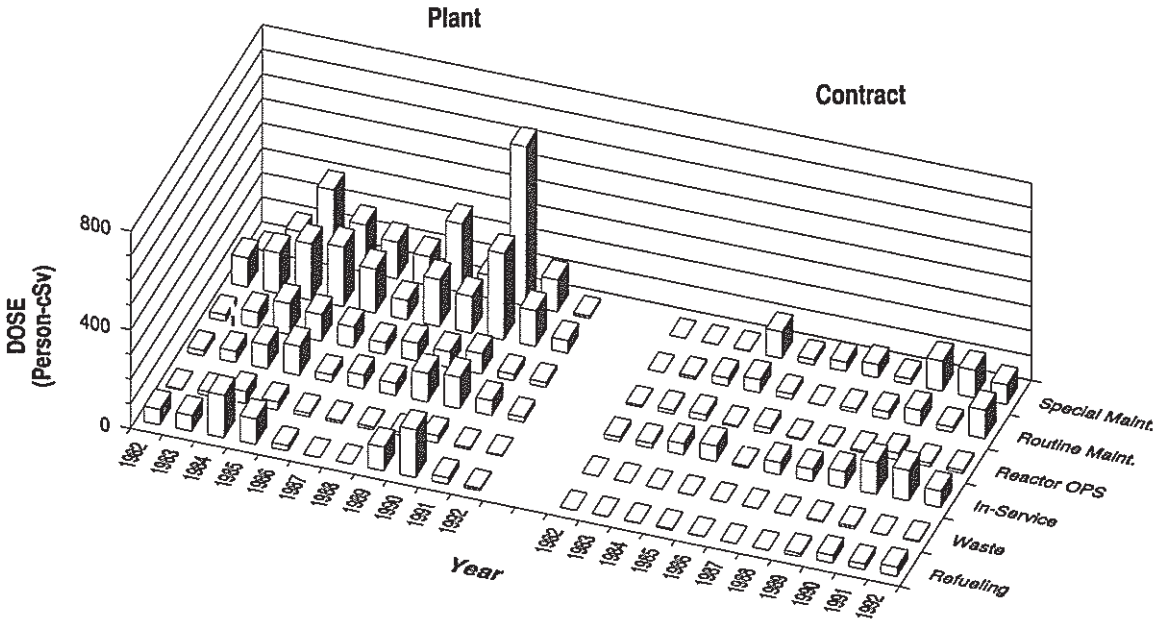
SEQUOYAH 1, 2

Dose-Performance Indicators

PWR



Breakdown by Job Function

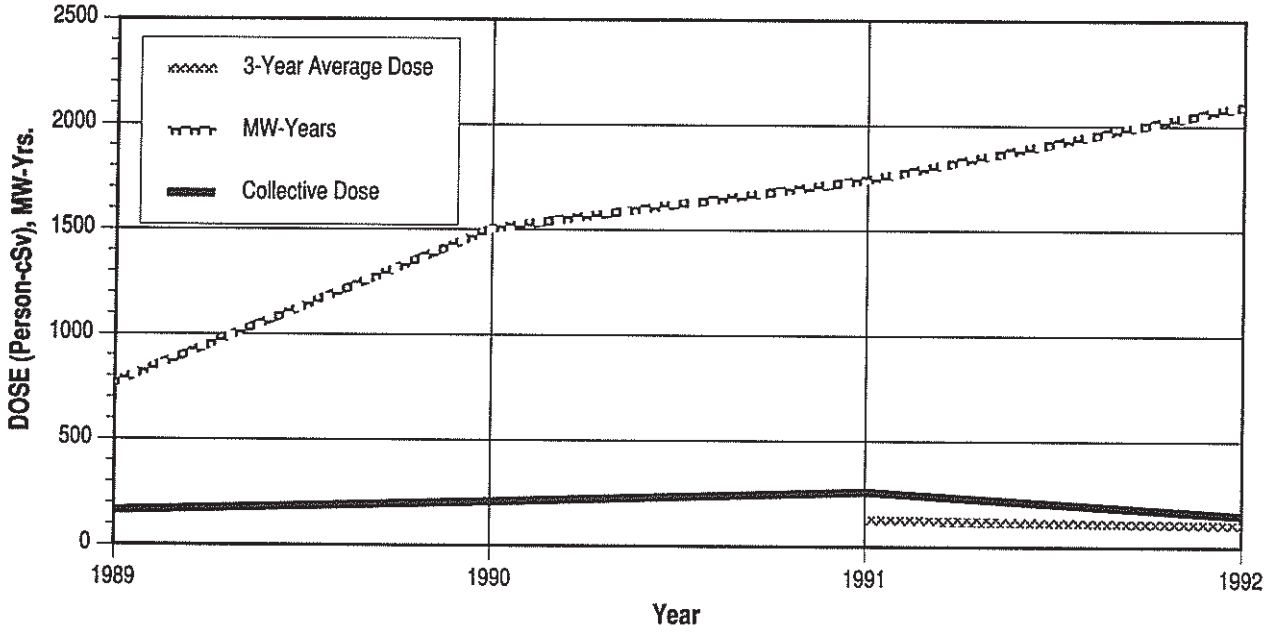


APPENDIX E (continued)

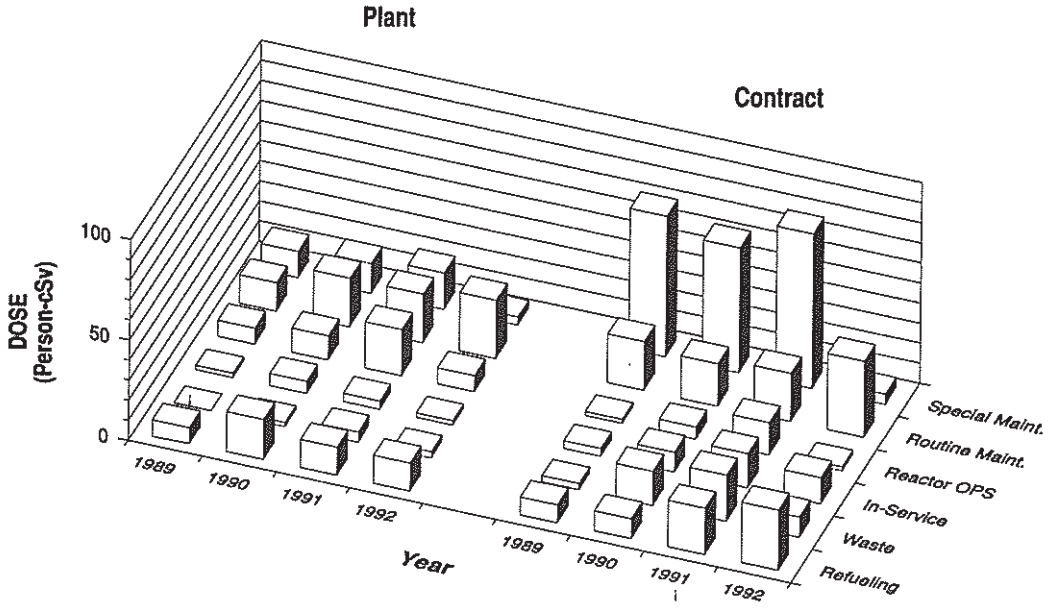
SOUTH TEXAS 1, 2

Dose-Performance Indicators

PWR



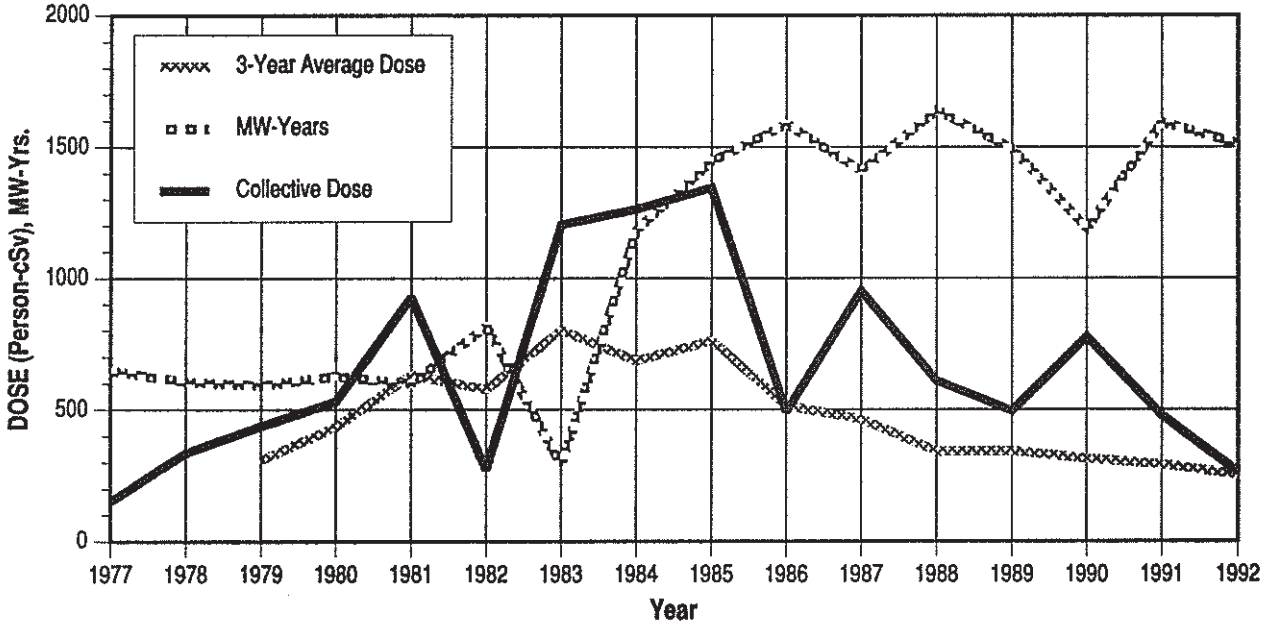
Breakdown by Job Function



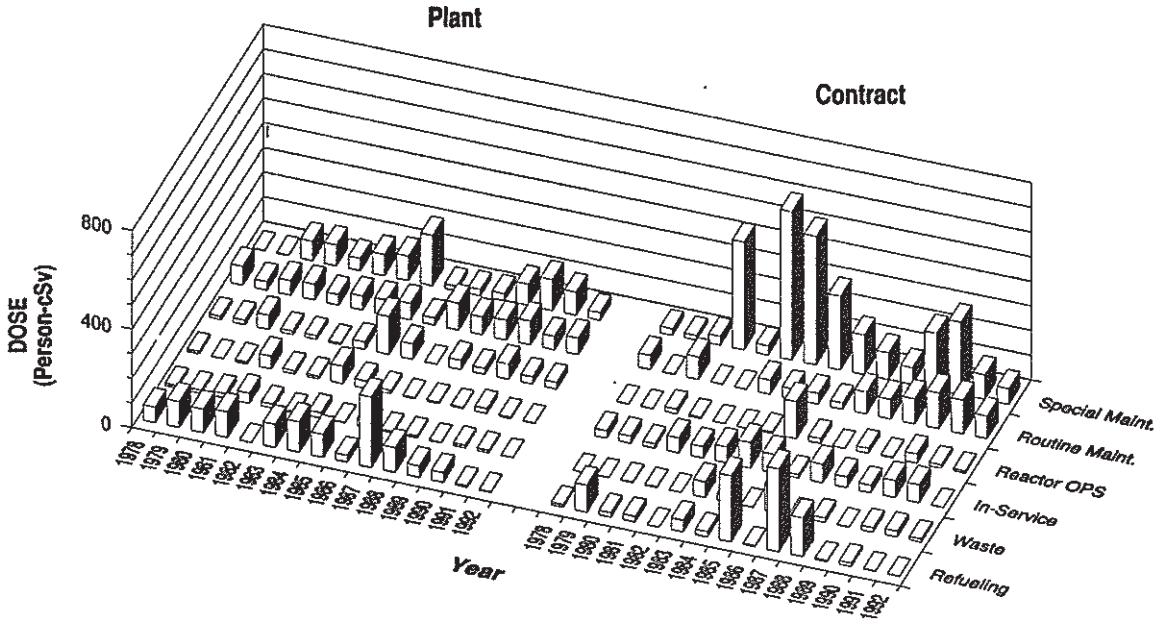
APPENDIX E (continued)

ST. LUCIE 1, 2

Dose-Performance Indicators **PWR**



Breakdown by Job Function

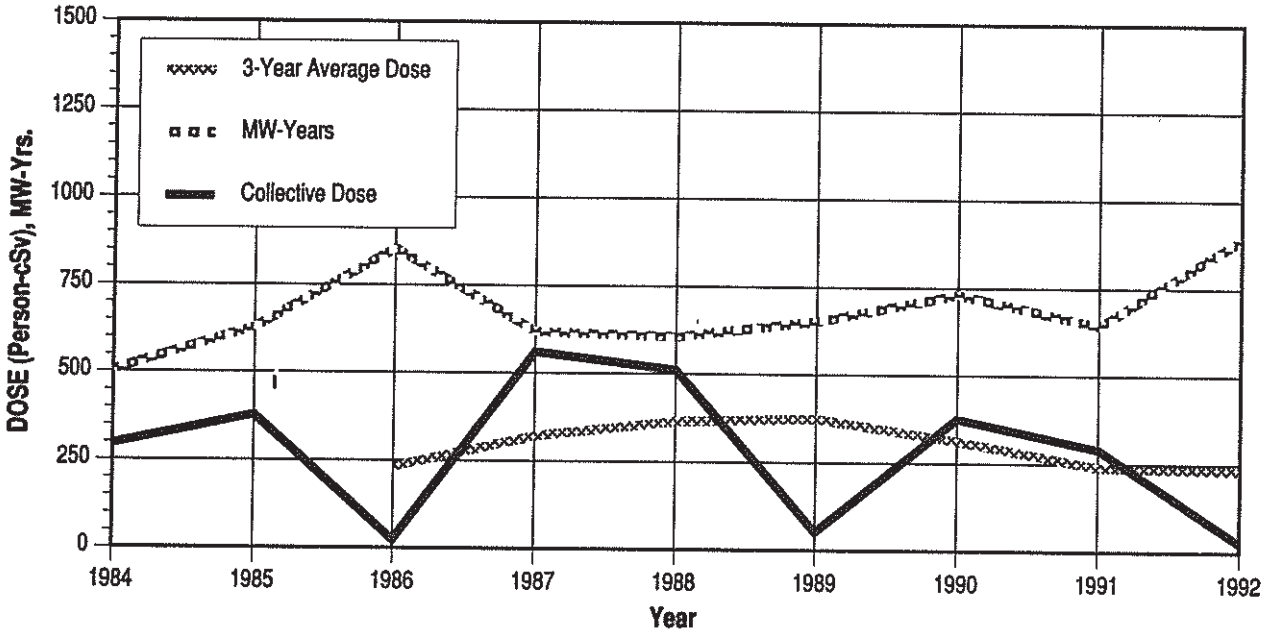


APPENDIX E (continued)

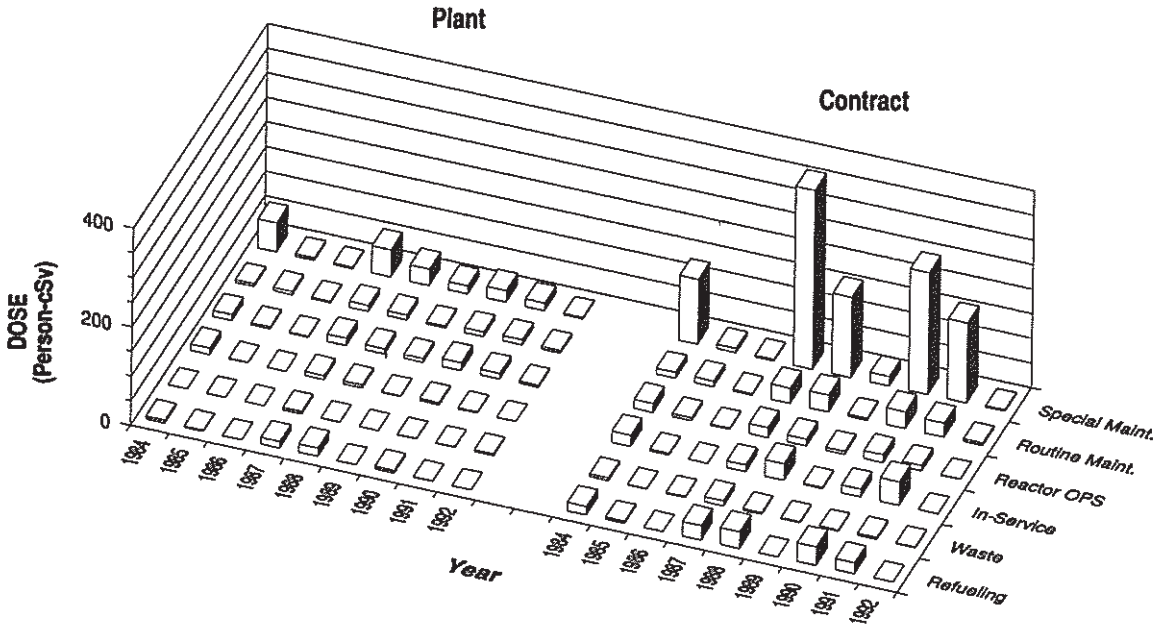
SUMMER 1

Dose-Performance Indicators

PWR



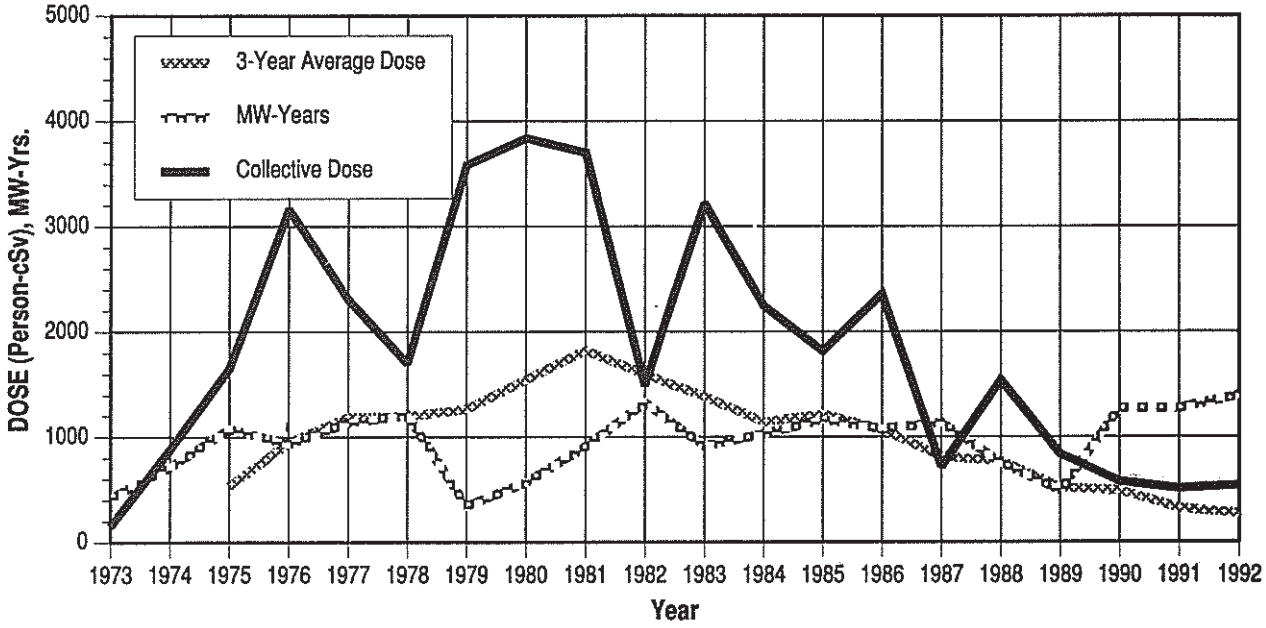
Breakdown by Job Function



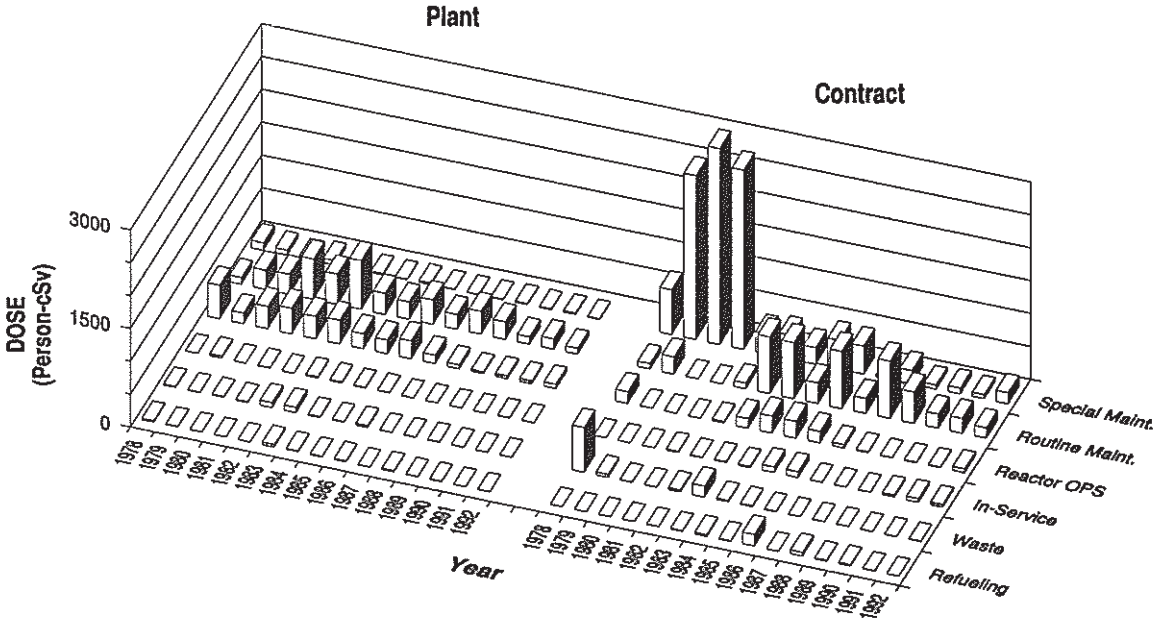
APPENDIX E (continued)

SURRY 1, 2

Dose-Performance Indicators **PWR**



Breakdown by Job Function

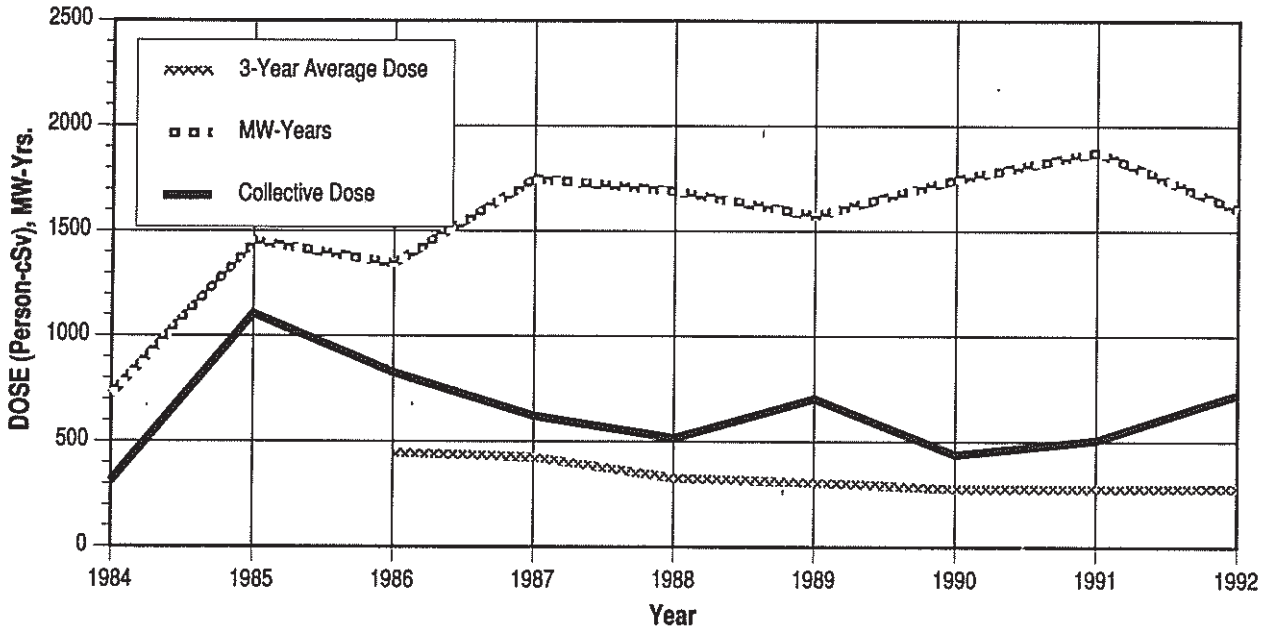


APPENDIX E (continued)

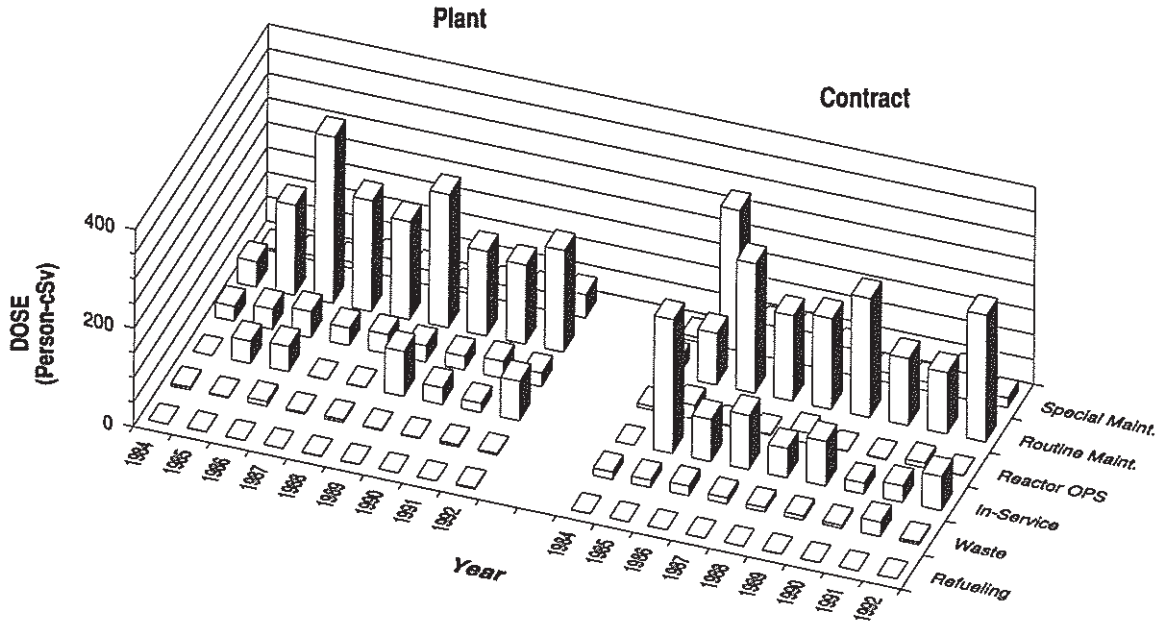
SUSQUEHANNA 1, 2

Dose-Performance Indicators

BWR



Breakdown by Job Function

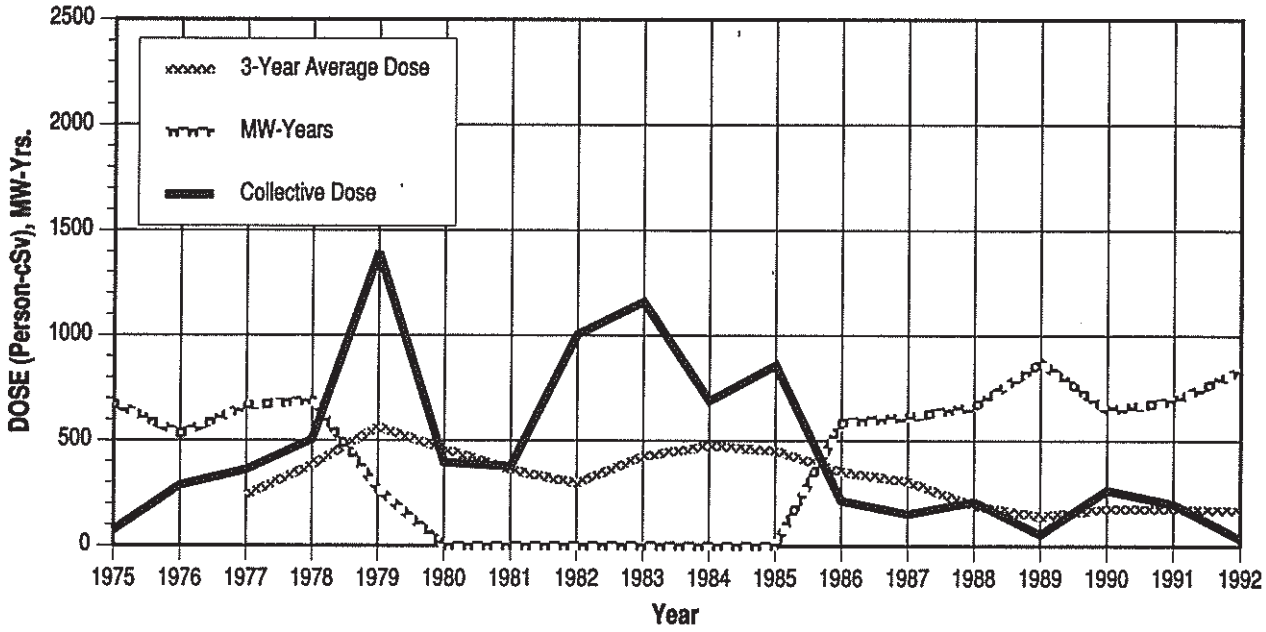


APPENDIX E (continued)

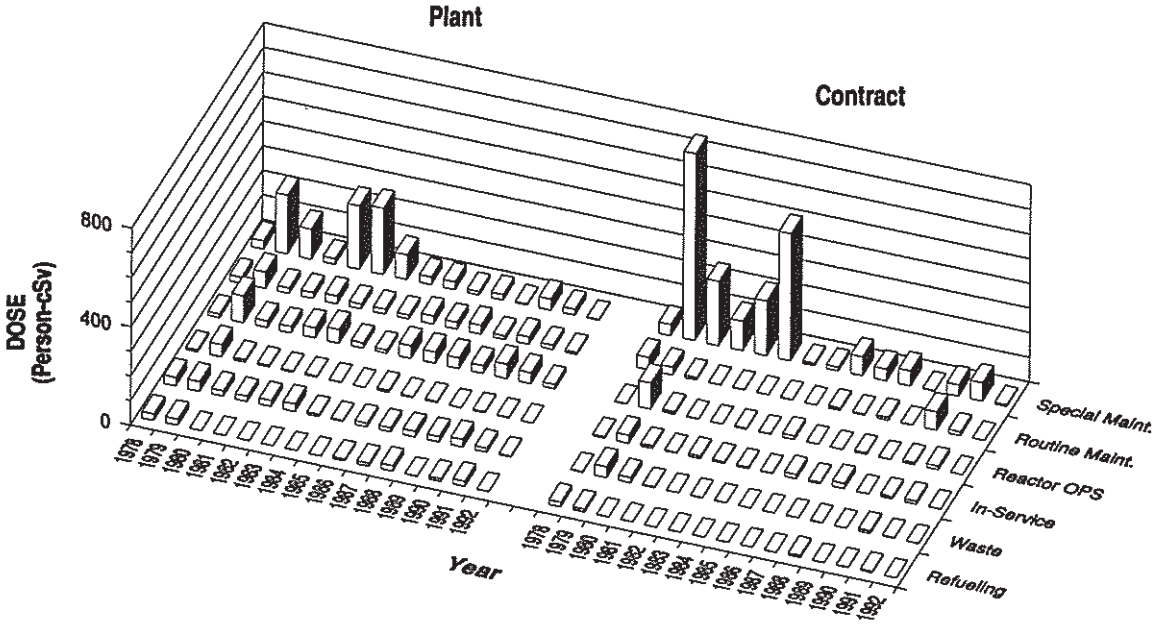
THREE MILE ISLAND 1

Dose-Performance Indicators

PWR



Breakdown by Job Function

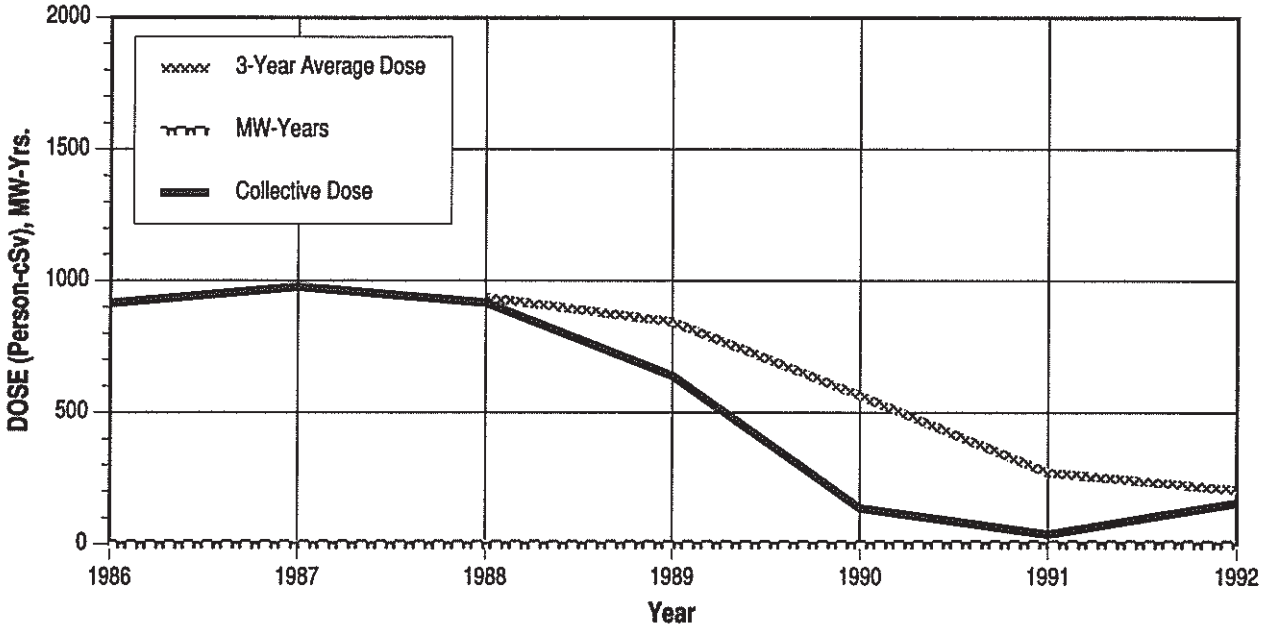


APPENDIX E (continued)

THREE MILE ISLAND 2

Dose-Performance Indicators

PWR



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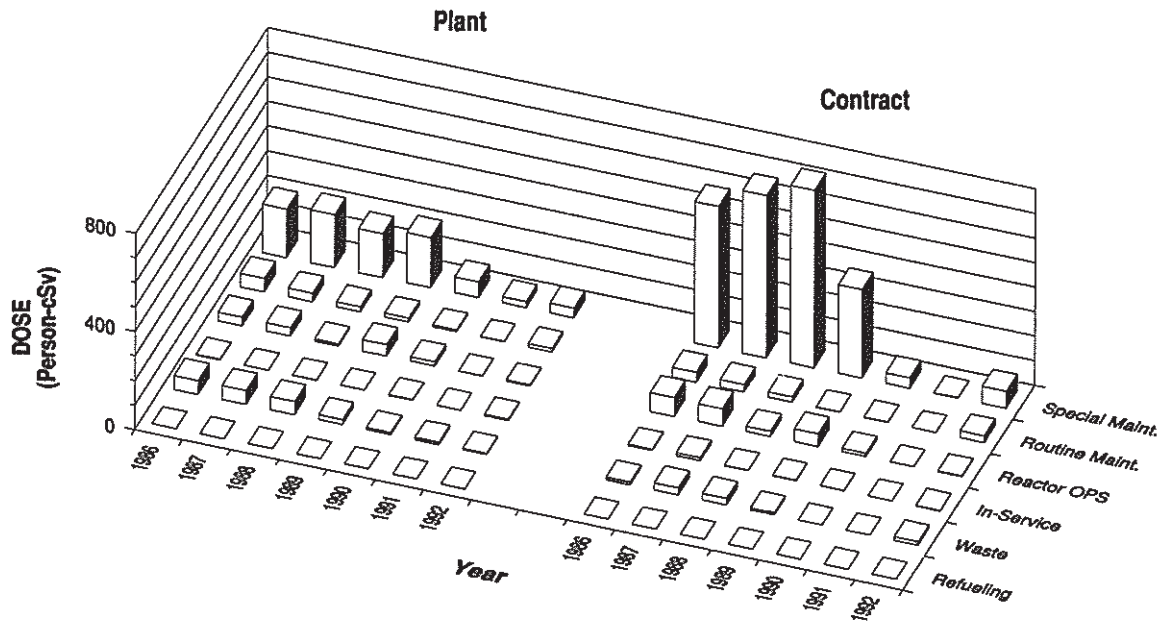
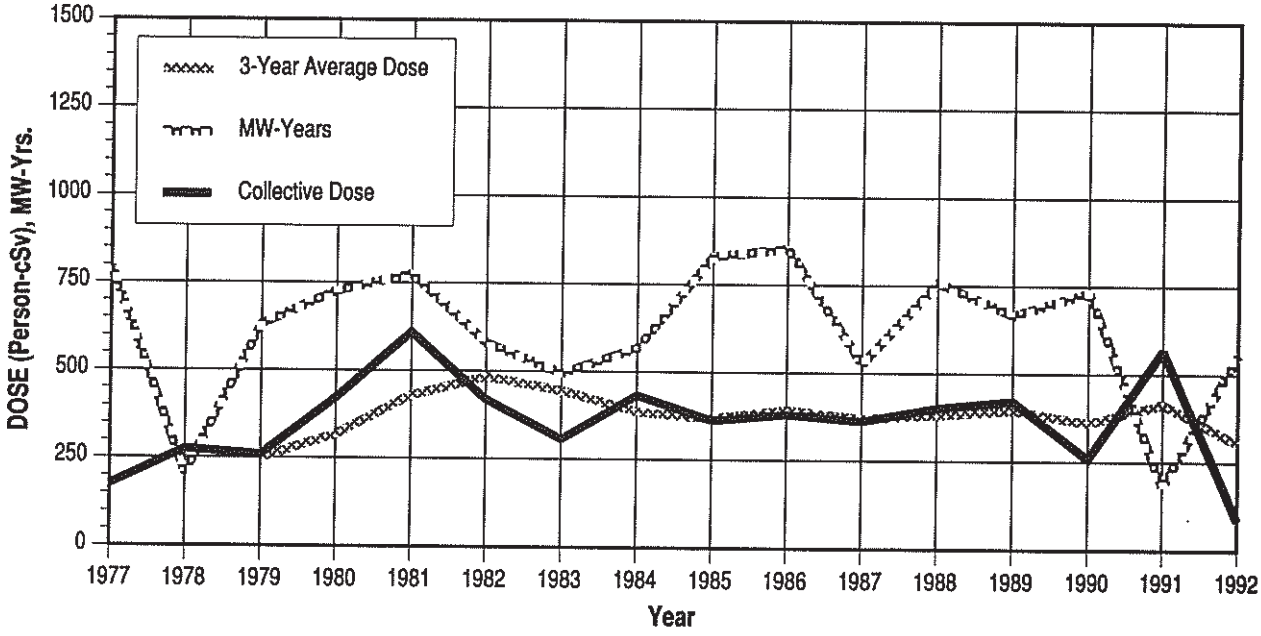


APPENDIX E (continued)

TROJAN

Dose-Performance Indicators **PWR**



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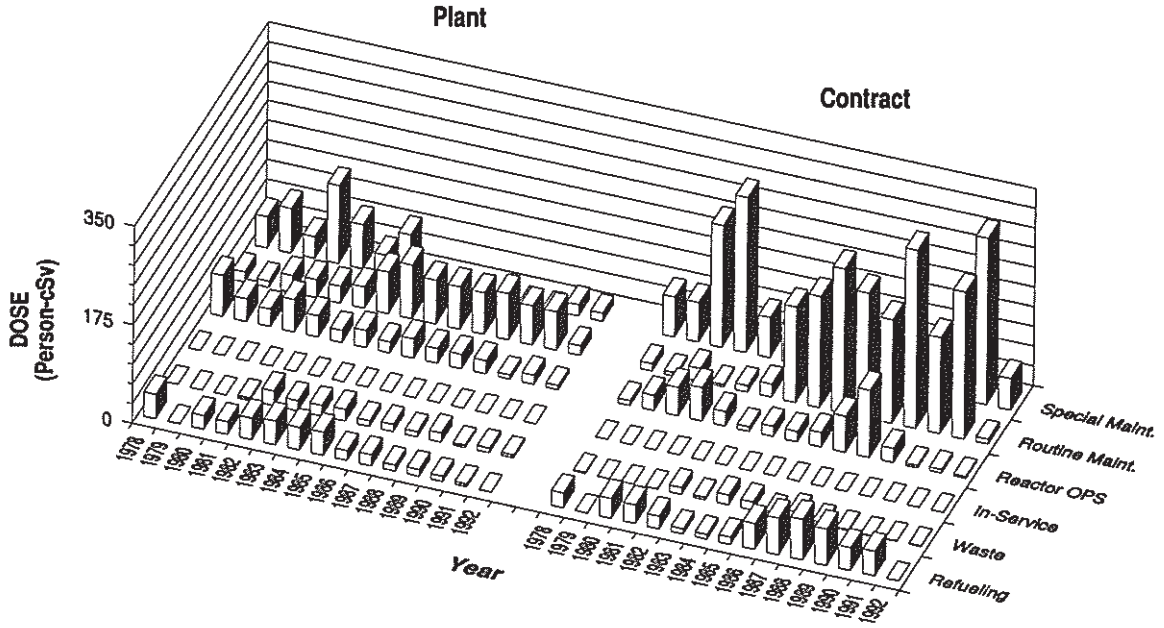
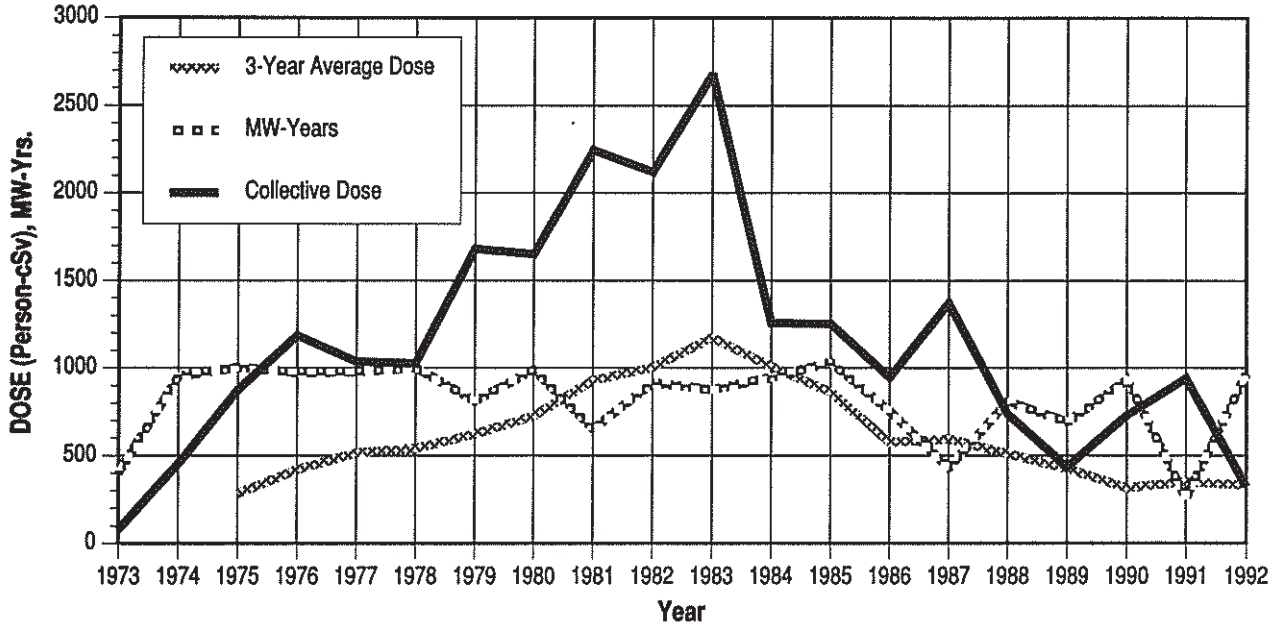


APPENDIX E (continued)

TURKEY POINT 3, 4

Dose-Performance Indicators **PWR**



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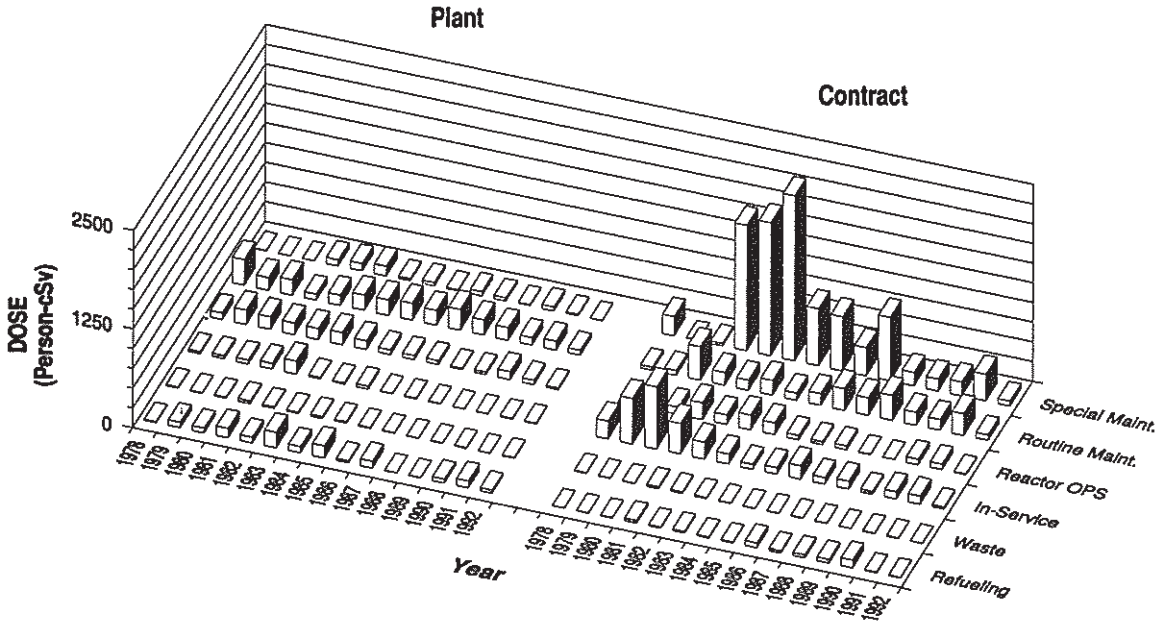
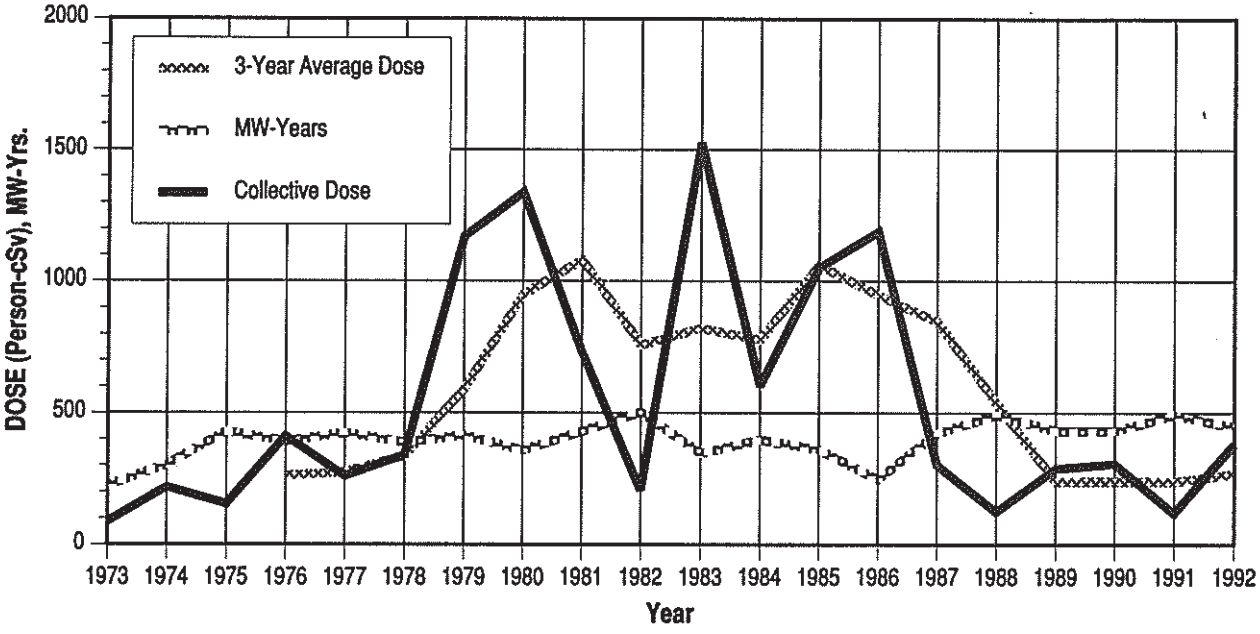


APPENDIX E (continued)

VERMONT YANKEE

Dose-Performance Indicators **BWR**



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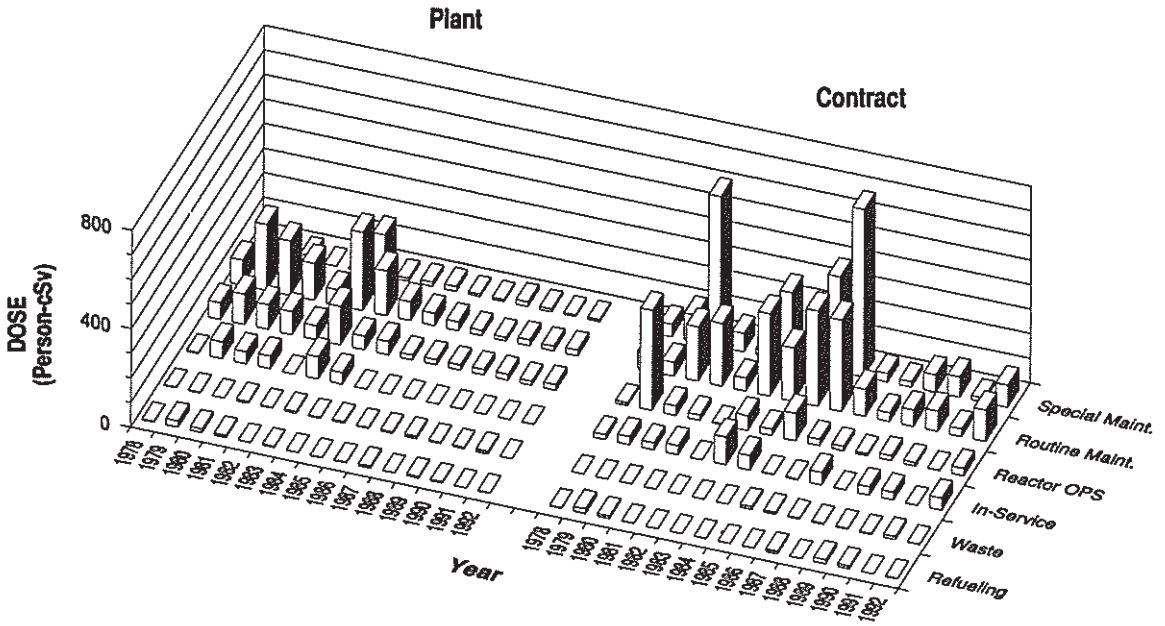
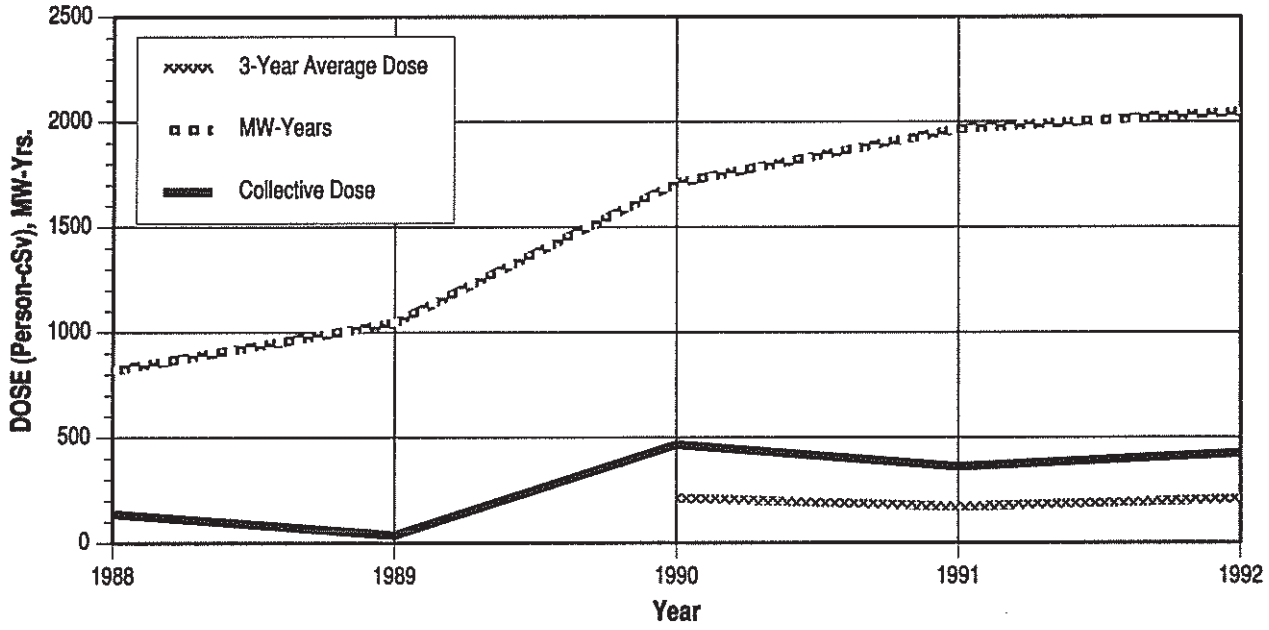


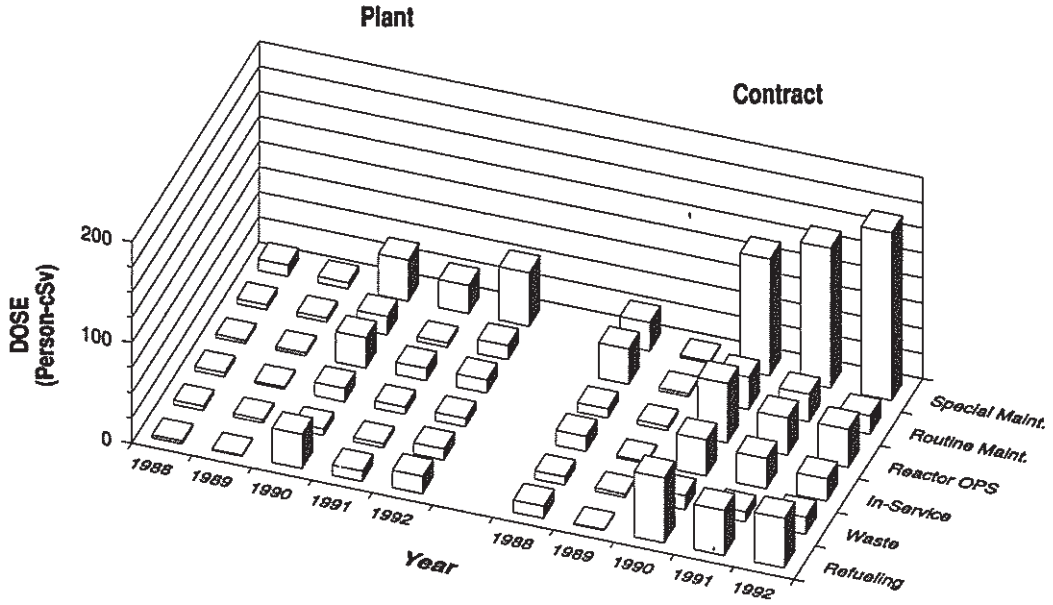
APPENDIX E (continued)

VOGTLE 1, 2

Dose-Performance Indicators **PWR**



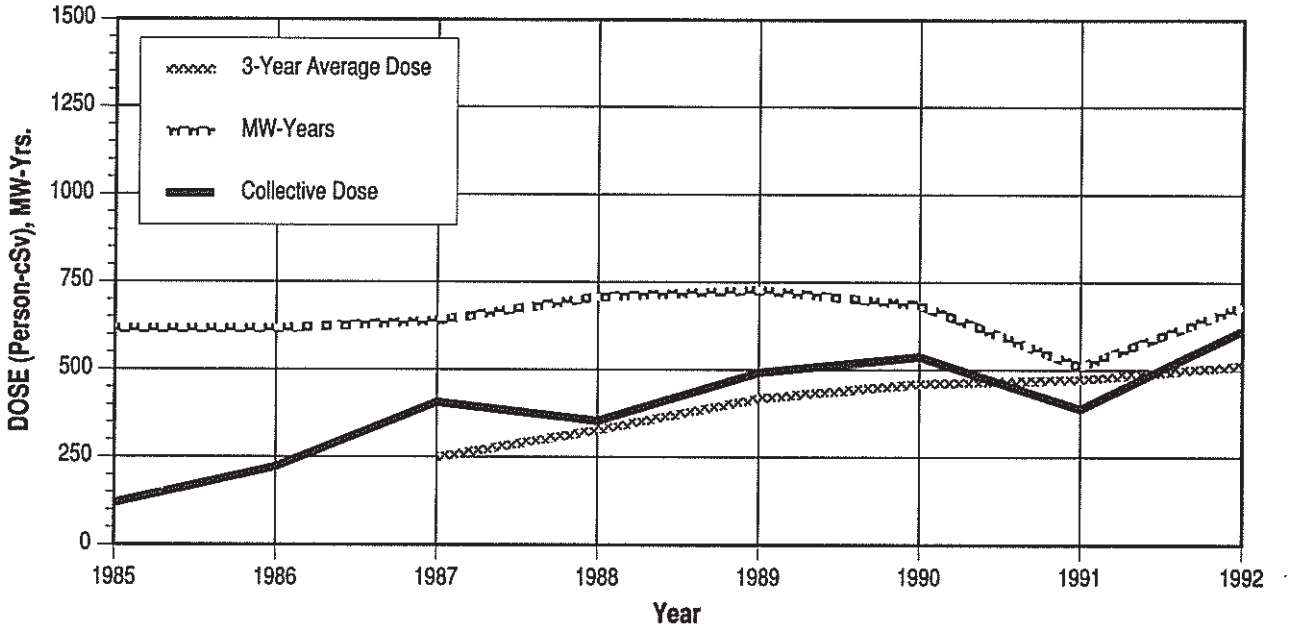
Breakdown by Job Function



APPENDIX E (continued)

WASHINGTON NUCLEAR 2

Dose-Performance Indicators **BWR**



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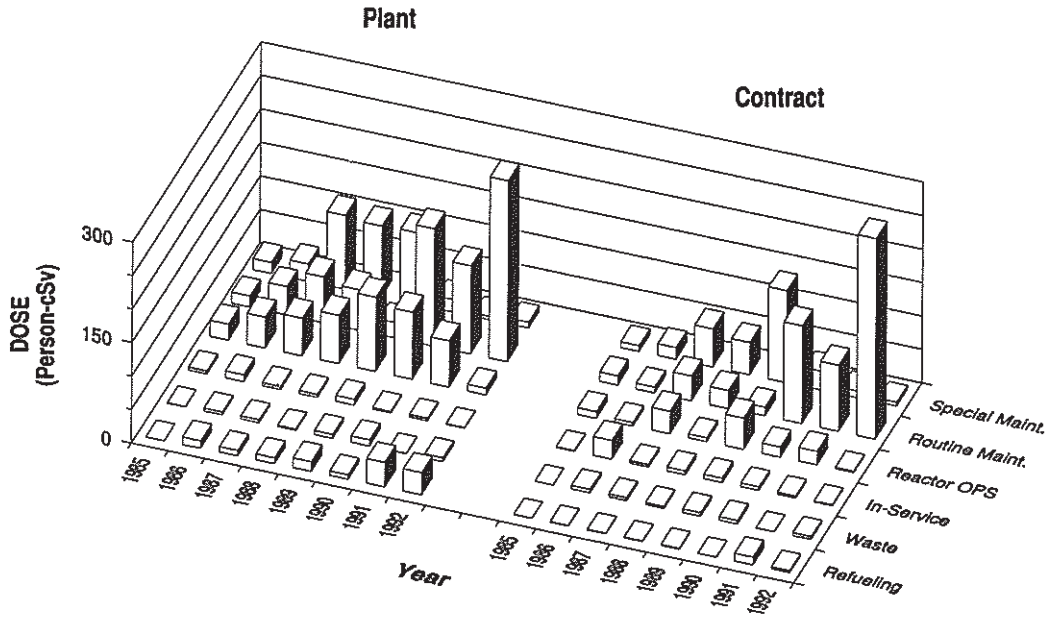
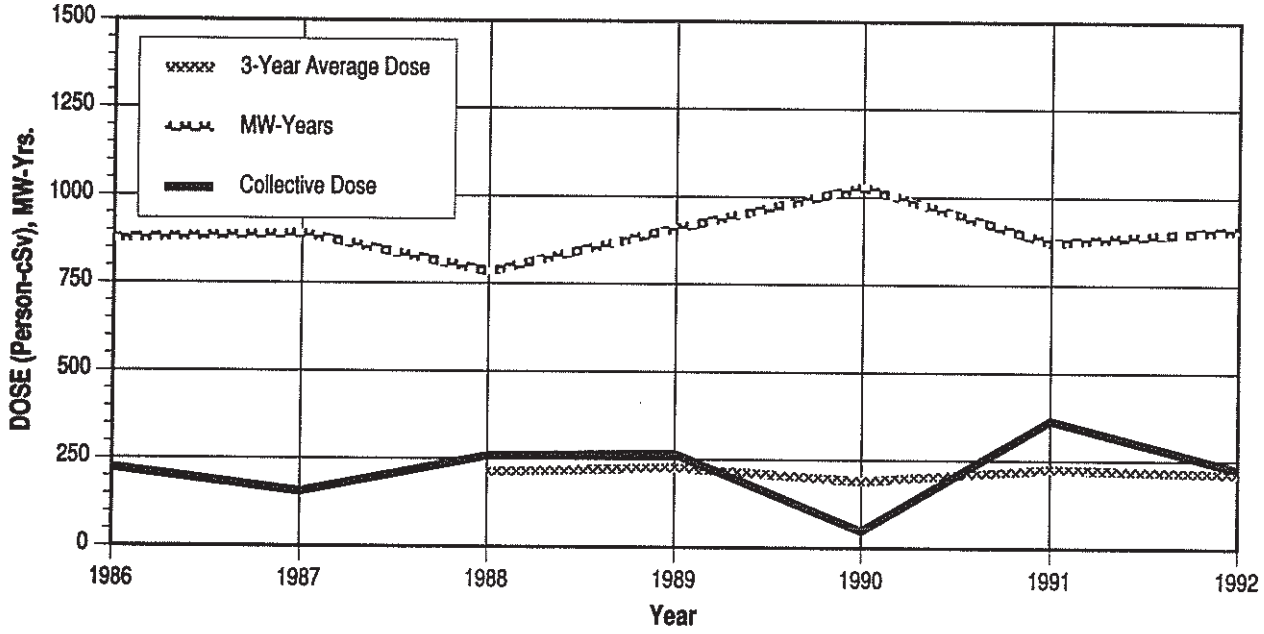


APPENDIX E (continued)

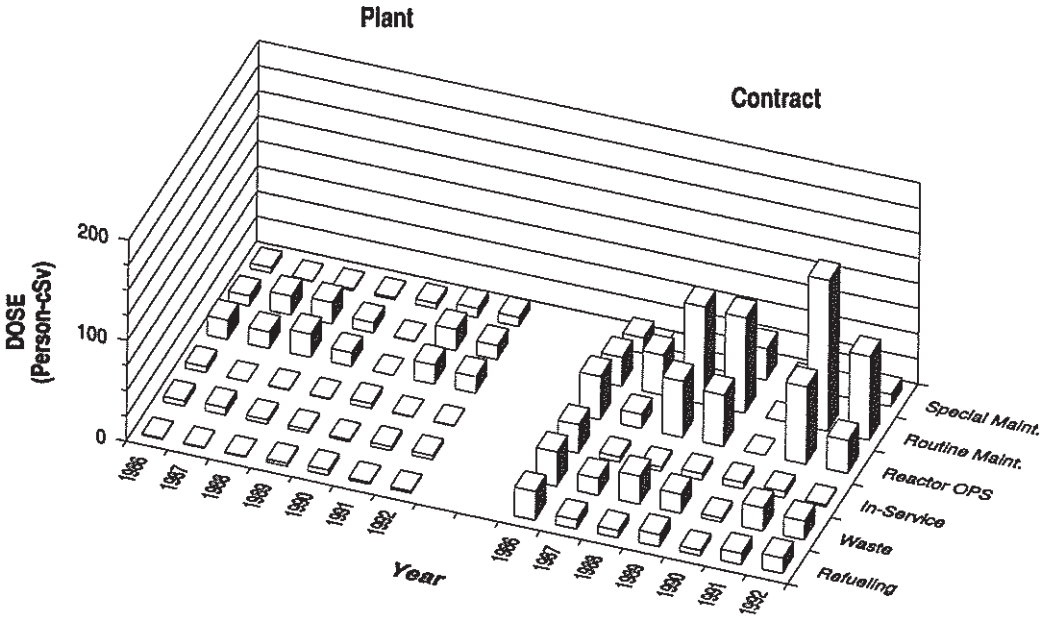
WATERFORD 3

Dose-Performance Indicators

PWR



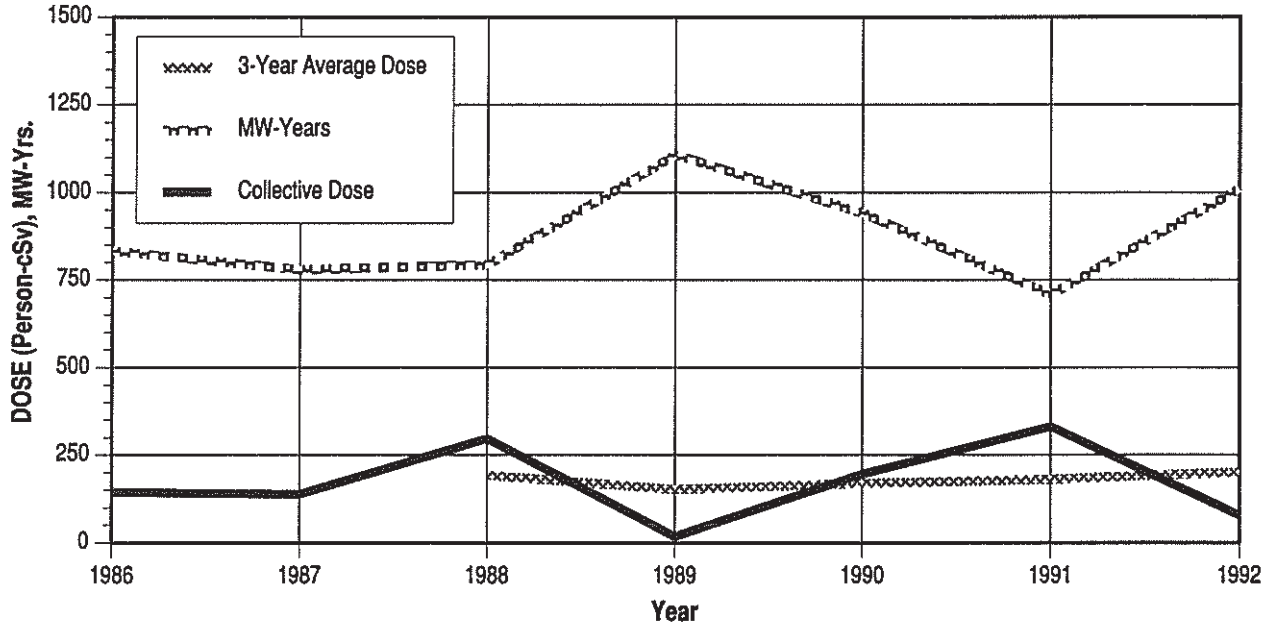
Breakdown by Job Function



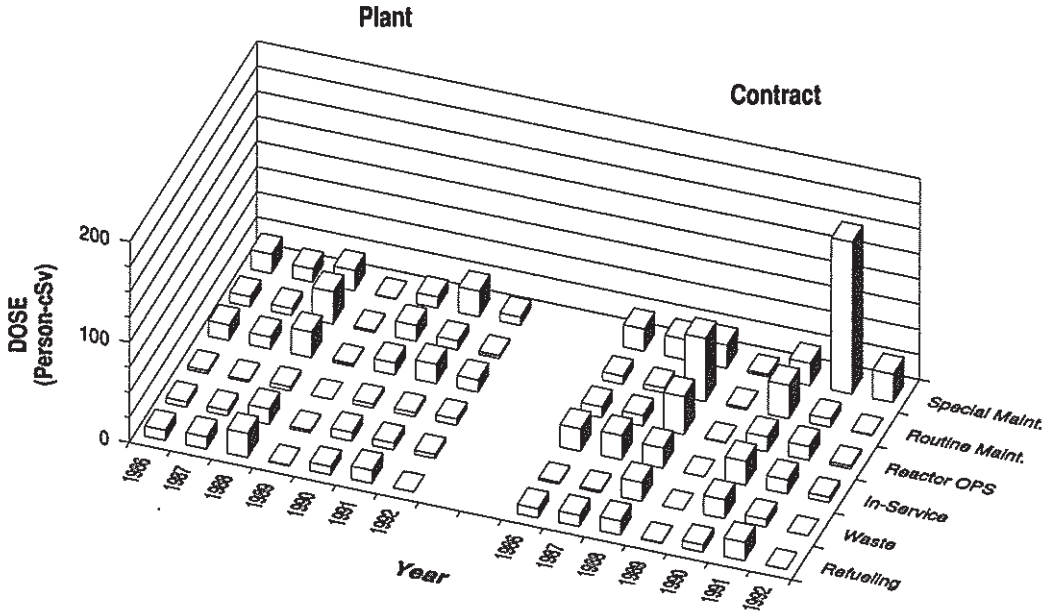
APPENDIX E (continued)

WOLF CREEK 1

Dose-Performance Indicators **PWR**



Breakdown by Job Function

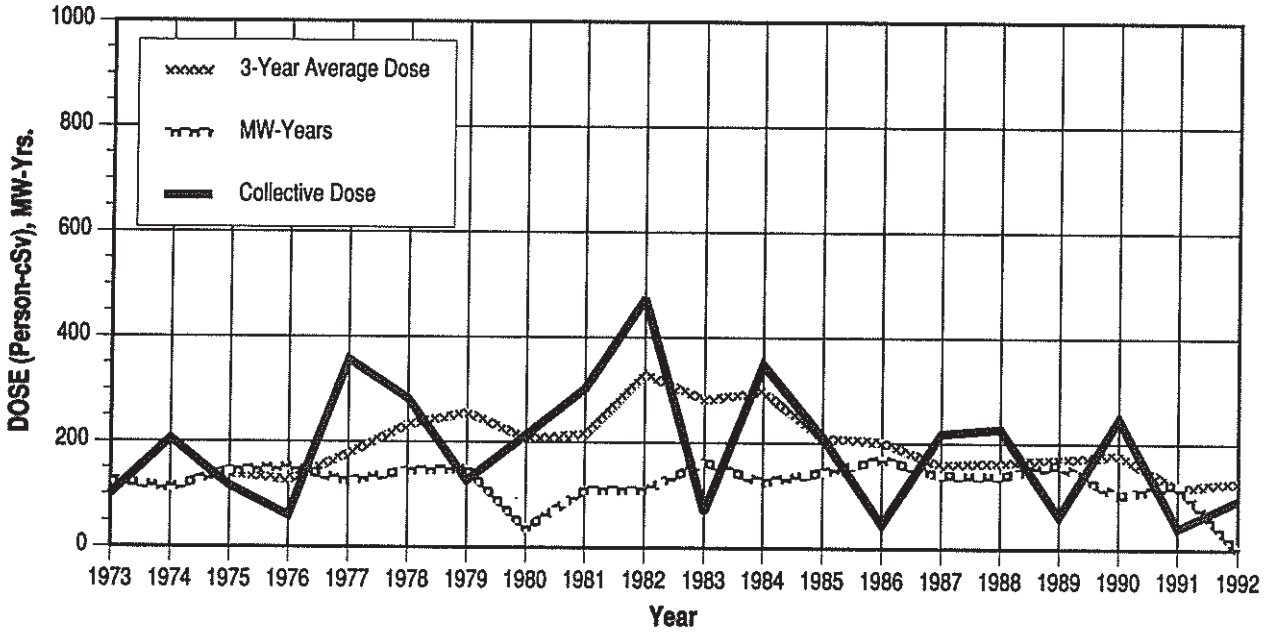


APPENDIX E (continued)

YANKEE-ROWE

Dose-Performance Indicators

PWR



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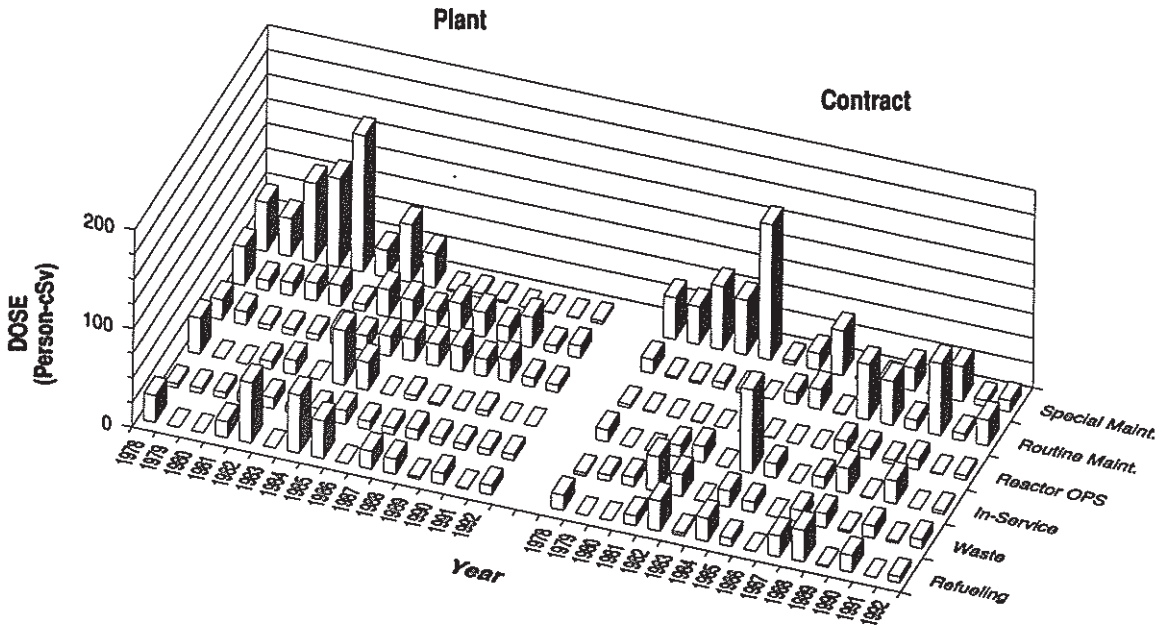
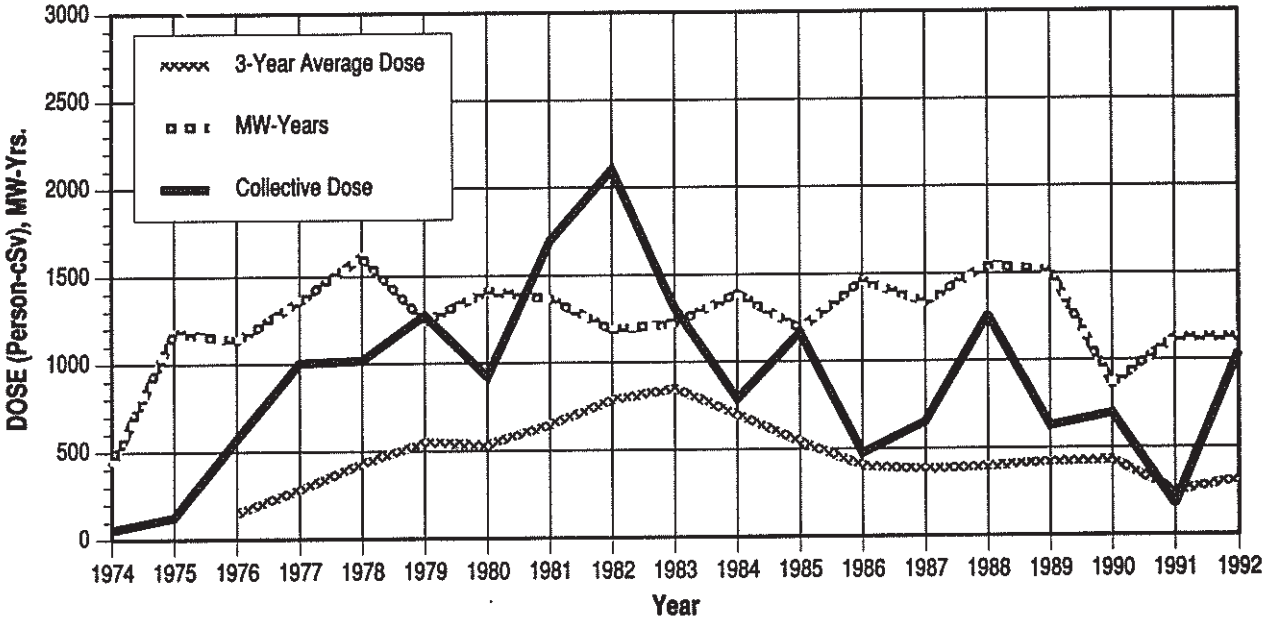


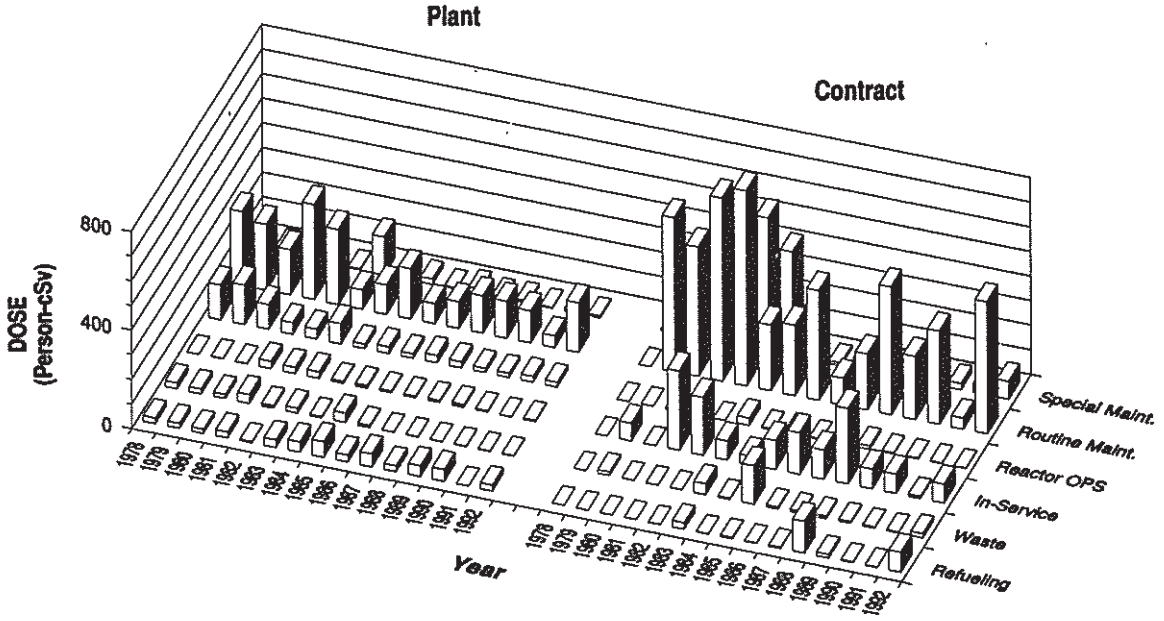
APPENDIX E (continued)

ZION 1, 2

Dose-Performance Indicators **PWR**



Breakdown by Job Function



APPENDIX F

Summary of Annual Whole Body Dose Distributions by Year and Reactor Type

1986-1992

APPENDIX F*
SUMMARY OF ANNUAL WHOLE BODY DOSE DISTRIBUTIONS BY YEAR AND REACTOR TYPE
1986-1992

YEAR AND REACTOR TYPE	Number of Individuals with Whole Body Doses in the Ranges (cSv or rem)																TOTAL NUMBER MONI-TORED	NUMBER WITH MEAS. EXPOSURE	TOTAL COLLEC-TIVE DOSE
	No Mea-surable	Meas. <0.10	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.00	1.00-2.00	2.00-3.00	3.00-4.00	4.0-5.0	5-6.0	6-7.0	7-8.0	8-9.0	9-10	10-12	>12			
1992 - PWRs	56,859	28,220	12,503	10,259	4,926	2,287	2,602	245	6									117,907	61,048	16,000
1992 - BWRs	39,594	17,740	8,094	6,883	3,955	2,339	2,866	204	11	3								81,689	42,095	13,309
1992 - LWRs	96,453	45,960	20,597	17,142	8,881	4,626	5,468	449	17	3								199,596	103,143	29,309
1991 - PWRs	57,815	28,514	11,876	9,387	4,657	2,462	2,972	371	30									118,084	60,269	16,510
1991 - BWRs	37,527	17,384	7,076	5,732	3,409	1,975	2,602	299	14	1								76,019	38,492	12,005
1991 - LWRs	95,342	45,898	18,952	15,119	8,066	4,437	5,574	670	44	1								194,103	98,761	28,515
1990 - PWRs	53,935	29,669	12,957	10,591	5,601	3,267	4,363	590	43									121,016	67,081	20,812
1990 - BWRs	39,102	17,210	7,336	5,992	3,717	2,493	4,162	625	41	1								80,679	41,577	15,780
1990 - LWRs	93,037	46,879	20,293	16,583	9,318	5,760	8,525	1,215	84	1								201,695	108,658	36,592
1989 - PWRs	51,701	29,419	11,591	9,336	5,061	2,997	4,739	674	66	11								115,595	63,894	20,381
1989 - BWRs	40,951	19,343	7,887	6,323	3,753	2,544	3,962	515	33									85,311	44,360	15,549
1989 - LWRs	92,652	48,762	19,478	15,659	8,814	5,541	8,701	1,189	99	11								200,906	108,254	35,930
1988 - PWRs	47,866	27,177	11,014	9,260	5,563	3,541	5,405	829	127	4		1						110,787	62,921	22,786
1988 - BWRs	47,679	16,044	6,736	5,609	3,311	2,397	4,859	1,129	215	5								87,984	40,305	17,983
1988 - LWRs	95,545	43,221	17,750	14,869	8,874	5,938	10,264	1,958	342	9		1						198,771	103,226	40,769
1987 - PWRs	48,870	27,070	10,796	8,828	5,152	3,442	6,187	988	124	10								111,467	62,597	23,684
1987 - BWRs	43,688	17,711	7,027	5,739	3,447	2,383	4,578	723	117	12								85,425	41,737	16,717
1987 - LWRs	92,558	44,781	17,823	14,567	8,599	5,825	10,765	1,711	241	22								196,892	104,334	40,401
1986 - PWRs	44,016	29,758	10,128	8,159	4,784	3,059	5,594	1,244	239	30								107,011	62,995	23,032
1986 - BWRs	29,232	15,075	5,865	4,962	2,996	2,121	5,084	1,426	354	45								67,160	37,928	19,349
1986 - LWRs	73,248	44,833	15,993	13,121	7,780	5,180	10,678	2,670	593	75								174,171	100,923	42,381

* Figures contained herein are uncorrected for multiple reporting of transient individuals, and include only those reactors that have completed a full year of commercial operation in each of the years indicated.

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U.S. NUCLEAR REGULATORY COMMISSION

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10. SUPPLEMENTARY NOTES

11. ABSTRACT *(200 words or less)*

This report summarizes the occupational radiation exposure information that has been reported to the NRC's Radiation Exposure Information Reporting System (REIRS) by nuclear power facilities and certain other categories of NRC licensees during the years 1969 through 1992. The bulk of the data presented in the report was obtained from annual radiation exposure reports submitted in accordance with the requirements of 10 CFR 20.407 and the technical specifications of nuclear power plants. Data on workers terminating their employment at certain NRC licensed facilities were obtained from reports submitted pursuant to 10 CFR 20.408. The 1992 annual reports submitted by about 364 licensees indicated that approximately 204,365 individuals were monitored, 183,927 of whom were monitored by nuclear power facilities. They incurred an average individual dose of 0.16 rem (cSv) and an average measurable dose of about 0.30 (cSv). Termination radiation exposure reports were analyzed to reveal that about 74,566 individuals completed their employment with one or more of the 364 covered licensees during 1992. Some 71,846 of these individuals terminated from power reactor facilities, and about 9,724 of them were considered to be transient workers who received an average dose of 0.50 rem (cSv).

12. KEY WORDS/DESCRIPTORS *(List words or phrases that will assist researchers in locating the report.)*

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industrial radiography
power reactors
collective dose
average dose
transient workers
fuel fabricators

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