
Occupational Radiation Exposure at Commercial Nuclear Power Reactors and Other Facilities 1995

Twenty-Eighth Annual Report

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PREVIOUS REPORTS IN SERIES

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NUREG-75032	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, 1969-1978, 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 1985.
NUREG-0713	Occupational Radiation Exposure At Commercial Nuclear Power Reactors and Other Facilities 1985, Vol. 7, U.S. Nuclear Regulatory Commission, April 1986.
NUREG-0713	Occupational Radiation Exposure At Commercial Nuclear Power Reactors and Other Facilities 1986, Vol. 8, U.S. Nuclear Regulatory Commission, August 1986.
NUREG-0713	Occupational Radiation Exposure At Commercial Nuclear Power Reactors and Other Facilities 1987, Vol. 9, U.S. Nuclear Regulatory Commission, November 1989.
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.
NUREG-0713	Occupational Radiation Exposure At Commercial Nuclear Power Reactors and Other Facilities 1992, Vol. 14, U.S. Nuclear Regulatory Commission, December 1993.
NUREG-0713	Occupational Radiation Exposure At Commercial Nuclear Power Reactors and Other Facilities 1993, Vol. 15, U.S. Nuclear Regulatory Commission, January 1995.
NUREG-0713	Occupational Radiation Exposure At Commercial Nuclear Power Reactors and Other Facilities 1994, Vol. 16, U.S. Nuclear Regulatory Commission, January 1996.

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

WASH-1350-R1 through WASH-1350-R8	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-76/108	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-0469	Tenth Annual Occupational Radiation Exposure Report for 1977, U.S. Nuclear Regulatory Commission, October 1978.
NUREG-0593	Eleventh Annual Occupational Radiation Exposure Report for 1976, 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.

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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 compiled from the 1995 annual reports submitted by six of the seven categories¹ of NRC licensees subject to the reporting requirements of 10 CFR 20.2206. Since there are no geologic repositories for high level waste currently licensed, only six categories will be considered in this report.

Annual reports for 1995 were received from a total of 295 NRC licensees, of which 109 were operators of nuclear power reactors in commercial operation. Compilations of the reports submitted by the 295 licensees indicated that 143,684 individuals were monitored, 77,737 of whom received a measurable dose (Table 3.1). The collective dose incurred by these individuals was 24,884 person-cSv (person-rem)² which represents a <0.1% decrease from the 1994 value. The number of workers receiving a measurable dose also decreased, resulting in the average measurable dose of 0.32 cSv (rem) for 1995. The average measurable dose is defined to be the total collective dose (TEDE) divided by the number of workers receiving a measurable dose. These figures have been adjusted to account for transient reactor workers.

In 1995, the annual collective dose per reactor for light water reactor licensees (LWRs) was 199 person-cSv (person-rem). This is the same value that was reported for 1994. The annual collective dose per reactor for boiling water reactors (BWRs) was 256 person-cSv (person-rem) and, for pressurized water reactors (PWRs), it was 170 person-cSv (person-rem).

Analyses of transient worker data indicate that 17,153 individuals completed work assignments at two or more licensees during the monitoring year. The dose distributions are adjusted each year to account for the duplicate reporting of transient workers by multiple licensees. In 1995, the average measurable dose calculated from reported data was 0.26 cSv (rem). The corrected dose distribution resulted in an average measurable dose of 0.32 cSv (rem).

¹ Commercial nuclear power reactors; industrial radiographers; fuel processors, fabricators, and reproducers; 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 five-year contract with Science Applications International Corporation (SAIC) to assist the NRC Staff in the preparation of the NUREG-0713 series. Mr. Charles Hinson (NRR) assisted in the preparation of this NUREG, serving as the NRC Technical reviewer. 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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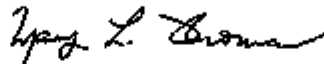
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FOREWORD

Based on information received from 294 licensees required to submit annual reports, collective doses decreased by less than 1% from 1994 to 1995. The annual collective dose decreased by less than 1 % at light-water reactors from 1994 to 1995. Collective doses reported by industrial radiographers, low-level waste disposal facilities, fuel fabrication and processing facilities also showed a decrease whereas manufacturers and distributors and independent spent fuel storage facilities showed slight increase.

NUREG-0713, Volume 17, summarizes the occupational exposure data for 1995 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, the NRC staff believes that it can be a useful tool in evaluating the effectiveness of an ALARA program.



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PREFACE

A number of NRC licensees have inquired as to how the occupational radiation exposure data that are compiled from the individual exposure reports required by § 20.2206 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, facility/facility, 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.

**Occupational Radiation Exposure
at Commercial Nuclear Power Reactors and Other Facilities
Twenty-eighth Annual Report, 1995**

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 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 10 CFR 20 requiring the reporting of certain occupational radiation exposure information to a central repository at AEC Headquarters. This information was required of the four categories³ 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 ensures that they are kept indefinitely and facilitates 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.

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

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

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 Office of Health, a division of Environment, Safety and Health, in 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 for both the current year and for previous years. More licensee-specific data for previous years, 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 for the specific year desired. 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.

In May of 1991, the revised 10 CFR 20 "Standards for Protection Against Radiation; Final Rule" was published in the Federal Register. The revision redefined the radiation monitoring and reporting requirements of NRC licensees. Instead of summary annual reports (§ 20.407) and termination reports (§ 20.408), licensees are now required to submit an annual report of the dose received by each monitored worker (§ 20.2206). Licensees were required to implement the new requirements on or before January of 1994. This report is the second compilation of radiation exposure information collected under the revised 10 CFR 20. Certain sections of the report have been modified to account for the change in the reporting of exposure information. Readers are encouraged to comment on these changes. Recommendations for further analysis or for different presentation of information are welcome.

1.1 Radiation Exposure Information on the Internet

In May of 1995, the NRC began pursuing the dissemination of radiation exposure information via a World Wide Web site on the Internet. This allows interested parties with the appropriate equipment to access the data electronically rather than through the published NUREG-0713 document. A web site was created for radiation exposure and linked into the main NRC web page. The web site contains up-to-date information on radiation exposure, as well as information and guidance on reporting radiation exposure information to the NRC. Interested parties may read the documents on-line or download information to their systems for further analysis. Software, such as REMIT, is also available for downloading via the web site. There are also links to other web sites dealing with the topics of radiation and health physics. The NRC intends to continue pursuing the dissemination of radiation exposure information via the World Wide Web and will focus more resources on the electronic distribution of information rather than the published hard copy reports.

The main web URL address for the NRC is:

<http://www.nrc.gov>

The NRC radiation exposure information web URL address is:

http://www.saic.com/home/nrc_rad

Comments on this report or the NRC's web page should be directed to:

REIRS Project Manager
Office of Nuclear Regulatory Research
U.S. Nuclear Regulatory Commission
Washington, DC 20555

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 specified in 10 CFR § 20.1502, which requires licensees to monitor individuals who receive or are likely to receive a dose in a year in excess of 10% of the applicable limits. For most adults, the annual limit for the whole body is 5 cSv (rem), so 0.5 cSv (rem) per year is the level above which monitoring is required. Separate dose limits have been established for minors and pregnant workers. Monitoring is required for any individual entering a high or very high radiation area. 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 doses 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).

The Revised 10 CFR § 20 was published in the Federal Register on May 21, 1991. With the revision of Part 20, licensees report the monitoring results for each individual. This has eliminated the need for the staff to calculate collective dose from the statistical distributions and has improved the accuracy of the collective dose information presented in this report. Licensees were required to implement the new reporting requirements as of January 1, 1994. Certain licensees began reporting under these new requirements during 1993, and that data has been included in the analyses presented here.

Another impact of the Revised Part 20 is the change from whole body dose to total effective dose equivalent (TEDE). The TEDE includes both external and internal dose. The TEDE is determined by summing the deep dose equivalent (DDE) from external radiation exposure and the committed effective dose equivalent (CEDE) from internal exposures. In previous reports, only the whole body dose (equivalent to the DDE) was reported and analyzed. In the 1994

report, the TEDE is presented and analyzed in all graphs and tables unless otherwise noted. Readers should be aware of this change from external whole body dose to the TEDE. For most licensed activities, the internal dose is not a significant contributor to the TEDE. However, workers at Fuel Fabrication facilities receive significant exposures from internal exposure. This change in reporting requirements can be seen in the 1994 and 1995 data for this licensee category. (See Section 3.3.5)

The average dose per individual, as well as the dose distributions shown for groups of licensees, also can be affected by the multiple reporting of individuals who were monitored by two or more licensees during the year. Licensees are only required to report the doses received by individuals at their licensed facility. A dose distribution for a single licensee does not consider that some of the individuals may have received doses at other facilities. When the data are summed to determine the total number of individuals monitored by a group of licensees, individuals may be counted more than once. This can also affect the distribution of doses because individuals may be counted multiple times in the lower dose ranges rather than one time in the higher range corresponding to the actual accumulated dose for the year (the sum of the individual's dose accrued at all facilities). 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 attention to the differences between all power reactors (including the high temperature gas reactor (HTGR), all pressurized water reactors (PWRs), and all boiling water reactors (BWRs)). 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 States⁴ 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 exposure due to 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 12/31/94, there are 29 Agreement States.

3 ANNUAL PERSONNEL MONITORING REPORTS - 10 CFR 20.2206

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 categories⁶ of licensees to submit an annual statistical report indicating the distribution of the whole body doses incurred by workers whom they monitored for exposure to radiation. Since the regulations did not require these licensees to report the collective dose incurred by the workers shown on the statistical reports, the dose distributions were used as the basis for the staff's calculation of the collective dose (see Section 3.1.4).

The revised 10 CFR 20 was published in the Federal Register on May 21, 1991. Section 20.2206 of the revised rule requires licensees to report the radiation exposure monitoring results for each individual for the monitoring year. All licensees were required to implement the new reporting requirements on or before January 1, 1994.

Under the new requirements, the individual's total effective dose equivalent (TEDE, as defined in § 20.1003) is reported, so that the dose distributions may be determined directly from the individual's exposure. The TEDE is summed per individual and tabulated into the appropriate dose range to generate the dose distribution for each licensee. The total collective dose is more accurate using this method, since the licensee reported the dose to each individual and the total collective dose was calculated from the sum of these doses and not statistically derived from the distribution (see Section 3.1.4). The TEDE includes the dose contribution from the committed effective dose equivalent (CEDE) for those workers who had intakes that required monitoring and reporting of internal dose. Reports submitted under formerly applicable 10 CFR 20.407 did not include the whole body contribution from internal dose.

3.1.2 Number of Monitored Workers

The number of monitored workers refers to the total number of workers that the NRC licensees, who are covered by 10 CFR 20.1502, reported as being monitored for exposure to external and internal radiation during the year. This number includes all workers for whom monitoring is required, and may include visitors, service representatives, contract workers, clerical workers, and any other workers for whom the licensee feels that monitoring devices should be provided.

⁶ 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.

For licensees submitting under the revised 10 CFR 20.2206, the total number of workers was determined from the number of unique personal identification numbers submitted per licensee. Uniqueness is defined by the combination of identification number and identification type. [Ref. 18]

3.1.3 Number of Workers with Measurable Doses

Under the revised 10 CFR 20.2206, the number of workers with measurable dose includes any individual with a TEDE greater than zero cSv (rem). This does not include workers with a TEDE reported as zero, not detectable (ND), or not required to be reported (NR). [Ref. 18]

3.1.4 Collective Dose

The concept of collective dose is used in this report to denote the summation of the TEDE received by all monitored workers and has the units person-cSv (person-rem).⁶ The revised 10 CFR 20.2206 requires that the TEDE be reported, so the collective dose is calculated by summing the TEDE for all monitored workers. The phrase "collective dose" is used throughout this report to mean the collective TEDE, unless otherwise specified.

It should be noted that the collective dose in past years was, in some cases, calculated from the dose distributions by summing the products obtained from multiplying the number of workers 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 workers 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. Care should be taken when comparing the actual collective dose calculated for 1995 with the collective dose for previous years because of this change in methodology. In addition, prior to 1994, doses only included the external whole body dose. Although the contribution of internal dose to the TEDE is minimal for most licensees, it should be taken into consideration when comparing the 1995 collective dose with the collective dose for prior years. One noted exception is for fuel fabrication licensees where the CEDE in some cases contributes the majority of the TEDE (see Section 3.3.5.).

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.

3.1.5 Average Individual Dose

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

3.1.6 Average Measurable Dose

The average measurable dose is obtained by dividing the collective TEDE by the number of workers who 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 deletes those workers receiving zero or minimal doses, many of whom were monitored for convenience or identification purposes.

3.1.7 Number of Licensees Reporting

The number of licensees refers to the 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 20.2206. The third column in Table 3.1 shows the number of licensees that have filed such reports during the last 10 years. Agreement State licensees do not submit such reports to the NRC and are not included in this report.

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 workers whose annual doses exceed 1.5 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. A CR of 0.50 means that 50% of the collective dose is due to individual doses that exceed 1.5 cSv (rem).

Prior to 1994, the value of CR was calculated from the statistical distributions that were submitted under 10 CFR 20.407. For this calculation, it was assumed that the doses were uniformly distributed between each dose range interval. The number of people in each dose range above 1.5 cSv was multiplied by the midpoint of the dose range to estimate the collective dose attributed to each dose range. The collective dose of workers with doses exceeding 1.5 cSv in the 1 to 2 cSv range was calculated by assuming that half of the collective dose incurred by workers with doses between 1 and 2 cSv was because of doses greater than 1.5 cSv. This value was then added to the collective dose incurred by workers in the higher ranges. This was known to yield a conservative CR value, but was a useful

TABLE 3.1
ANNUAL EXPOSURE DATA FOR CERTAIN CATEGORIES OF LICENSEES
1986 - 1995

License Category*	Calendar Year	Number of Licenses Reporting	Number of Monitored Individuals	Number of Workers With Measurable TEDE	Collective TEDE (person-cSv or person-rem)	Average TEDE (cSv or rem)	Average Measurable TEDE per Worker (cSv or rem)	CR**
Industrial Radiography	1995	139	3,530	2,485	1,338	0.36	0.54	0.40
	1994	139	3,230	2,351	1,415	0.44	0.50	0.51
	1993	178	4,721	3,007	1,698	0.34	0.53	0.45
	1992	246	9,709	4,285	1,864	0.28	0.44	0.37
	1991	248	8,820	4,849	2,160	0.32	0.48	0.40
	1990	258	6,523	4,488	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	4,484	1,835	0.25	0.41	0.39
	1986	335	7,952	5,130	2,108	0.27	0.41	0.39
Manufacturing and Distribution	1995	38	2,688	1,222	595	0.22	0.49	0.68
	1994	44	2,841	1,251	580	0.20	0.48	0.59
	1993	58	4,913	2,254	880	0.14	0.30	0.47
	1992	67	5,210	2,250	784	0.15	0.35	0.54
	1991	59	4,930	1,952	722	0.16	0.37	0.59
	1990	58	4,208	2,279	893	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	0.82
	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
Low-Level Waste Disposal	1995	2	212	69	8	0.04	0.15	0.00
	1994	2	202	83	22	0.11	0.27	0.15
	1993	2	432	79	21	0.05	0.27	0.22
	1992	2	467	82	37	0.08	0.45	0.34
	1991	2	805	147	39	0.04	0.27	0.24
	1990	2	784	115	26	0.09	0.23	0.17
	1989	2	925	118	35	0.04	0.29	0.17
	1988	2	884	171	37	0.03	0.16	0.06
	1987	2	778	173	34	0.09	0.14	0.00
	1986	2	896	175	31	0.09	0.18	0.05
Independent Spent Fuel Storage	1995	1	104	49	51	0.49	1.04	0.83
	1994	1	158	89	42	0.27	0.47	0.44
	1993	2	135	62	14	0.10	0.28	0.11
	1992	2	290	65	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	0.32	0.09
	1988	2	217	57	25	0.12	0.44	0.27
	1987	2	128	64	41	0.32	0.64	0.60
	1986	1	32	32	34	1.08	1.08	0.48
Fuel Fabrication and Processing	1995	8	4,106	2,869	1,217	0.30	0.41	0.38
	1994	8	3,596	2,847	1,147	0.32	0.40	0.40
	1993	8	3,649	2,811	339	0.04	0.13	0.08
	1992	11	8,439	6,061	646	0.08	0.11	0.03
	1991	11	11,702	3,928	378	0.05	0.10	0.01
	1990	11	14,505	3,871	422	0.03	0.11	0.01
	1989	8	11,589	2,892	249	0.02	0.08	0.00
	1988	10	11,994	3,888	458	0.04	0.12	0.01
	1987	10	10,370	3,894	614	0.06	0.13	0.01
	1986	10	6,017	3,790	458	0.06	0.12	0.01
Commercial Light Water Reactors***	1995	109	133,066	70,886	21,874	0.16	0.31	0.08
	1994	109	142,707	73,780	21,695	0.15	0.29	0.08
	1993	114	189,562	86,157	28,366	0.16	0.31	0.22
	1992	114	183,900	94,317	29,298	0.18	0.31	0.24
	1991	115	179,043	91,085	28,528	0.16	0.31	0.26
	1990	116	187,081	98,502	36,807	0.20	0.37	0.33
	1989	113	188,477	100,080	35,990	0.19	0.36	0.33
	1988	111	193,532	98,653	49,055	0.21	0.41	0.38
	1987	109	205,895	97,992	38,706	0.19	0.41	0.37
	1986	101	191,878	96,535	41,932	0.22	0.43	0.44
Grand Totals and Averages	1995	285	143,684	77,737	24,884	0.17	0.32	0.11
	1994	303	152,834	80,401	24,901	0.16	0.31	0.13
	1993	380	189,712	94,187	29,014	0.15	0.31	0.24
	1992	442	205,009	106,080	32,538	0.16	0.31	0.25
	1991	437	203,441	104,788	31,831	0.16	0.31	0.27
	1990	447	213,152	109,547	36,874	0.19	0.38	0.34
	1989	449	212,474	109,990	38,078	0.18	0.38	0.34
	1988	427	215,862	105,841	42,888	0.20	0.41	0.38
	1987	455	227,887	108,994	42,898	0.19	0.39	0.37
	1986	482	213,017	107,727	45,316	0.21	0.42	0.43

* These categories consist only of NRC licensees. Agreement State licensed organizations do not report occupational exposure data to the NRC.

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

*** Includes all LWRs in commercial operation, although some of them may not have been in operation for a full year. 1994 and 1995 data are only for reactors that completed a full year of operation during the year. Reactor data have been corrected to account for the multiple counting of transient reactor workers. (see Section 5)

indicator when consistently applied to the data from year to year.

The last column in Table 3.1 shows the values of CR for the different types of licensees. With the implementation of the revised 10 CFR 20 in 1994, licensees were required to submit dose records for each individual. This allowed the NRC to determine the CR value directly by summing the collective dose for individuals with a total TEDE greater than or equal to 1.5 cSv and divide it by the collective TEDE for the licensee. This method yielded a large reduction in the CR for Reactors. The CR value for Reactors dropped 64% from 0.22 in 1993 to 0.08 in 1994 and to 0.06 in 1995. Using the previous methodology, the CR value would have been calculated to be 0.23 in 1994 and 0.19 for 1995. One of the contributing factors for this difference is the administrative controls imposed at nuclear power facilities for individuals who exceed 1 cSv. This causes the dose distribution to drop off sharply above 1 cSv with fewer exposures exceeding 1.5 cSv. Therefore, the actual CR is significantly less than the value that is calculated by assuming a uniform dose distribution.

Other licensees, such as Manufacturing and Distribution and Independent Spent Fuel Storage, have experienced increases in the CR value and exceed the 0.50 value recommended by UNSCEAR. Fuel Fabrication doses, including the CR value, have increased primarily because of the inclusion of internal exposure in the TEDE for 1994 and 1995. However, the overall average CR for all licensees remained below 0.50, and decreased to a value of 0.10 in 1995 primarily because of the decrease in CR at power reactor licensees.

3.2 Annual TEDE Dose Distributions

Table 3.2 is a statistical compilation of the exposure reports submitted by six categories of licensees (see Section 3.3 for a description of each licensee category). The dose distributions are generated by summing the TEDE for each individual and counting the number of individuals in each dose range. In nearly every category a large number of workers receive doses that are less than measurable, and very few doses exceed 4 or 5 cSv (rem). About 90% of the reported workers continue to be monitored by nuclear power facilities where they receive approximately 90% of the total collective dose.

Under the regulatory limits of the revised 10 CFR 20.1201, annual TEDE in excess of 5 cSv (rem) for occupationally exposed adults is, by definition, exposures in excess of regulatory limits (see Section 6).

Table 3.3 gives a summary of the annual exposures reported to the Commission by certain categories of NRC licensees as required by 10 CFR 20.2206. Table 3.3 shows that ~ 95% of the exposures consistently remained <2 cSv (rem) between 1968 and 1984. For the past 10 years the percentage of workers with <2 cSv (rem) has been ≥98%. The number of workers receiving an annual exposure in excess of 5 cSv (rem) has been <0.01% since 1985.

TABLE 3.2
DISTRIBUTION OF ANNUAL COLLECTIVE TEDE BY LICENSE CATEGORY
1995

LICENSE CATEGORY (Number of sites reporting)	*Number of Individuals with TEDE in the Ranges (cSv or rem)													TOTAL NUMBER MONITORED	NUMBER WITH MEAS. DOSE	TOTAL COLLECTIVE DOSE (TBDE) (person-cSv)	
	No Meas.	Meas. <0.1	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- >12				
INDUSTRIAL RADIOGRAPHY																	
Single Location (27)	224	39	12	8	2										265	61	6
Multiple Location (112)	841	703	417	425	255	163	302	110	26	2	1			3,245	2,404	1,332	
Total (139)	1,065	742	429	433	257	163	302	110	26	2	1			3,530	2,465	1,338	
MANUFACTURING AND DISTRIBUTION																	
"A" - Broad (7)	1,107	400	123	78	59	42	113	59	32	3				2,016	909	557	
Limited (29)	337	222	48	25	8	4	5							650	313	38	
Total (36)	1,444	622	172	103	67	46	118	59	32	3				2,666	1,222	595	
LOW-LEVEL WASTE DISPOSAL																	
Total (2)	158	32	12	7	3	2								212	58	8	
INDEPENDENT SPENT FUEL STORAGE																	
Total (1)	55	14	6	9	3		6	4	6	1				104	49	51	
FUEL FABRICATION																	
Total (8)	1,147	1,318	448	392	232	160	329	72	10					4,109	2,959	1,217	
COMMERCIAL POWER REACTORS**																	
Boiling Water (37)	31,335	15,264	7,988	6,332	3,117	1,567	1,360	32	1					68,994	35,659	9,467	
Pressurized Water (72)	49,697	23,311	12,289	8,947	3,767	1,769	1,717	93	4					101,504	51,867	12,207	
Total (109)	81,032	38,575	20,245	15,279	6,884	3,336	3,077	125	5					168,558	87,526	21,674	
GRAND TOTALS	84,699	41,301	21,312	16,223	7,448	3,707	3,832	370	79	6	1			178,176	94,277	24,864	

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

** Includes all reactors in commercial operation for a full year during 1995.

These values have not been adjusted for the multiple counting of transient reactor workers (see Section 5).

TABLE 3.3
SUMMARY OF ANNUAL DOSE DISTRIBUTIONS FOR CERTAIN NRC LICENSEES
1968-1995

Year	Total Number of Monitored Persons		Percent of Individuals With Doses < 2 cSv*	Percent of Individuals With Doses < 5 cSv*	Number of Individuals With Doses >12 cSv*
	Reported Number	Corrected Number			
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	222,728	205,009	99.4%	>99.99% (1)	0
1993	209,386	189,711	99.5%	>99.99% (2)	0
1994	179,803	152,834	99.5%	>99.99% (1)	0
1995	179,176	143,684	99.3%	>99.99% (1)	0

* Data for 1977-1995 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 1985-1995.

3.3 Summary of Occupational Exposure Data by License Category

3.3.1 Industrial Radiography Licenses, Single and Multiple Locations

Industrial Radiography 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, aircraft 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 that 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 139 radiography licensees in 1995. Table 3.4 summarizes the reported data for the two types of radiography licenses for 1995 and for the previous 2 years for comparison purposes.

For the years prior to 1994, the average measurable dose for workers performing radiography at a single location ranged from 20 to 40% of the average measurable dose of workers at multiple location facilities. This is because it is more difficult for workers to avoid exposure to radiation in the field, where conditions are not optimal and may change daily. In 1994, the average measurable dose for single location radiographers was much closer to the value for multiple location licensees because of high average doses at one licensee, Buckeye Steel Castings. For 1995, the average measurable dose for single location licensees

TABLE 3.4
ANNUAL EXPOSURE INFORMATION FOR INDUSTRIAL RADIOGRAPHERS
1993 - 1995

Year	Type of License	Number of Licenses	Number of Monitored Workers	Workers with Measurable Dose	Collective Dose (person-cSv, rem)	Average Measurable Dose (cSv or rem)
1995	Single Location	27	285	61	6	0.10
	Multiple Locations	112	3,245	2,404	1,332	0.55
	Total	139	3,530	2,465	1,338	0.54
1994	Single Location	29	330	89	44	0.50
	Multiple Locations	111	2,900	2,262	1,371	0.61
	Total	139	3,230	2,351	1,415	0.60
1993	Single Location	39	673	183	23	0.13
	Multiple Locations	137	4,046	2,824	1,572	0.58
	Total	176	4,721	3,007	1,595	0.53

is back down to ~ 20% of the average dose for multi-location licensees. 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 1995 is presented in Appendix A in descending order of average measurable dose.

High exposures in radiography can be directly attributable 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. Although these licensed activities usually result in average measurable doses that are higher than other licensees, they involve a relatively small number of exposed workers.

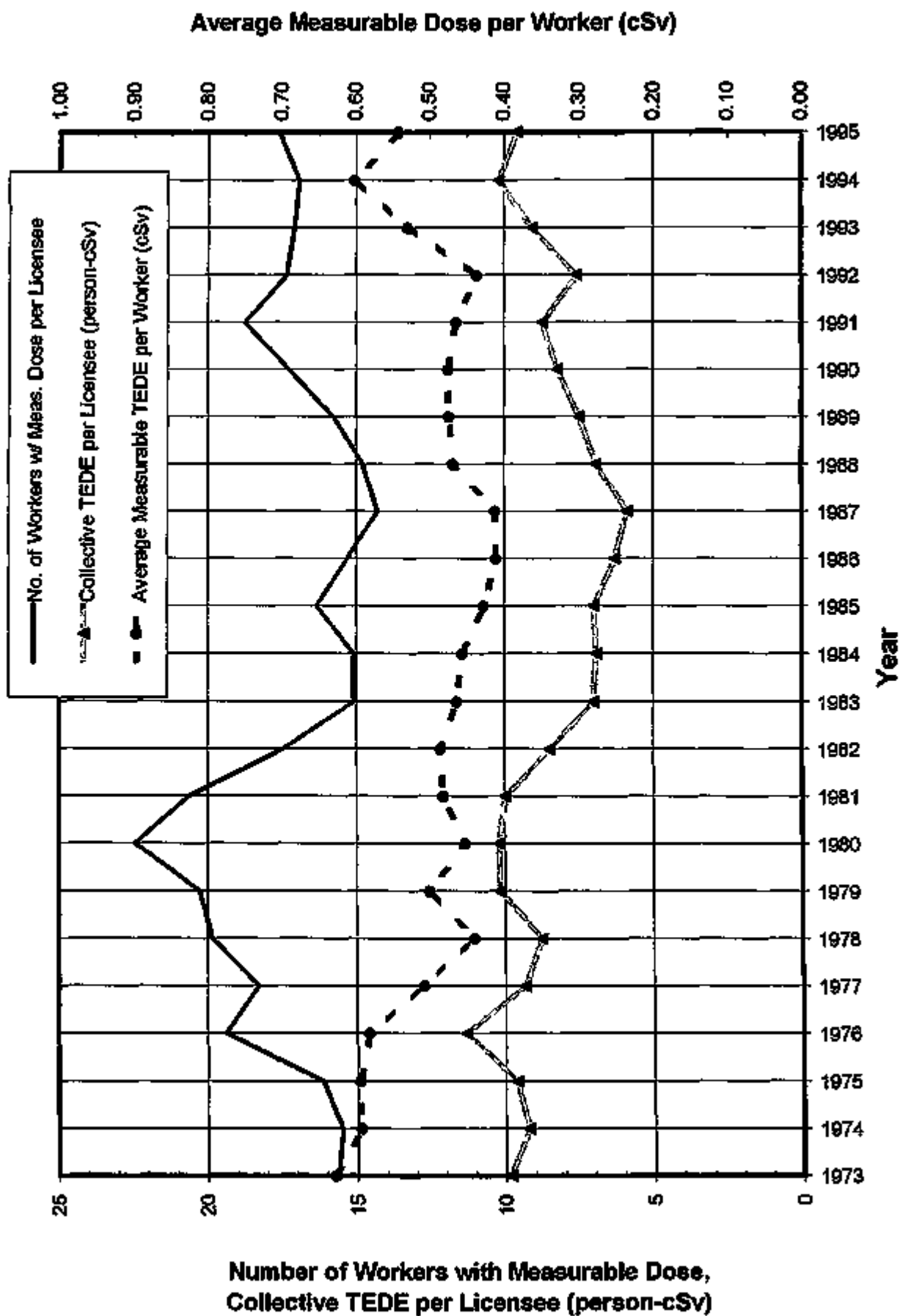
Figure 3.1 shows the number of workers with measurable dose per licensee, the total collective dose per licensee, and the average measurable dose per worker for both types of Industrial Radiography facilities from 1973 through 1995.

3.3.2 Manufacturing and Distribution 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 that may use many different radionuclides in many different ways and that 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 nonmedical research. However, only those NRC licensees that possess or use at any one time specified quantities of the nuclides listed in paragraph 20.2206(a)(7) are required to submit reports to the NRC.

Table 3.5 presents the annual data that were reported by the two types of licensees for 1995 and the previous 2 years. Looking at the information shown separately for the Type "A" Broad and Limited licensees, it can be seen 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, it should be noted 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

FIGURE 3.1
Average Annual Values at Industrial Radiography Facilities 1973 - 1995



a Limited licensee at other times. Because the number of reporting licensees is quite small, these fluctuations may have a significant impact on the values of the parameters.

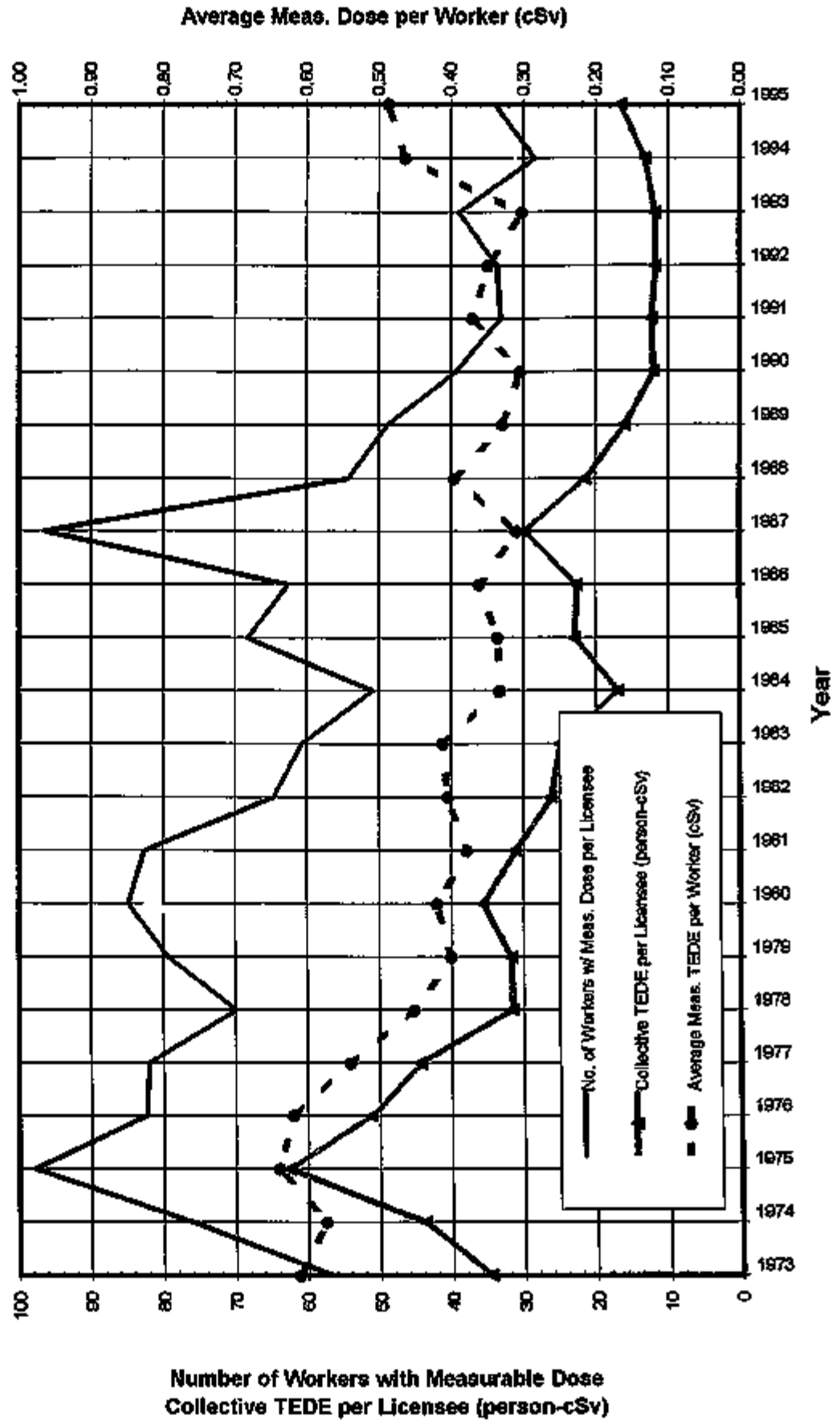
Figure 3.2 shows the number of workers with measurable dose per licensee, the total collective dose per licensee, and the average measurable dose per worker for both Type "A" Broad and Limited Manufacturing and Distribution facilities.

To see the contribution that each of these licensees made toward the total values of the number of workers 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 1995.

TABLE 3.5
ANNUAL EXPOSURE INFORMATION FOR MANUFACTURERS AND DISTRIBUTORS
1993 - 1995

Year	Type of License	Number of Licenses	Number of Monitored Workers	Workers with Measurable Dose	Collective Dose (person-cSv, rem)	Average Measurable Dose (cSv or rem)
1995	M & D-"A"-Broad	7	2,016	909	557	0.61
	M & D-Limited	29	660	313	38	0.12
	Total	36	2,666	1,222	595	0.49
1994	M & D-"A"-Broad	8	2,133	877	644	0.62
	M & D-Limited	36	808	374	36	0.10
	Total	44	2,941	1,251	580	0.46
1993	M & D-"A"-Broad	8	2,455	925	512	0.55
	M & D-Limited	50	2,458	1,329	168	0.13
	Total	58	4,913	2,254	680	0.30

FIGURE 3.2
Average Annual Values at Manufacturing and Distribution Facilities 1973 - 1995



3.3.3 Low-Level Waste Disposal Licenses

Low-Level Waste Disposal licenses are issued to allow the receipt, possession, and disposal of low-level radioactive wastes at a land disposal facility. The licensee has 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 the result of NRC or Agreement State licensed material.

The requirement for this category of NRC licensee to file annual reports became effective in January 1983. There was only one licensee in this category in 1982 and 1983; however, there have been two licensees in this category since 1984. Table 3.1 summarizes the data reported for 1984 through 1995. Appendix A summarizes the exposure information reported by these two licensees in 1995.

Figure 3.3 shows the number of workers 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 1995. Because only two licensees have been involved in this activity over the past 10 years, the numbers have remained fairly stable from 1984 through 1995.

3.3.4 Independent Spent Fuel Storage Installation Licenses

Independent Spent Fuel Storage Installation (ISFSI) 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 ISFSI. Here, the spent fuel, which has undergone at least 1 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.

Eighteen licenses have been issued for these activities. Eleven are at nuclear power plants, allowing on-site temporary storage of fuel. These licensees report the dose from fuel storage activities along with the dose from reactor operations at these sites. Out of the seven remaining licenses, only one is active and is located at a facility that is independent of a reactor site. Only this licensee is included in this analysis of ISFSI facilities for 1995. Appendix A summarizes the exposure information reported by this installation.

FIGURE 3.3
Average Annual Values at Low Level Waste Disposal Facilities
1982 - 1995

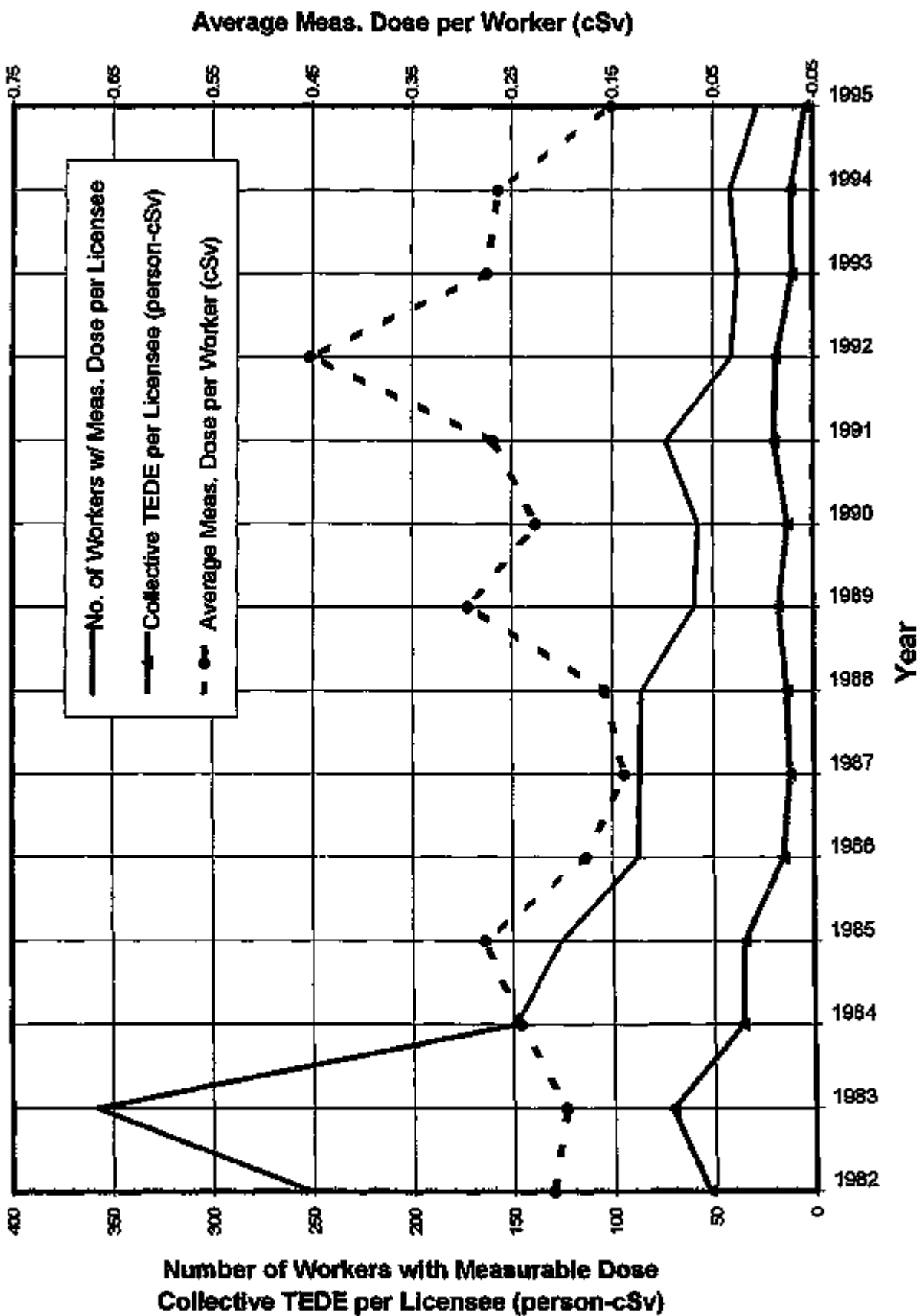


Figure 3.4 shows the number of workers with measurable dose per licensee, the total collective dose per licensee, and the average measurable dose per worker for Independent Spent Fuel Storage facilities. The large increase in the collective dose per licensee and number of workers per licensee was mainly because only one licensee reported separately for 1994 and 1995, rather than the two licensees that reported in prior years. The average measurable dose parameter is not based on the number of licensees and has also experienced a significant increase since 1993.

3.3.5 Fuel Fabrication and Processing Licenses

The Fuel Fabrication and Processing 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 that 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.

Figure 3.5 shows the number of workers with measurable dose per licensee, the total collective dose per licensee, and the average measurable dose per worker for Fuel Fabrication and Processing licensees. In addition to the TEDE collective and average measurable dose, the Deep Dose Equivalent (DDE) collective dose and DDE average measurable dose are shown. Prior to 1994, only the "whole body" dose values were given, which were equivalent to the DDE. In 1994, the revised 10 CFR 20 went into effect, requiring the calculation of the CEDE and the summation of the DDE and CEDE into the TEDE. For Fuel Fabrication facilities, the CEDE is a significant contribution to the TEDE. To accurately reflect the exposure history for these facilities, it was necessary to continue to plot the old "whole body" external dose, now called DDE, in addition to the TEDE, which includes the CEDE contribution. The difference between the DDE and TEDE plots represents the CEDE contribution.

Appendix A lists each of the licensees reporting in 1995, with the number of workers monitored, the number of workers receiving measurable external doses, and the collective dose for each licensee in descending order of average measurable dose.

Table 3.6 shows that there were eight licensed Fuel Fabrication facilities in 1995. Several 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. Because these facilities have ceased to fabricate plutonium fuel, they are not required to file annual reports and are no longer shown in the tables.

Fuel Reprocessing licenses are issued to allow the separation of useable 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. Therefore, since 1982 the NRC license has been suspended, and no reports have been filed with the NRC.

TABLE 3.6
ANNUAL EXPOSURE INFORMATION FOR FUEL FABRICATORS
1993 - 1995

Year	Type of License	Number of Licenses	Number of Monitored Workers	Workers with Measurable Dose	Collective TEDE (person-cSv, rem)	Average Measurable Dose (cSv or rem)	Collective CEDE (person-cSv, rem)	Average CEDE (cSv or rem)
1995	Uranium Fuel Fab	8	4,106	2,959	1,217	0.41	990	0.33
1994	Uranium Fuel Fab	8	3,596	2,847	1,147	0.40	867	0.30
1993	Uranium Fuel Fab	8	9,649	2,611	339	0.13	NA	NA

NA - Not applicable prior to the revised 10 CFR20 implementation in 1994.

FIGURE 3.4
Average Annual Values at Independent Spent Fuel Storage Facilities
1982 - 1995

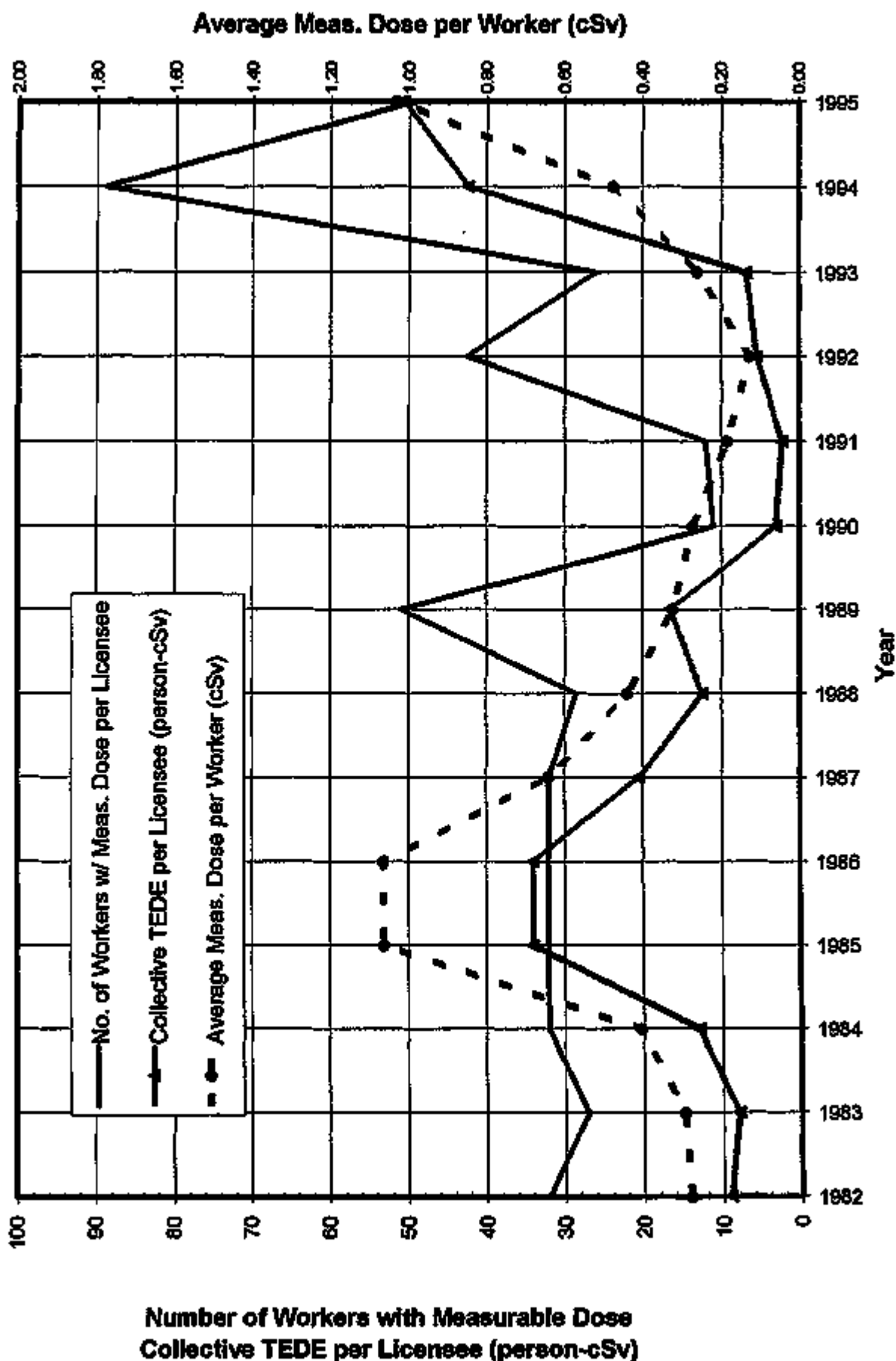
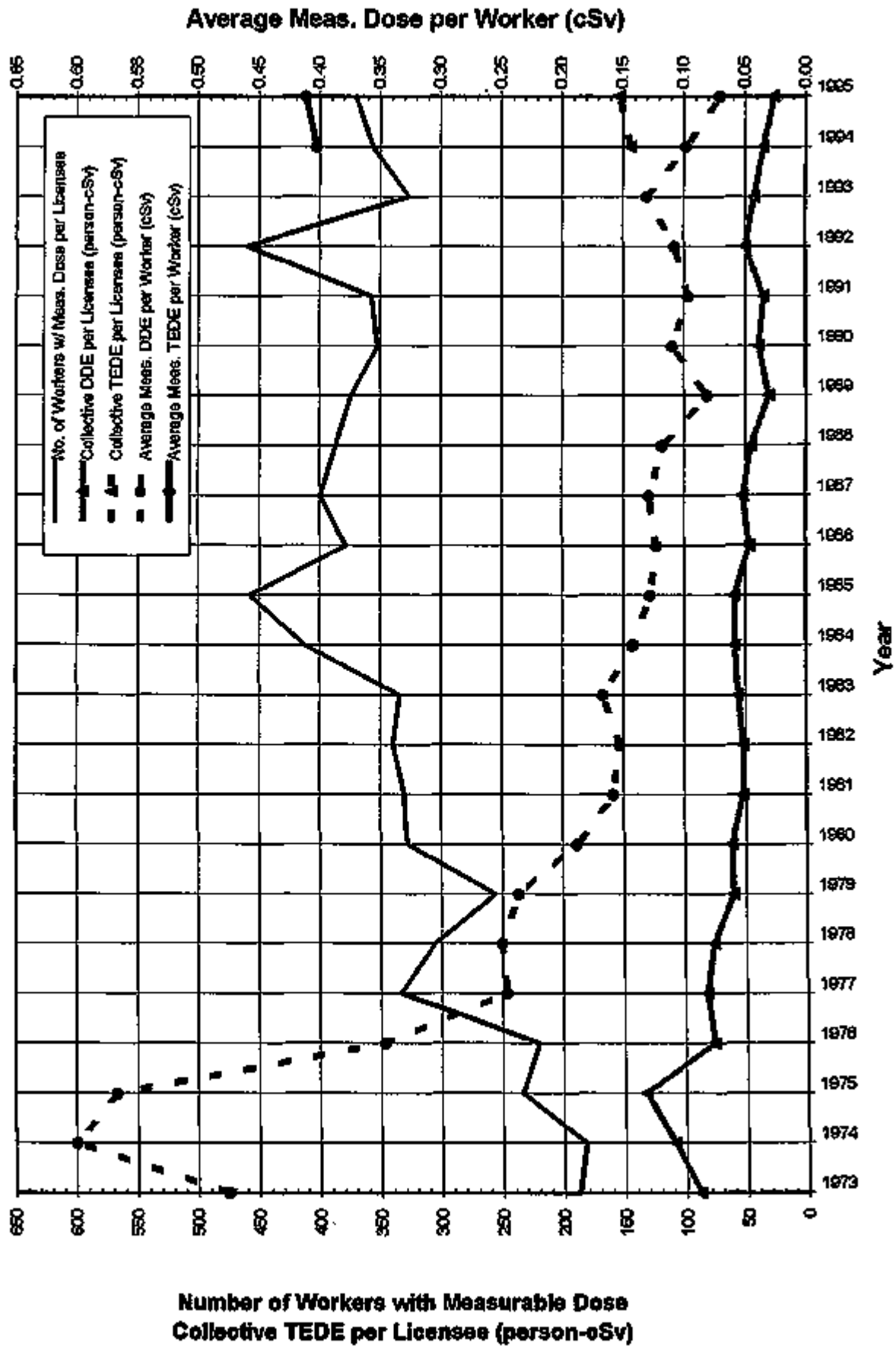


FIGURE 3.5
Average Annual Values at Fuel Fabrication and Processing Facilities 1973 - 1995



3.3.6 Light-Water-Cooled Power Reactor (LWR) Licenses

LWR licenses are issued to utilities to allow them to use special nuclear material in a reactor that 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 workers, 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 1986 through 1995. This table includes reactors that may not have been in commercial operation for a full year. Data for 1986 through 1988 included all reactors that reported, even though some of them were shut down. Data for 1989 through 1995 do not include reactors that have been shut down. These figures have been adjusted for the multiple counting of transient 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 United States. Fort St. Vrain shut down permanently in 1989. Table 3.7 shows the annual whole body doses incurred by workers at the plant. Since 1992, the doses have increased significantly because of decontamination and decommissioning operations.

TABLE 3.7
ANNUAL EXPOSURE INFORMATION FOR FORT ST. VRAIN
1974 - 1995

Year	<u>No. of individuals in Dose Ranges (cSv or rem)</u>					Number of Monitored Workers	Annual Collective Dose (person-cSv person-rem)	Gross Electricity Generated (MW-yr)	Average Measurable Dose (cSv or rem)
	No Meas'ble Dose	Meas'ble Dose < 0.10	0.10 - 0.25	0.25 - 2.00	>2.0				
1974	1,597	63	1	0	0	1,661	3.3	0.0	0.05
1975	1,263	0	0	0	0	1,263	0.0	0.0	0.00
1976	1,362	25	0	0	0	1,387	1.3	2.8	0.05
1977	946	55	1	0	0	1,002	2.9	29.6	0.05
1978	896	34	0	0	0	930	1.7	75.7	0.05
1979	1,149	120	2	0	0	1,271	6.4	28.6	0.05
1980	902	57	1	0	0	980	3.0	83.2	0.05
1981	1,096	31	0	0	0	1,127	1.0	93.6	0.03
1982	978	22	0	0	0	1,000	0.4	72.6	0.02
1983	965	48	0	0	0	1,013	1.0	94.4	0.02
1984	1,616	62	8	0	0	1,686	3.0	10.9	0.04
1985	1,929	370	40	33	0	2,372	35.0	3.8	0.08
1986	221	66	4	0	0	291	1.8	9.7	0.03
1987	155	52	2	0	0	209	1.2	23.8	0.02
1988	238	24	0	0	0	262	0.7	81.8	0.03
1989	316	47	6	2	0	371	2.7	0.0	0.05
1990	226	30	0	0	0	256	0.6	0.0	0.02
1991	525	63	9	4	0	601	5.4	0.0	0.07
1992	520	144	36	34	0	734	25.4	0.0	0.12
1993	657	51	37	78	1	823	75.2	0.0	0.45
1994	390	89	33	79	4	591	78.0	0.0	0.39
1995	460	62	52	127	37	738	210.3	0.0	0.75

3.4 Summary of Intake Data by License Category

With the revision of 10 CFR 20 in 1994, licensees were required to report additional data to the NRC concerning intakes of radioactive material. Licensees were required to list for each intake the radionuclide that was taken into the body, the pulmonary clearance class, intake mode, and amount of the intake in microcuries. An NRC Form 5 report containing this information is required to be completed and submitted to the NRC under 10 CFR 20.2206.

Tables 3.8 and 3.9 summarize the intake data reported to the NRC during 1995. The data are categorized by licensee type and are listed in order of radionuclide and pulmonary clearance class. Table 3.8 lists the intakes where the mode of intake into the body was recorded as ingestion. Table 3.9 lists the intakes where the mode of intake was inhalation from ambient airborne radioactive material in the workplace. The pulmonary clearance class is recorded as D, W, or Y corresponding to its clearance half-time in the order of days, weeks, or years from the pulmonary region of the lung into the blood and gastrointestinal tract. The amount of material taken into the body is given in microcuries, a unit of measure of the quantity of radioactive material. For each category of licensee, the maximum number of intake records and the maximum intake is highlighted in the table in bold for ease of reference.

**TABLE 3.8
INTAKE BY LICENSEE TYPE AND RADIONUCLIDE
MODE OF INTAKE - *INGESTION*
1995**

Licensee Type	Program Code	Radionuclide	Number of Intake Records*	Intake in microcuries
Nuclear Pharmacies	02500	TC-99M	25	17.892
Reactors	41111	CO-58	18	2.521
	41111	CO-60	26	5.216
	41111	CR-51	1	0.130
	41111	CS-134	1	0.001
	41111	CS-137	1	1.700
	41111	I-131	3	0.028
	41111	MN-54	19	0.649
	41111	NB-95	11	0.368
	41111	RU-103	1	0.010
	41111	SB-125	1	0.065
	41111	ZN-65	4	0.325
	41111	ZR-95	10	0.304

*An intake event may involve multiple nuclides, and individuals may incur multiple intakes during the year. The number of intake records given here indicates the number of separate intake reports that were submitted on NRC Form 5 reports under 10 CFR 20.2205.

**TABLE 3.9
INTAKE BY LICENSEE TYPE AND RADIONUCLIDE
MODE OF INTAKE - INHALATION
1995**

Licensee Type	Program Code	Radionuclide	Pulmonary Clearance Class	Number of Intake Records*	Intake in microcuries	Intake in microcuries (sci. notation)
Nuclear Pharmacy	02500	I-125	D	2	0.002	1.84E-03
	02500	I-131	D	68	45.280	4.53E+01
Manufacture and Distributors - Broad	03211	CO-60	Y	11	0.093	9.25E-02
Fuel Fabrication	21210	CO-60	Y	159	0.147	1.47E-01
	21210	CS-137	D	57	0.000	1.91E-05
	21210	NP-237	W	57	0.000	2.37E-05
	21210	PA-234	W	57	0.000	5.00E-04
	21210	PU-238	W	57	0.000	2.50E-07
	21210	PU-239	W	95	0.000	4.91E-04
	21210	TC-99	D	57	0.002	1.97E-03
	21210	TH-228	W	57	0.000	2.26E-06
	21210	TH-228	Y	222	0.000	2.32E-04
	21210	TH-230	W	57	0.000	1.00E-04
	21210	TH-230	Y	222	0.000	1.06E-04
	21210	TH-232	W	57	0.000	4.66E-06
	21210	TH-232	Y	228	0.000	4.19E-04
	21210	TH-234	Y	57	0.000	1.97E-04
	21210	U-232	Y	1	0.000	5.05E-05
	21210	U-234	D	42	0.154	1.54E-01
	21210	U-234	W	37	0.031	3.13E-02
	21210	U-234	Y	943	2.668	2.67E+00
	21210	U-235	Y	772	0.075	7.46E-02
	21210	U-238	Y	236	0.002	2.02E-03
	21210	U-238	D	42	0.025	2.51E-02
21210	U-238	Y	845	0.311	3.11E-01	
Power Reactors	41111	AM-241	W	2	0.000	0.00E+00
	41111	BA-140	D	2	0.980	9.80E-01
	41111	CO-59	Y	143	193.305	1.93E+02
	41111	CO-60	W	1	0.028	2.80E-02
	41111	CO-60	Y	196	319.408	3.19E+02
	41111	CR-51	Y	5	3.625	3.63E+00
	41111	CS-134	D	6	27.105	2.71E+01
	41111	CS-137	D	134	41.555	4.16E+01
	41111	CS137	D	2	0.062	6.20E-02
	41111	FE-59	D	1	0.250	2.50E-01
	41111	FE-59	W	3	1.510	1.51E+00
	41111	H-3	Y	12	46.100	4.61E+01
	41111	I-131	D	5	0.847	8.47E-01
	41111	I-132	D	1	0.300	3.00E-01
	41111	I-133	D	4	1.757	1.76E+00
	41111	I-135	D	1	0.275	2.75E-01
	41111	MN-54	W	81	12.036	1.20E+01
	41111	NB-95	Y	52	5.026	5.03E+00
	41111	SB-124	W	1	197.000	1.97E+02
	41111	ZN-65	Y	15	0.539	5.39E-01
	41111	ZR-95	D	5	0.357	3.57E-01
41111	ZR-95	W	7	0.684	6.84E-01	
41111	ZR-95	Y	31	1.696	1.70E+00	
41111	ZRNB-95	W	2	0.290	2.90E-01	
41111	ZRNB-95	Y	1	0.200	2.00E-01	

*An intake event may involve multiple nuclides, and individuals may incur multiple intakes during the year. The number of intake records given here indicates the number of separate intake reports that were submitted on NRC Form 5 reports under 10 CFR 20.2206.

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 are 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 1 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 12 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 taken from Reference 14.

Three Mile Island (TMI) 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. TMI 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 reactors included in each year to yield the average amount of electric energy generated 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.

TABLE 4.1
SUMMARY OF INFORMATION REPORTED BY COMMERCIAL BOILING WATER REACTORS
1973 - 1995

Year	Number of Reactors Included*	Annual Collective Dose (person-cSv or person-rem)	No. of Workers With Measurable Dose**	Gross Electricity Generated (MW-yr)	Average Measurable 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 (MW _e)	Percent of Maximum Dependable Capacity Achieved
1973	12	4,564	5,340	3,393.9	0.85	380	445	1.34	283	438	65%
1974	14	7,095	8,789	4,060.2	0.81	507	626	1.75	290	485	60%
1975	18	12,611	14,607	5,786.4	0.86	701	812	2.18	321	595	54%
1976	22	12,300	16,604	8,137.9	0.74	559	755	1.51	370	630	59%
1977	23	19,041	21,388	9,102.5	0.89	628	930	2.09	386	637	62%
1978	25	15,273	20,276	11,856.0	0.75	611	811	1.29	474	660	72%
1979	25	18,325	25,245	11,871.0	0.73	733	1,010	1.57	467	660	71%
1980	26	29,530	34,094	10,868.2	0.87	1,136	1,311	2.72	418	663	63%
1981	26	25,472	34,755	10,899.2	0.73	980	1,337	2.34	419	663	63%
1982	26	24,437	32,235	10,614.6	0.76	940	1,240	2.30	406	663	62%
1983	26	27,455	33,473	9,730.1	0.82	1,056	1,287	2.82	374	663	56%
1984	27	27,097	41,105	10,019.2	0.66	1,004	1,522	2.70	371	754	49%
1985	29	20,573	38,237	12,284.0	0.54	709	1,319	1.67	424	775	55%
1986	30	19,349	37,928	12,102.1	0.51	645	1,264	1.60	403	786	51%
1987	32	16,717	41,737	15,109.0	0.40	522	1,304	1.11	472	832	57%
1988	34	17,983	40,305	16,665.4	0.45	529	1,185	1.08	490	845	58%
1989	36	15,549	44,960	17,543.5	0.35	432	1,232	0.89	487	857	57%
1990	37	15,780	41,577	21,336.1	0.38	426	1,124	0.74	577	862	67%
1991	37	12,005	38,492	21,505.8	0.31	324	1,040	0.58	561	860	66%
1992	37	13,309	42,095	20,592.2	0.32	360	1,138	0.65	557	859	65%
1993	37	12,221	39,352	21,995.6	0.31	330	1,064	0.56	594	798	74%
1994	37	12,092	39,108	22,139.0	0.31	327	1,057	0.55	598	801	75%
1995	37	9,467	35,859	24,737.0	0.27	256	964	0.38	669	835	80%

* 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.

** Figures are not adjusted for the multiple reporting of transient individuals. See Section 5.

TABLE 4.2
SUMMARY OF INFORMATION REPORTED BY COMMERCIAL PRESSURIZED WATER REACTORS
1973 - 1995

Year	Number of Reactors Included*	Annual Collective Dose (person-cSv or person-rem)	No. of Workers With Measurable Dose**	Gross Electricity Generated (MW-yrs)	Average Measurable 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 (MW _e)	Percent of Maximum Dependable Capacity Achieved
1973	12	9,398	9,440	3,770.2	1.00	783	787	2.49	314	544	58%
1974	19	6,555	9,370	6,530.7	0.70	345	493	1.00	344	591	58%
1975	26	8,268	10,884	11,982.5	0.76	318	419	0.69	461	647	71%
1976	30	13,807	17,588	13,325.0	0.79	460	588	1.04	444	701	63%
1977	34	13,467	20,878	17,345.8	0.65	398	614	0.78	510	688	74%
1978	39	16,528	25,700	19,840.5	0.64	424	659	0.83	509	706	72%
1979	42	21,657	38,828	18,255.0	0.56	516	924	1.19	435	746	58%
1980	42	24,267	46,237	18,289.3	0.52	578	1,101	1.33	435	746	58%
1981	44	28,673	47,351	20,553.7	0.61	652	1,078	1.40	467	752	62%
1982	48	27,754	52,146	22,140.6	0.53	578	1,086	1.25	461	777	59%
1983	49	29,017	52,173	23,195.5	0.56	592	1,065	1.25	473	785	60%
1984	51	28,138	56,994	26,478.4	0.49	552	1,118	1.06	519	809	64%
1985	63	22,469	54,833	29,470.7	0.41	424	1,031	0.76	556	820	68%
1986	60	23,032	62,995	33,593.0	0.37	384	1,050	0.69	560	878	64%
1987	64	23,684	62,597	37,007.3	0.38	370	978	0.64	578	900	64%
1988	66	22,786	62,921	42,929.7	0.36	335	925	0.53	631	885	71%
1989	71	20,381	63,894	44,679.5	0.32	287	900	0.46	629	897	70%
1990	73	20,812	67,081	46,955.6	0.31	285	919	0.44	643	907	71%
1991	74	16,510	60,269	51,942.6	0.27	223	814	0.32	702	913	77%
1992	73	15,985	61,048	53,419.8	0.26	219	836	0.30	732	923	79%
1993	71	14,142	56,588	50,480.6	0.25	199	797	0.28	711	945	75%
1994	72	9,603	44,786	54,618.3	0.21	133	622	0.18	759	932	81%
1995	72	12,207	51,867	56,825.1	0.24	170	720	0.22	776	933	83%

* 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.

** Figures are not adjusted for the multiple reporting of transient individuals. See Section 6.

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TABLE 4.3
SUMMARY OF INFORMATION REPORTED BY COMMERCIAL LIGHT WATER REACTORS
1973 - 1995

Year	Number of Reactors Included*	Annual Collective Dose (person-cSv or person-rem)	No. of Workers With Measurable Dose**	Gross Electricity Generated (MWh-yr)	Average Measurable 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 MWh-yr (person-cSv/MWh-yr)	Average Electricity Generated Per Reactor (MWh-yr)	Average Maximum Dependable Capacity Net (MW _e)	Percent of Maximum Dependable Capacity Achieved
1973	24	13,962	14,780	7,164.1	0.84	582	616	1.95	299	491	61%
1974	33	13,850	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	53,797	80,331	29,157.5	0.67	791	1,181	1.85	429	714	60%
1981	70	54,145	82,106	31,452.9	0.66	774	1,173	1.72	449	719	63%
1982	74	52,191	84,381	32,755.2	0.62	705	1,140	1.59	443	737	60%
1983	75	56,472	85,646	32,925.8	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	103,228	59,595.1	0.39	400	1,012	0.68	584	871	67%
1989	107	35,930	109,254	62,223.0	0.33	336	1,012	0.58	582	883	66%
1990	110	36,592	106,658	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	682	895	74%
1992	110	29,294	103,143	74,012.0	0.28	266	838	0.40	673	901	75%
1993	108	26,363	95,940	72,476.2	0.27	244	868	0.36	671	895	75%
1994	109	21,695	83,874	76,757.3	0.26	199	769	0.28	704	888	79%
1995	109	21,674	87,526	80,562.1	0.25	199	803	0.27	739	900	82%

* 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.

** Figures are not adjusted for the multiple reporting of transient individuals. See Section 5.

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 (TEDE) 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. It is calculated by dividing the average electricity generated per reactor 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 61%. Following the completion of most of these mandated repairs, reactors have increased the percent of maximum dependable capacity from 62% in 1987 to 82% in 1995, a gain of 20% in 8 years.

4.3 Annual TEDE Distributions

Table 4.4 summarizes the distribution of the annual TEDE doses received by workers at all commercial LWRs during each of the years 1977 through 1995. 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 1995 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 total collective dose decreased by <1% to a value of 21,674 person-cSv (person-rem) in 1995. The value of CR decreased to a value of 0.06. The large decrease from 1993 to 1994 is primarily because of the change in methodology by which the CR value is determined (see Section 3.1.8). In 1994 and 1995, the CR value was determined directly from the individual radiation exposure records submitted under 10 CFR 20.2206 (Form 5) rather than calculating the value indirectly from the statistical dose distribution summary as in prior years. This is the eleventh consecutive year that the value of CR has been <0.50.

4.4 Average Annual TEDE 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 1995, the average collective dose per reactor dropped by 74%. In 1995, the collective dose per reactor for PWRs increased by 28% to 170 person-cSv (person-rem). The collective dose per reactor for BWRs decreased by 22% from 327 person-cSv (person-rem) in 1994, to 256 person-cSv (person-rem) in 1995. The overall collective dose per reactor for LWRs remained the same at 199 person-cSv (person-rem) in 1995. The number of workers with measurable dose per reactor has decreased to 964 for BWRs but increased to 720 for PWRs in 1995. The overall decreasing trend in average reactor collective doses since 1983 indicates that licensees are continuing to successfully implement ALARA dose reduction features at their facilities.

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 decreased by <1% from a value of 21,695 person-cSv (person-rem) in 1994 to 21,674 person-cSv (person-rem) in 1995. Together with the increase in the number of workers with measurable dose, this resulted in the average measurable dose per worker decreasing to 0.25 cSv (rem) in 1995. Figure 4.2 shows that in 1995 the gross electricity generated increased to an all-time high of 80,562 MW-yr.

TABLE 4.4

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

1977 - 1995

Year	No Measurable 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***
		Measurable <0.10	0.10- 0.25	0.25- 0.5	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				
1977	23,562	12,395	6,030	4,518	2,880	2,220	5,849	2,858	1,298	661	189	89	47	23	6		82,420	35,658	32,508	0.66	
1978	29,372	15,101	6,342	4,988	3,068	2,247	5,985	3,034	1,197	614	109	37	9	0	1	0	71,046	42,674	31,801	0.61	
1979	43,330	22,508	8,898	7,469	4,797	3,259	7,572	3,404	1,400	545	117	42	17	3	1		103,449	60,119	38,962	0.57	
1980	50,873	28,903	10,678	8,804	5,570	4,134	10,871	4,607	1,816	831	235	119	29	7	1		125,378	74,503	53,795	0.58	
1981	39,255	26,836	11,226	9,330	6,042	4,497	11,170	4,811	1,999	533	103	99	9	3	1	0	115,919	76,654	54,144	0.57	
1982	41,713	29,225	11,713	9,803	6,229	4,420	10,220	4,716	2,066	696	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	718	121	38	8	2			126,652	79,604	56,472	0.60	
1984	54,670	36,298	13,427	10,275	6,338	4,604	11,283	5,208	2,122	487	52	22					144,960	90,310	55,235	0.57	
1985	59,534	36,831	13,008	11,041	6,827	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	4,893	10,241	3,082	868	146							161,606	93,905	42,381	0.45	
1987	85,181	41,222	15,834	12,899	7,588	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	28						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	100,080	35,930	0.33	
1990	83,873	42,607	17,529	14,182	8,228	5,260	8,594	1,794	335	21							182,431	98,698	36,692	0.33	
1991	87,260	42,657	16,784	13,184	7,187	4,184	5,875	838	219	17							178,315	81,065	28,527	0.27	
1992	87,717	41,934	17,822	14,777	8,134	4,520	6,078	808	85	4							181,877	94,180	28,294	0.24	
1993	83,069	37,331	17,295	13,733	7,562	4,269	5,322	638	78	5							169,290	86,191	26,363	0.22	
1994	68,927	31,100	15,750	12,386	8,362	3,855	4,092	415	20								142,707	73,780	21,695	0.08	
1995	82,080	28,881	15,152	12,083	6,148	3,306	3,905	580	121	2							133,069	70,866	21,674	0.06	

*Summary of reports submitted in accordance with 10 CFR 20.407 or 20.2206 (after 1994) by only those plants that had been in commercial operation for at least 1 full year as of December 31 of each of the indicated years. Figures shown have been adjusted for the multiple reporting of transient individuals (see Section 6).

** The collective dose, when not reported by the licensee, was calculated by the NRC staff using methods described in Section 3.1.4.

***CR is the ratio of annual collective dose delivered at individual doses exceeding 1.5 cSv (rem) to the total annual collective dose. For 1984 and 1985, CR was determined directly from individual dose records submitted under 10 CFR 20.2206.

Figure 4.1
Average Collective Dose and Number of Workers per Reactor 1973 - 1995

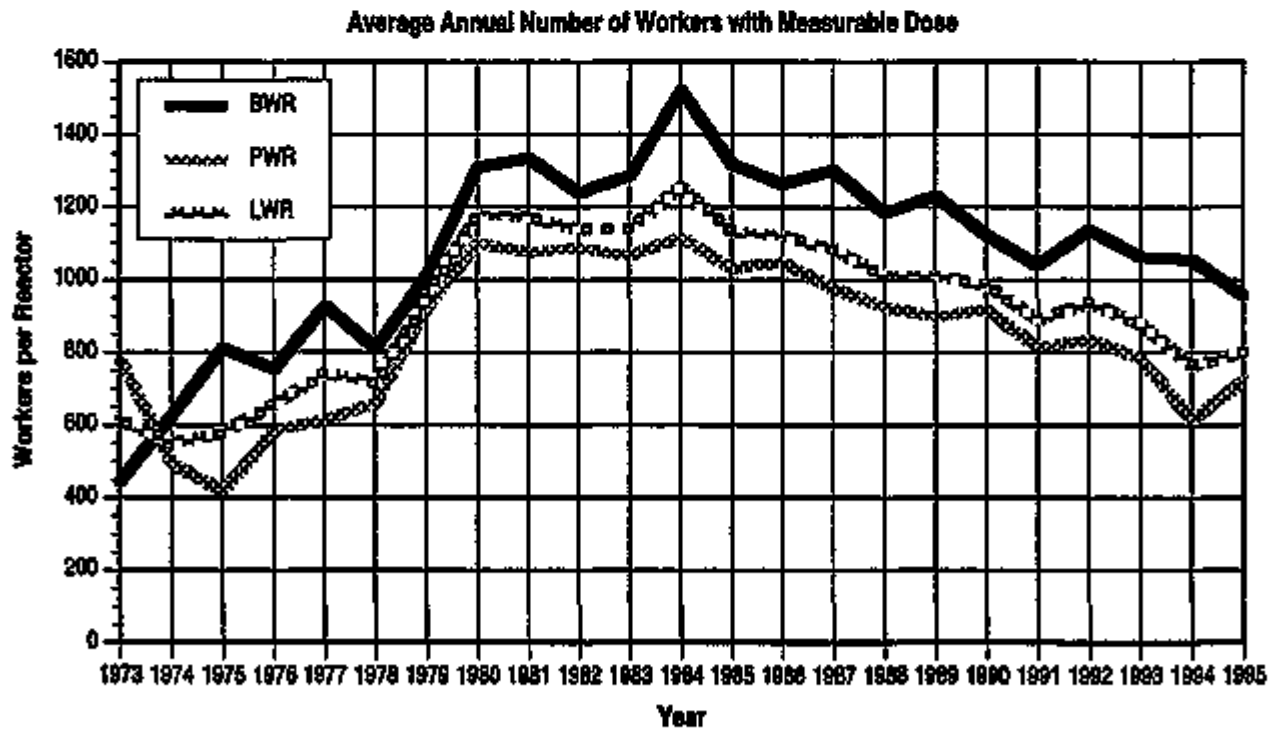
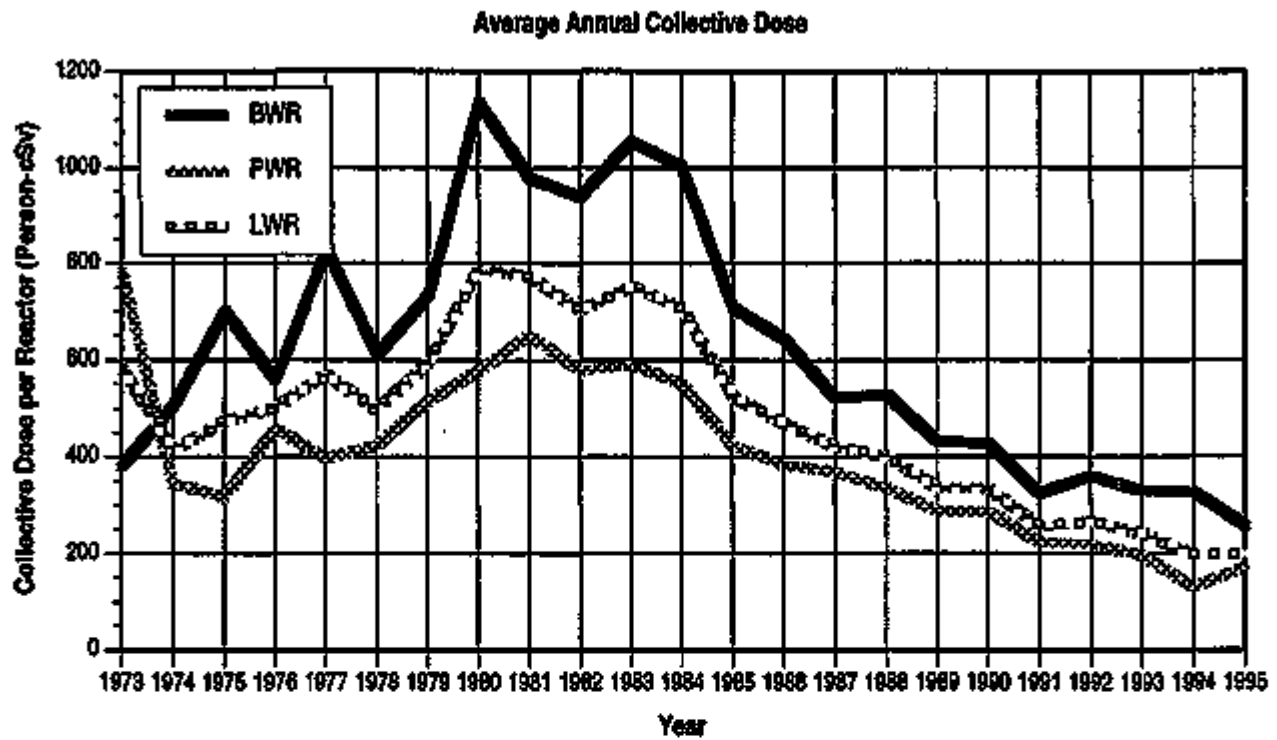


Figure 4.2
Number of Operating Reactors and Gross Electricity Generated 1973 - 1995

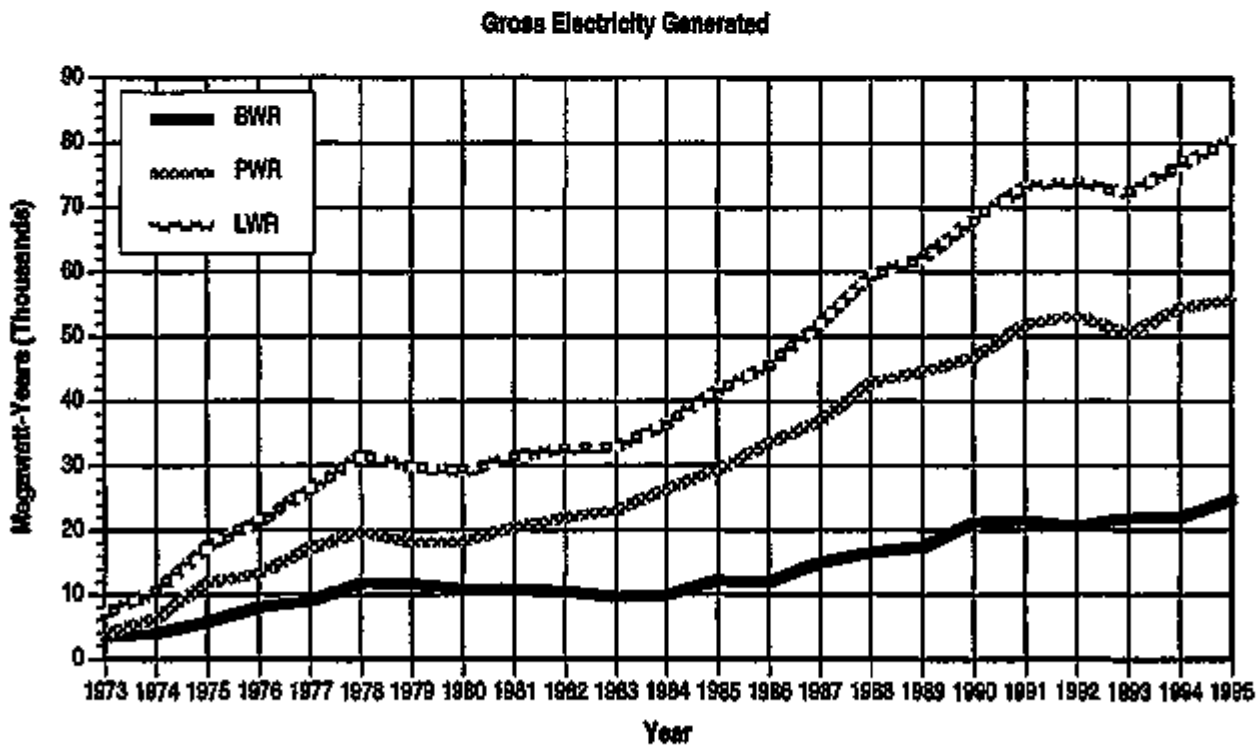
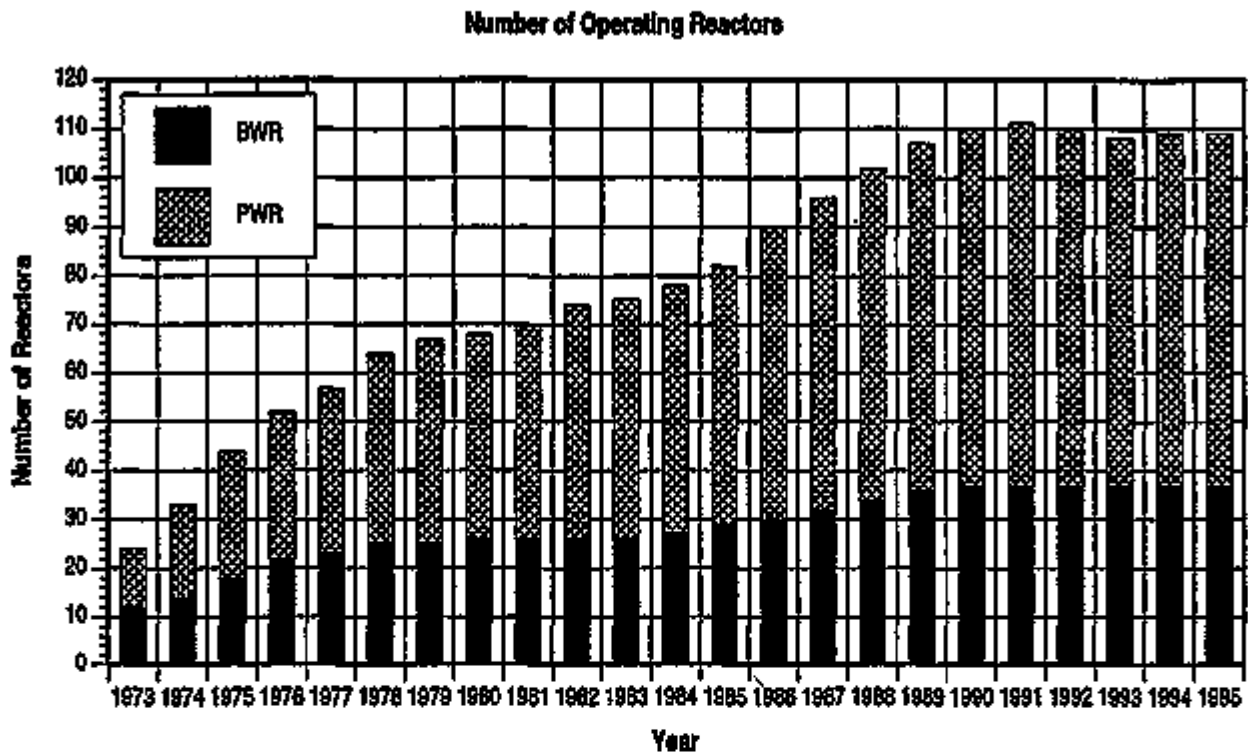
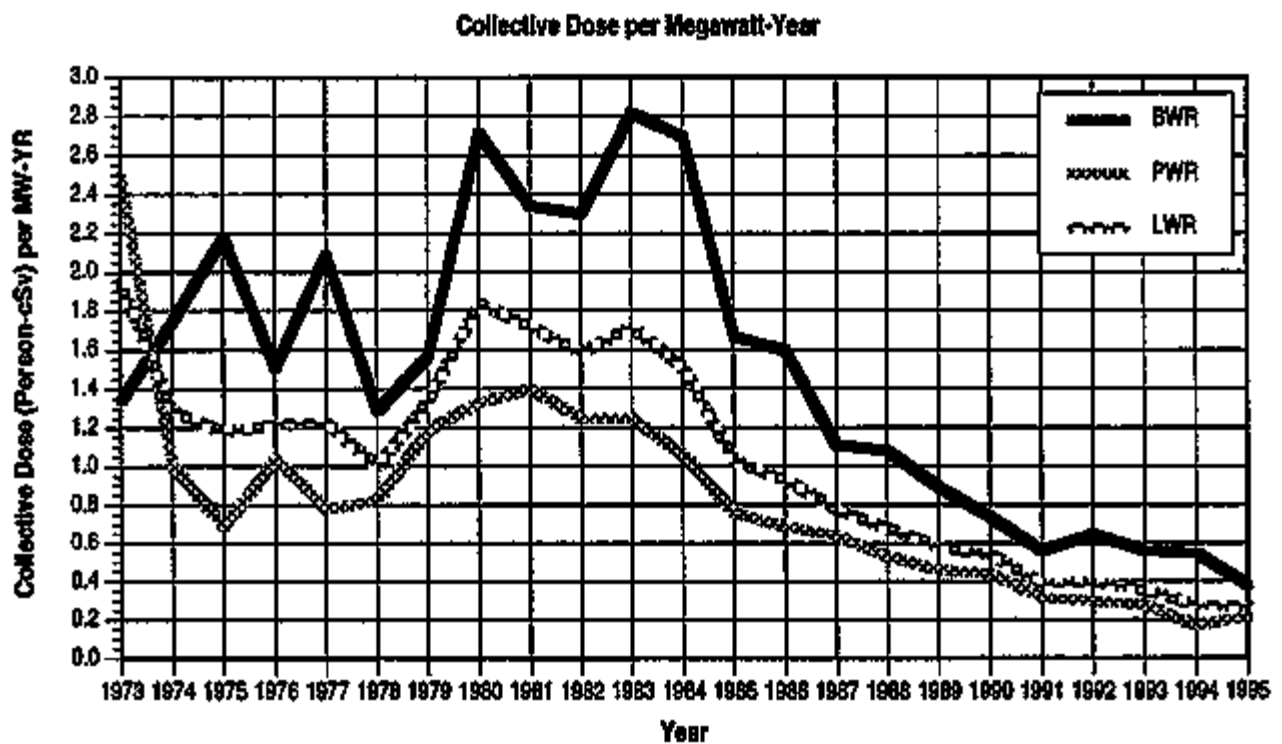
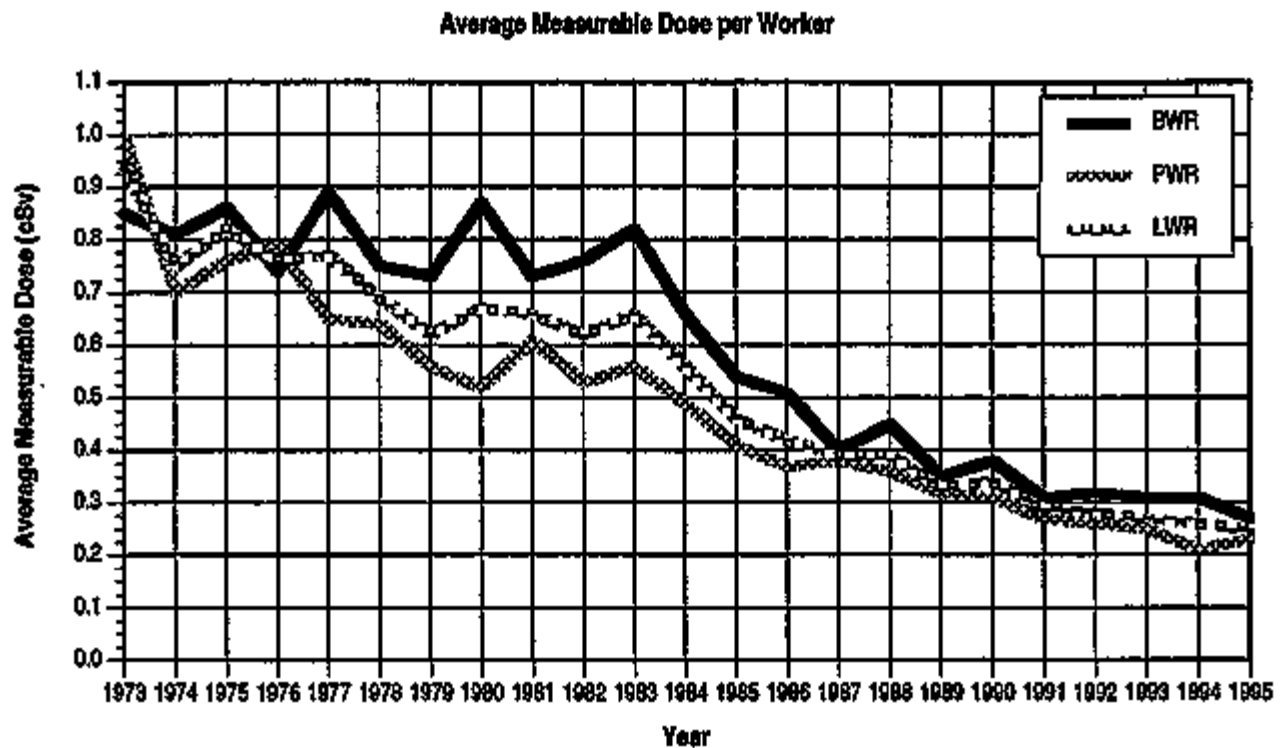


Figure 4.3
Average Measurable Dose per Worker and Collective Dose per Megawatt-Year 1973 – 1995



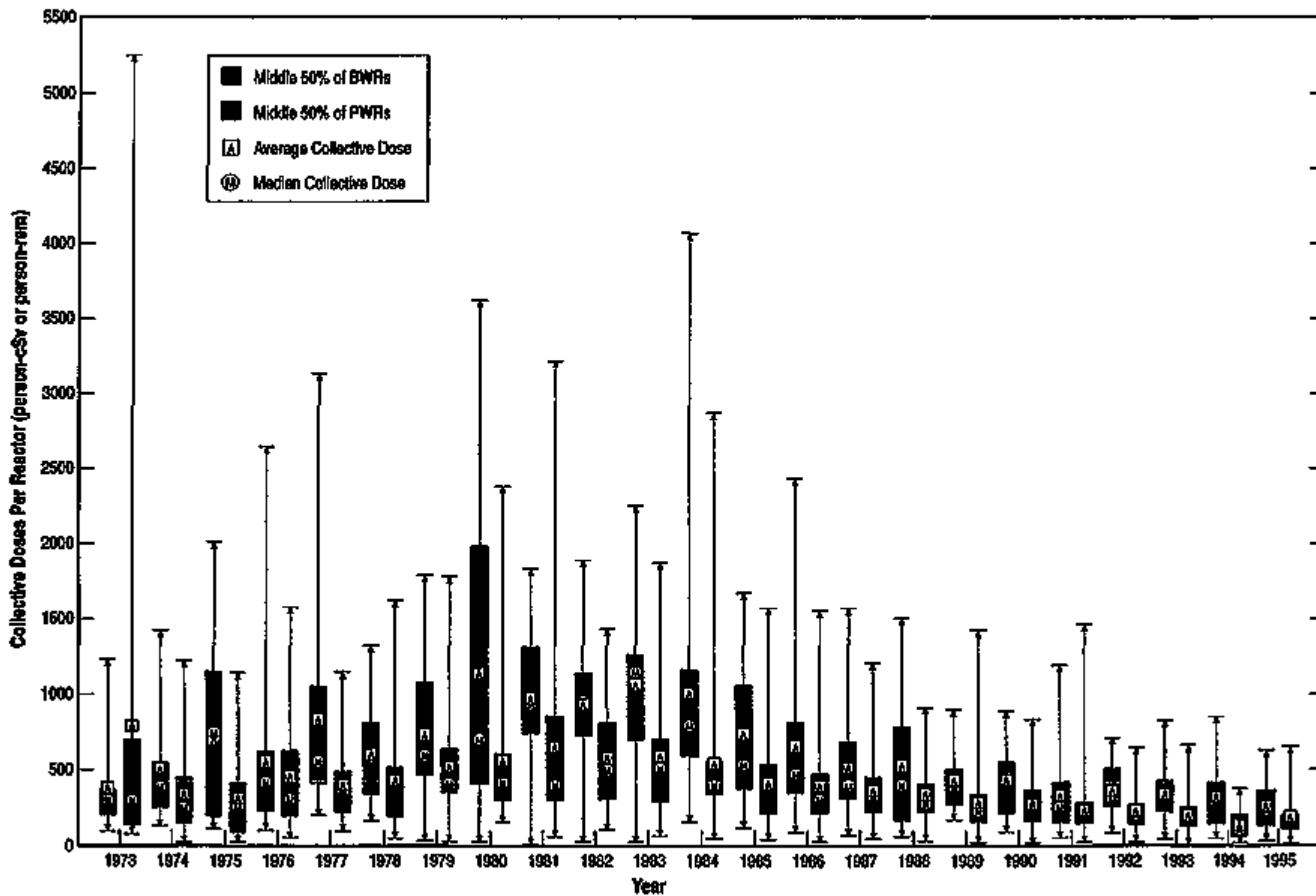
The fluctuations in the parameters for the years following the accident at the TMI plant in 1979 may reflect some of the impact that this incident had on the nuclear power industry. The decrease seen in dose trends since 1983 may be attributable to several factors. Utilities have completed most of the 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 to ALARA levels 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 median⁹ values of the collective dose per reactor for BWRs and for PWRs for the years 1973 through 1995. 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 135 person-cSv (person-rem) in 1994 to 146 person-cSv (person-rem) in 1995. At BWRs, the median fluctuates more from year to year, and in 1995 the median collective dose decreased to 244 person-cSv (person-rem). Figure 4.4 also shows that, in 1995, 50% of the PWRs reported collective doses between 102 and 207 person-cSv (person-rem) while 50% of the BWRs reported collective doses between 136 and 357 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).

⁹

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

Figure 4.4
Average, Median, and Extreme Values of the Collective Dose Per Reactor 1973 – 1995



4.5 Plant Rankings by Collective Dose per Reactor

Because 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 5 years from 1991 through 1995. 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 1995, the CR for all the U.S. LWRs fell between 0.05 and 0.50, the range recommended by the UNSCEAR [Ref. 10]. Note that in 1994 and 1995, the CR value was determined directly from the individual radiation exposure records submitted under 10 CFR 20.2206 (Form 5) rather than calculating the value from the statistical dose distribution summary (see Section 3.1.8).

In 1995, the five BWR sites with the highest collective doses all exceeded 379 person-cSv (person-rem) per reactor (Table 4.5). These reactors were Nine Mile Point 1 and 2, Dresden 2 and 3, Washington Nuclear 2, Pilgrim, and Millstone Point 1. Although the seven reactors at these five sites represented only 19% of the 37 BWRs, they contributed 34% of the total collective dose incurred at BWRs in 1995.

Some of the activities that contributed to the collective dose accumulated at the BWR site with the highest collective dose per reactor [Millstone Point 1 with 620 person-cSv (person-rem)] were weld repair, in-service inspection, hanger work, insulation removal and replacement, staging work, and refueling activities.

In 1995, the five PWR sites with the highest collective doses all exceeded 388 person-cSv (person-rem) per reactor (Table 4.6). These reactors were Zion 1 and 2, Haddam Neck, Palisades, Indian Point 2, and Maine Yankee. Although representing 8% of the 72 PWRs included in 1995, they contributed 24% of the total collective dose at PWRs. Much of the collective dose accumulated at the plant with the highest dose per reactor in 1995 [Maine Yankee with 653 person-cSv (person-rem)] was attributed to steam generator related work (including tube sleeving, eddy current testing, and sludge lancing), reactor coolant pump work, outage support, valve work, decontamination, refueling activities, and in-service inspection.

TABLE 4.5
BOILING WATER REACTORS LISTED IN ASCENDING ORDER OF COLLECTIVE DOSE PER REACTOR**
1991 - 1995

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Site Name	1991			
	Collect. Dose per Site*	Dose per Worker	Dose per MWhr	CR**
UMERICK 1,2	100	0.89	0.1	0.04
GRAND GULF	94	0.33	0.1	0.11
BROWNS FERRY 1,2,3	354	0.20	0.8	0.01
VERMONT YANKEE	116	0.35	0.2	0.13
RIVER BEND 1	144	0.48	0.2	0.02
WINE MILE POINT 1,2	292	0.19	0.2	0.10
PERRY	148	0.24	0.1	0.10
DUANE ARNOLD	202	0.80	0.4	0.30
BIG ROCK POINT	238	0.82	1.5	0.48
FERM 2	224	0.30	0.3	0.00
CLINTON	330	0.23	0.3	0.01
SUSQUEHANNA 1,2	307	0.27	0.3	0.01
QUAD CITIES 1,2	308	0.30	0.5	0.10
FITZPATRICK	333	0.28	0.5	0.23
HOPE CREEK 1	373	0.22	0.4	0.10
WASHINGTON NUCLEAR 2	337	0.28	0.8	0.21
BRUNSWICK 1,2	778	0.30	0.8	0.23
LABALLE 1,2	308	0.41	0.4	0.28
COOPER STATION	400	0.37	0.7	0.28
MILLSTONE POINT 1	408	0.35	1.8	0.10
MONTECELLO	486	0.48	1.1	0.28
PEACH BOTTOM 2,3	634	0.33	0.8	0.20
DRESDEN 2,3	1,005	0.40	1.0	0.40
HATCH 1,2	1,101	0.40	1.0	0.30
PILODM	605	0.21	1.2	0.14
OYSTER CREEK	1,165	0.38	3.4	0.34

Site Name	1992			
	Collect. Dose per Site*	Dose per Worker	Dose per MWhr	CR**
COOPER STATION	34	0.18	0.1	0.07
MILLSTONE POINT 1	99	0.28	0.2	0.47
MONTECELLO	114	0.25	0.2	0.10
UMERICK 1,2	330	0.21	0.2	0.00
BROWNS FERRY 1,2,3	319	0.19	0.8	0.04
FERM 2	245	0.20	0.3	0.01
PEACH BOTTOM 2,3	602	0.28	0.3	0.18
HATCH 1,2	650	0.34	0.4	0.10
BIG ROCK POINT	277	0.86	3.0	0.82
PILODM	281	0.21	0.9	0.02
WINE MILE POINT 1,2	305	0.31	0.8	0.17
DRESDEN 2,3	618	0.34	0.7	0.22
BRUNSWICK 1,2	623	0.23	1.7	0.10
SUSQUEHANNA 1,2	724	0.38	0.5	0.23
VERMONT YANKEE	361	0.41	0.8	0.10
CLINTON	451	0.26	0.7	0.12
HOPE CREEK 1	430	0.28	0.8	0.18
GRAND GULF	484	0.24	0.8	0.14
DUANE ARNOLD	602	0.48	1.2	0.25
PERRY	671	0.36	0.7	0.15
QUAD CITIES 1,2	1,187	0.48	1.2	0.31
LABALLE 1,2	1,187	0.48	0.8	0.32
WASHINGTON NUCLEAR 2	832	0.41	0.9	0.24
OYSTER CREEK	887	0.34	1.2	0.18
FITZPATRICK	874	0.28	—	0.24
RIVER BEND 1	710	0.35	2.1	0.31

Site Name	1993			
	Collect. Dose per Site*	Dose per Worker	Dose per MWhr	CR**
FERM 2	35	0.18	0.0	0.00
MILLSTONE POINT 1	51	0.27	0.1	0.10
HOPE CREEK 1	94	0.14	0.1	0.03
UMERICK 1,2	217	0.17	0.1	0.02
BIG ROCK POINT	192	0.38	3.0	0.20
SUSQUEHANNA 1,2	335	0.20	0.2	0.06
RIVER BEND 1	180	0.21	0.3	0.14
VERMONT YANKEE	217	0.20	0.5	0.08
FITZPATRICK	232	0.18	0.4	0.14
PEACH BOTTOM 2,3	652	0.31	0.3	0.17
PERRY	278	0.23	0.8	0.09
BROWNS FERRY 1,2,3	670	0.24	1.0	0.08
WINE MILE POINT 1,2	653	0.27	0.8	0.14
GRAND GULF	352	0.18	0.4	0.07
HATCH 1,2	889	0.38	0.8	0.18
COOPER STATION	397	0.38	0.9	0.20
DUANE ARNOLD	407	0.38	1.0	0.34
OYSTER CREEK	418	0.18	0.8	0.07
QUAD CITIES 1,2	348	0.38	0.8	0.24
LABALLE 1,2	334	0.30	0.8	0.33
PILODM	438	0.23	0.8	0.03
BRUNSWICK 1,2	672	0.38	1.0	0.17
WASHINGTON NUCLEAR 2	468	0.34	0.8	0.10
MONTECELLO	494	0.52	1.1	0.30
CLINTON	498	0.48	0.7	0.04
DRESDEN 2,3	1,658	0.68	1.7	0.38

Site Name	1994			
	Collect. Dose per Site*	Dose per Worker	Dose per MWhr	CR**
VERMONT YANKEE	38	0.17	0.1	0.00
GRAND GULF	38	0.12	0.0	0.03
CLINTON	63	0.15	0.1	0.00
WINE MILE POINT 1,2	148	0.19	0.1	0.02
COOPER STATION	79	0.24	0.3	0.00
BIG ROCK POINT	118	0.38	2.4	0.14
DUANE ARNOLD	129	0.24	0.2	0.03
UMERICK 1,2	278	0.18	0.1	0.00
PILODM	280	0.28	0.4	0.00
FERM 2	213	0.18	—	0.00
SUSQUEHANNA 1,2	462	0.28	0.2	0.02
BROWNS FERRY 1,2,3	635	0.28	1.0	0.00
PEACH BOTTOM 2,3	670	0.27	0.3	0.00
FITZPATRICK	322	0.20	0.8	0.18
HOPE CREEK 1	328	0.18	0.4	0.03
LABALLE 1,2	328	0.40	0.8	0.00
MILLSTONE POINT 1	381	0.30	1.8	0.01
MONTECELLO	388	0.38	0.8	0.17
DRESDEN 2,3	831	0.38	1.2	0.00
HATCH 1,2	884	0.38	0.7	0.20
BRUNSWICK 1,2	808	0.30	0.6	0.03
RIVER BEND 1	618	0.23	0.8	0.00
QUAD CITIES 1,2	1,124	0.32	1.7	0.31
PERRY	601	0.33	1.3	0.03
OYSTER CREEK	844	0.33	2.0	0.24
WASHINGTON NUCLEAR 2	885	0.40	1.1	0.20

Site Name	1995			
	Collect. Dose per Site*	Dose per Worker	Dose per MWhr	CR**
FERM 2	28	0.07	0.0	0.00
MONTECELLO	44	0.22	0.1	0.00
BIG ROCK POINT	54	0.29	0.8	0.10
PERRY	84	0.11	0.1	0.00
RIVER BEND 1	38	0.19	0.1	0.00
OYSTER CREEK	80	0.32	0.3	0.00
UMERICK 1,2	280	0.15	0.1	0.02
BROWNS FERRY 1,2,3	400	0.16	0.4	0.00
VERMONT YANKEE	352	0.25	0.4	0.00
HOPE CREEK 1	188	0.15	0.2	0.07
PEACH BOTTOM 2,3	398	0.21	0.2	0.00
COOPER STATION	228	0.21	0.5	0.02
SUSQUEHANNA 1,2	478	0.27	0.3	0.00
HATCH 1,2	488	0.33	0.4	0.10
LABALLE 1,2	612	0.32	0.3	0.02
CLINTON	318	0.27	0.4	0.01
FITZPATRICK	327	0.28	0.6	0.03
BRUNSWICK 1,2	683	0.28	0.5	0.00
GRAND GULF	342	0.22	0.4	0.01
DUANE ARNOLD	337	0.32	0.8	0.01
QUAD CITIES 1,2	738	0.38	0.7	0.01
WINE MILE POINT 1,2	709	0.33	0.8	0.12
DRESDEN 2,3	875	0.35	1.4	0.07
WASHINGTON NUCLEAR 2	488	0.27	0.8	0.00
PILODM	482	0.37	0.9	0.00
MILLSTONE POINT 1	628	0.36	1.2	0.10

* 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 1.0 cSv (100 mSv) to the collective dose. For '94 & '95 data, the CR value was determined from the individual Form 5 worksheets.

*** All doses are in cSv (100 mSv).

TABLE 4.6
PRESSURIZED WATER REACTORS LISTED IN ASCENDING ORDER OF COLLECTIVE DOSE PER REACTOR**
1961 - 1965

Site Name	1961			
	Collective Dose per Reactor*	Dose per Reactor	Dose per MW/yr	CR**
GALLAGHY 1	21	0.07	0.0	0.00
COOK 1,2	49	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	58	0.17	0.1	0.03
FORT CALHOUN	57	0.30	0.1	0.07
CALVERT CLIFFS 1,2	132	0.07	0.1	0.02
ZION 1,2	173	0.16	0.3	0.09
SEABROOK	53	0.13	0.1	0.03
CRYSTAL RIVER 3	104	0.13	0.2	0.04
MARY YANKEE	105	0.23	0.1	0.03
SOUTH TEXAS 1,2	257	0.22	0.1	0.03
POINT BEACH 1,2	266	0.37	0.3	0.22
BYRON 1,2	288	0.26	0.1	0.07
SAN ONOFRE 1,2,3	412	0.28	0.2	0.07
COMANCHE PEAK	148	0.16	0.3	0.02
ARKANSAS 1,2	361	0.17	0.2	0.08
MCCLURE 1,2	381	0.21	0.2	0.05
VOGTLE 1,2	382	0.27	0.2	0.07
OCONEE 1,2,3	351	0.26	0.2	0.15
MILLSTONE POINT 2,3	361	0.35	0.8	0.18
ROBINSON 2	193	0.22	0.3	0.10
THREE MILE ISLAND 1	189	0.13	0.3	0.02
PALO VERDE 1,2,3	405	0.27	0.2	0.15
PALISADES	211	0.16	0.4	0.01
DAVIS-BESSE	216	0.22	0.3	0.11
Kewanee	221	0.45	0.5	0.45
HARRIS	225	0.39	0.5	0.59
SALEM 1,2	488	0.11	0.5	0.23
CATAWBA 1,2	482	0.26	0.3	0.10
ST. LUKE 1,2	479	0.37	0.3	0.18
BEAVER VALLEY 1,2	465	0.29	0.4	0.19
BURRY 1,2	510	0.33	0.4	0.19
DIABLO CANYON 1,2	545	0.27	0.3	0.19
BRADWOOD 1,2	550	0.34	0.6	0.18
BUMBER 1	551	0.30	0.5	0.14
NORTH ANNA 1,2	626	0.26	0.4	0.26
FARLEY 1,2	646	0.39	0.4	0.35
GENA	528	0.35	0.4	0.14
WOLF CREEK 1	531	0.33	0.5	0.10
REGUYAH 1,2	589	0.36	0.4	0.28
WATERFORD 3	394	0.26	0.4	0.11
TURKEY POINT 3,4	626	0.48	3.6	0.30
TROJAN	557	0.39	0.1	0.31
HADDAM NECK	650	0.51	3.9	0.38
INDIAN POINT 2	1,459	0.61	3.2	0.41

Site Name	1962			
	Collective Dose per Reactor*	Dose per Reactor	Dose per MW/yr	CR**
DAVIS-BESSE	19	0.07	0.0	0.00
BUMBER 1	27	0.11	0.0	0.00
THREE MILE ISLAND 1	34	0.05	0.0	0.00
SOUTH TEXAS 1,2	147	0.15	0.1	0.01
WOLF CREEK 1	75	0.17	0.1	0.12
TROJAN	84	0.18	0.2	0.03
INDIAN POINT 2	87	0.20	0.1	0.13
BYRON 1,2	160	0.19	0.1	0.02
PRAIRIE ISLAND 1,2	211	0.25	0.3	0.10
SAN ONOFRE 1,2,3	304	0.20	0.1	0.02
BRADWOOD 1,2	229	0.20	0.1	0.02
Kewanee	122	0.27	0.3	0.07
POINT BEACH 1,2	285	0.41	0.3	0.24
ST. LUKE 1,2	284	0.21	0.2	0.04
BEAVER VALLEY 1,2	289	0.20	0.2	0.05
SEABROOK	147	0.28	0.2	0.01
TURKEY POINT 3,4	526	0.24	0.3	0.11
CALVERT CLIFFS 1,2	320	0.17	0.3	0.14
PALO VERDE 1,2,3	511	0.27	0.3	0.10
COMANCHE PEAK	198	0.17	0.2	0.02
MCCLURE 1,2	389	0.24	0.2	0.13
CATAWBA 1,2	384	0.26	0.2	0.08
HADDAM NECK	333	0.25	0.4	0.08
INDIAN POINT 3	212	0.23	0.4	0.04
HARRIS	213	0.23	0.3	0.07
VOGTLE 1,2	426	0.24	0.3	0.10
SALEM 1,2	491	0.10	0.4	0.06
OCONEE 1,2,3	328	0.30	0.3	0.10
WATERFORD 3	328	0.10	0.2	0.05
DIABLO CANYON 1,2	480	0.25	0.3	0.03
REGUYAH 1,2	485	0.27	0.3	0.03
COOK 1,2	488	0.25	0.6	0.12
GENA	257	0.31	0.6	0.03
BURRY 1,2	530	0.32	0.4	0.15
FORT CALHOUN	572	0.34	0.9	0.10
NORTH ANNA 1,2	576	0.27	0.4	0.27
PALISADES	268	0.28	0.6	0.18
GALLAGHY 1	335	0.30	0.1	0.12
ROBINSON 2	362	0.29	0.7	0.09
FARLEY 1,2	608	0.40	0.6	0.58
CRYSTAL RIVER 3	454	0.30	0.7	0.10
ARKANSAS 1,2	676	0.28	0.8	0.15
MARY YANKEE	481	0.30	0.7	0.17
ZION 1,2	1,043	0.60	0.9	0.44
MILLSTONE POINT 2,3	1,262	0.40	1.1	0.33

Site Name	1963			
	Collective Dose per Reactor*	Dose per Reactor	Dose per MW/yr	CR**
SEABROOK	8	0.05	0.0	0.00
WATERFORD 3	15	0.09	0.0	0.00
COOK 1,2	44	0.07	0.0	0.00
HARRIS	31	0.09	0.0	0.00
PRAIRIE ISLAND 1,2	105	0.20	0.1	0.00
COMANCHE PEAK 1,2	106	0.12	0.1	0.03
CRYSTAL RIVER 3	80	0.30	0.1	0.00
INDIAN POINT 3	80	0.10	0.1	0.00
OCONEE 1,2,3	237	0.16	0.1	0.00
POINT BEACH 1,2	195	0.33	0.2	0.16
YANKEE	108	0.24	0.2	0.08
SOUTH TEXAS 1,2	251	0.22	1.5	0.04
ARKANSAS 1,2	268	0.14	0.2	0.01
BRADWOOD 1,2	273	0.28	0.1	0.03
TURKEY POINT 3,4	275	0.22	0.2	0.00
DIABLO CANYON 1,2	281	0.10	0.1	0.00
FORT CALHOUN	197	0.22	0.4	0.01
FARLEY 1,2	333	0.29	0.2	0.12
WOLF CREEK 1	189	0.19	0.2	0.01
VOGTLE 1,2	387	0.27	0.3	0.11
REGUYAH 1,2	372	0.23	0.9	0.08
BURRY 1,2	353	0.27	0.3	0.00
GENA	143	0.23	0.5	0.03
PALO VERDE 1,2,3	382	0.28	0.3	0.16
CATAWBA 1,2	388	0.26	0.3	0.07
CALVERT CLIFFS 1,2	409	0.29	0.3	0.14
SALEM 1,2	488	0.11	0.3	0.00
THREE MILE ISLAND 1	328	0.11	0.3	0.01
BYRON 1,2	432	0.32	0.2	0.00
GALLAGHY 1	225	0.20	0.2	0.02
MCCLURE 1,2	483	0.27	0.3	0.14
ST. LUKE 1,2	482	0.34	0.4	0.16
SAN ONOFRE 1,2,3	787	0.25	0.4	0.14
MILLSTONE POINT 2,3	387	0.27	0.4	0.15
PALISADES	380	0.32	0.7	0.13
BUMBER 1	267	0.26	0.4	0.08
BEAVER VALLEY 1,2	621	0.20	0.8	0.12
ZION 1,2	643	0.26	0.4	0.22
ROBINSON 2	337	0.28	0.7	0.11
DAVIS-BESSE	349	0.29	0.5	0.11
MARY YANKEE	377	0.27	0.6	0.19
HADDAM NECK	481	0.41	0.6	0.28
NORTH ANNA 1,2	652	0.33	0.6	0.28
INDIAN POINT 2	625	0.45	1.0	0.23

Site Name	1964			
	Collective Dose per Reactor*	Dose per Reactor	Dose per MW/yr	CR**
GALLAGHY 1	14	0.07	0.0	0.00
SAN ONOFRE 2,3	32	0.08	0.0	0.00
BEAVER VALLEY 1,2	44	0.08	0.0	0.00
FORT CALHOUN	23	0.19	0.0	0.00
SOUTH TEXAS 1,2	47	0.07	0.0	0.00
THREE MILE ISLAND 1	40	0.08	0.1	0.02
COMANCHE PEAK 1,2	87	0.09	0.1	0.02
INDIAN POINT 2	85	0.13	0.1	0.05
PRAIRIE ISLAND 1,2	100	0.23	0.1	0.00
INDIAN POINT 3	89	0.11	—	0.00
PALISADES	60	0.15	0.1	0.03
ROBINSON 2	69	0.15	0.1	0.03
Kewanee	72	0.20	0.2	0.00
MARY YANKEE	84	0.28	0.1	0.02
POINT BEACH 1,2	170	0.31	0.2	0.04
ARKANSAS 1,2	172	0.19	0.1	0.00
MILLSTONE POINT 2,3	165	0.15	0.1	0.04
SALEM 1,2	188	0.20	0.1	0.05
NORTH ANNA 1,2	191	0.16	0.1	0.00
CATAWBA 1,2	207	0.16	0.1	0.04
VOGTLE 1,2	217	0.21	0.1	0.04
SEABROOK	110	0.13	0.2	0.00
FARLEY 1,2	128	0.24	0.2	0.09
HADDAM NECK	130	0.20	0.3	0.17
GENA	138	0.20	0.3	0.00
BYRON 1,2	280	0.26	0.1	0.02
DAVIS-BESSE	144	0.17	0.2	0.00
REGUYAH 1,2	282	0.18	0.2	0.02
BRADWOOD 1,2	288	0.24	0.2	0.01
ZION 1,2	308	0.28	0.2	0.02
PALO VERDE 1,2,3	482	0.23	0.2	0.07
OCONEE 1,2,3	637	0.25	0.3	0.05
BURRY 1,2	379	0.26	0.2	0.09
WATERFORD 3	191	0.16	0.2	0.00
MCCLURE 1,2	387	0.24	0.2	0.07
HARRIS	222	0.30	0.3	0.00
CALVERT CLIFFS 1,2	454	0.31	0.3	0.00
CRYSTAL RIVER 3	228	0.21	0.3	0.02
WOLF CREEK 1	225	0.22	0.2	0.01
TURKEY POINT 3,4	478	0.33	0.4	0.05
COOK 1,2	479	0.27	0.4	0.01
ST. LUKE 1,2	480	0.27	0.4	0.02
DIABLO CANYON 1,2	584	0.25	0.3	0.05
BUMBER 1	374	0.24	0.7	0.00

Site Name	1965			
	Collective Dose per Reactor*	Dose per Reactor	Dose per MW/yr	CR**
DAVIS-BESSE	7	0.03	0.0	0.00
CRYSTAL RIVER 3	6	0.04	0.0	0.00
BUMBER 1	13	0.05	0.0	0.00
WOLF CREEK 1	14	0.05	0.0	0.00
PRAIRIE ISLAND 1,2	107	0.21	0.1	0.00
INDIAN POINT 3	87	0.11	0.1	0.00
MCCLURE 1,2	139	0.11	0.1	0.00
COMANCHE PEAK 1,2	179	0.19	0.1	0.00
POINT BEACH 1,2	160	0.26	0.2	0.04
VOGTLE 1,2	150	0.21	0.1	0.00
OCONEE 1,2,3	334	0.19	0.1	0.00
COOK 1,2	285	0.15	0.1	0.00
SEABROOK	102	0.13	0.1	0.00
TURKEY POINT 3,4	215	0.19	0.2	0.00
Kewanee	799	0.26	0.2	0.00
SALEM 1,2	219	0.17	0.4	0.02
CALVERT CLIFFS 1,2	235	0.20	0.2	0.00
BRADWOOD 1,2	228	0.21	0.1	0.01
GENA	139	0.10	0.3	0.05
FORT CALHOUN	189	0.22	0.3	0.00
DIABLO CANYON 1,2	286	0.18	0.1	0.08
SOUTH TEXAS 1,2	281	0.20	0.1	0.00
BYRON 1,2	309	0.28	0.2	0.09
WATERFORD 3	130	0.14	0.2	0.00
PALO VERDE 1,2,3	482	0.20	0.1	0.05
HARRIS	174	0.16	0.2	0.01
REGUYAH 1,2	288	0.22	0.2	0.08
NORTH ANNA 1,2	307	0.24	0.2	0.05
GALLAGHY 1	187	0.18	0.2	0.00
ARKANSAS 1,2	386	0.17	0.3	0.03
BURRY 1,2	408	0.22	0.3	0.10
ST. LUKE 1,2	473	0.28	0.3	0.07
MILLSTONE POINT 2,3	416	0.25	0.3	0.01
THREE MILE ISLAND 1	213	0.17	0.3	0.00
ROBINSON 2	215	0.23	0.3	0.00
BEAVER VALLEY 1,2	483	0.29	0.3	0.02
SAN ONOFRE 1,2,3	485	0.24	0.3	0.02
CATAWBA 1,2	482	0.28	0.2	0.03
FARLEY 1,2	483	0.29	0.4	0.08
ZION 1,2	797	0.44	0.8	0.18
HADDAM NECK	42	0.44	1.0	0.14
PALISADES	482	0.38	0.8	0.10
INDIAN POINT 2	848	0.50	0.9	0.07
MARY YANKEE	651	0.58	2.7	0.28

* 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 (rem) to the collective dose. For '64 and '65 data, the CR values were determined from the individual Form 5 subtotals.

*** All doses are in cSv (rem).

Tables 4.7a and b list the sites that had been in commercial operation for at least 5 years as of December 31, 1995, 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 185 reactor-years of operation accumulated by the 37 BWRs listed, the average annual collective dose per reactor was found to be 319 person-cSv (person-rem), the average measurable dose per worker was 0.30 cSv (rem), and the average collective dose per megawatt-year was 0.5.

Based on the 353 reactor-years of operation at the 71 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 190 person-cSv (person-rem), 0.25 cSv (rem), and 0.3 person-cSv/MW-yr, respectively. All of these values, at both types of facilities, are lower than those found for the 5 year period ending in 1994, with the exception of the average collective dose per site and average collective dose per megawatt-year at PWRs, which remained the same.

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 because they report small collective doses. However, the ratio of collective dose to megawatt-years is generally higher for these plants because of their limited power generation capability.

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. Jobs that were large contributors to BWR doses in 1995 included in-service inspections, valve maintenance work, refueling activities, shielding installation and removal, and area and system decontamination. At PWR facilities, the major contributors to the collective dose were steam generator related work, valve maintenance work, refueling activities, scaffolding and insulation, in-service inspections, health physics coverage, 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 1995 (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 are shown as well as the collective dose for each activity.

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

1991 - 1995

Site Name*	Number of Reactor Years	Annual Collective Dose per Reactor	Total Coll. Dose per Site (cSv)	Workers with Meas. Doses	Avg. Meas. Dose (cSv)	Total MW-yr	Average Collective Dose per MW-yr
LIMERICK 1,2	10	119	1,188	7,121	0.17	9,367.0	0.1
FERMI 2	5	160	749	4,316	0.17	3,216.9	0.2
BIG ROCK POINT	5	166	828	1,865	0.44	254.7	3.3
VERMONT YANKEE	5	187	836	3,021	0.31	2,319.3	0.4
BROWNS FERRY 1,2,3	15	200	3,004	13,906	0.22	4,128.0	0.7
COOPER STATION	5	237	1,187	4,120	0.29	2,482.1	0.5
NINE MILE POINT 1,2	10	240	2,388	8,799	0.27	6,568.7	0.4
SUSQUEHANNA 1,2	10	248	2,484	8,570	0.29	8,749.5	0.3
GRAND GULF	5	262	1,308	6,562	0.20	5,066.7	0.3
HOPE CREEK 1	5	288	1,429	7,432	0.19	4,470.1	0.3
PEACH BOTTOM 2,3	10	297	2,966	10,443	0.28	8,264.8	0.4
MONTICELLO	5	302	1,512	3,380	0.45	2,451.8	0.6
CLINTON	5	308	1,541	6,093	0.30	3,628.3	0.4
DUANE ARNOLD	5	318	1,588	4,044	0.39	2,284.7	0.7
MILLSTONE POINT 1	5	320	1,600	4,039	0.40	2,187.4	0.7
RIVER BEND 1	5	328	1,638	6,525	0.25	3,353.6	0.5
PERRY	5	350	1,750	6,007	0.29	4,051.3	0.4
HATCH 1,2	10	373	3,732	9,557	0.39	6,301.1	0.6
FITZPATRICK	5	378	1,888	7,914	0.24	2,117.5	0.9
BRUNSWICK 1,2	10	396	3,955	13,903	0.28	4,478.8	0.9
PILGRIM	5	401	2,003	7,548	0.27	2,466.3	0.8
LASALLE 1,2	10	407	4,065	9,539	0.43	8,103.0	0.5
QUAD CITIES 1,2	10	438	4,379	10,489	0.42	4,664.2	0.9
DRESDEN 2,3	10	499	4,987	11,425	0.44	3,841.0	1.3
WASHINGTON NUCLEAR 2	5	558	2,790	7,528	0.37	3,668.9	0.8
OYSTER CREEK	5	636	3,192	11,563	0.28	2,486.9	1.3
Grand Totals and Averages	185		59,094	194,706	0.30	110,968.6	0.5
Averages Per Reactor-Year			319	1,052		599.8	

* Sites where not all reactors had completed 5 full years of commercial operation as of 12/31/95 are not included.

TABLE 4.7b
5-YEAR TOTALS AND AVERAGES LISTED IN ASCENDING
ORDER OF COLLECTIVE DOSE PER PWR
1991 - 1995

Site Name*	Number of Reactor Years	Annual Collective Dose per Reactor	Total Coll. Dose per Site (cSv)	Workers with Meas. Doses	Avg. Meas. Dose (mSv)	Total MW-yr	Average Collective Dose per MW-yr
PRAIRIE ISLAND 1,2	10	63	631	2,940	0.21	4,833.3	0.1
INDIAN POINT 3	5	87	437	2,947	0.15	1,739.6	0.3
SEABROOK	5	92	460	3,267	0.14	4,546.2	0.1
SOUTH TEXAS 1,2	10	99	993	5,351	0.19	7,995.0	0.1
POINT BEACH 1,2	10	107	1,067	2,966	0.36	4,425.4	0.2
KEWAUNEE	5	126	630	2,160	0.29	2,301.5	0.3
COOK 1,2	10	129	1,287	6,414	0.20	7,267.2	0.2
FORT CALHOUN	5	130	648	2,637	0.25	1,859.8	0.3
THREE MILE ISLAND 1	5	136	681	5,689	0.12	3,619.1	0.2
DAVIS-BESSE	5	147	734	3,646	0.20	4,037.1	0.2
BYRON 1,2	10	149	1,485	5,537	0.27	9,344.2	0.2
OCONEE 1,2,3	15	152	2,278	8,928	0.26	11,295.3	0.2
SAN ONOFRE 1,2,3*	13	153	1,990	8,100	0.25	9,895.1	0.2
CALVERT CLIFFS 1,2	10	156	1,556	6,100	0.19	6,703.2	0.2
CALLAWAY 1	5	157	783	3,762	0.21	5,349.5	0.1
VOGTLE 1,2	10	157	1,571	5,958	0.26	10,530.3	0.1
BRAIDWOOD 1,2	10	159	1,585	6,114	0.26	8,743.2	0.2
CRYSTAL RIVER 3	5	165	824	4,165	0.20	3,587.3	0.2
WOLF CREEK 1	5	168	841	3,755	0.22	4,874.1	0.2
SALEM 1,2	10	170	1,703	14,281	0.12	6,219.1	0.3
HARRIS	5	173	866	4,266	0.20	3,771.5	0.2
MCGUIRE 1,2	10	175	1,745	7,923	0.22	9,092.6	0.2
PALO VERDE 1,2,3	15	179	2,682	10,270	0.26	14,916.1	0.2
BEAVER VALLEY 1,2	10	190	1,902	7,213	0.26	6,771.1	0.3
WATERFORD 3	5	190	949	4,968	0.19	4,745.0	0.2
CATAWBA 1,2	10	192	1,921	8,110	0.24	9,667.5	0.2
SUMMER 1	5	200	1,002	4,160	0.24	3,699.9	0.3
ARKANSAS 1,2	10	205	2,053	10,779	0.19	7,533.7	0.3
GINNA	5	211	1,056	4,052	0.26	2,098.1	0.5
ST. LUCIE 1,2	10	215	2,153	7,389	0.29	7,063.7	0.3
DIABLO CANYON 1,2	10	216	2,162	9,330	0.23	9,596.8	0.2
SEQUOYAH 1,2	10	219	2,185	8,546	0.26	7,503.0	0.3
SURRY 1,2	10	222	2,216	8,022	0.28	6,605.2	0.3
TURKEY POINT 3,4	10	223	2,230	7,363	0.30	4,965.1	0.4
ROBINSON 2	5	232	1,160	4,851	0.24	2,744.0	0.4
FARLEY 1,2	10	250	2,499	7,563	0.33	7,149.6	0.3
PALISADES	5	263	1,317	5,117	0.26	2,718.6	0.6
NORTH ANNA 1,2	10	267	2,673	9,599	0.28	7,812.6	0.3
MILLSTONE POINT 2,3	10	282	2,822	9,278	0.30	6,294.5	0.4
ZION 1,2	10	296	2,962	7,369	0.40	6,409.2	0.5
MAINE YANKEE	5	336	1,680	4,095	0.41	2,851.0	0.6
HADDAM NECK	5	355	1,777	4,438	0.40	2,253.2	0.8
INDIAN POINT 2	6	567	2,836	5,664	0.48	3,580.4	0.8
Grand Totals and Averages	353		67,042	267,334	0.25	259,328.1	0.3
Averages Per Reactor-Year			190	757		734.6	

* Sites where not all reactors had completed 5 full years of commercial operation as of 12/31/95 are not included. San Onofre is included in the compilation even though Unit 1 is no longer in operation.

TABLE 4.8a
ACTIVITIES CONTRIBUTING TO HIGH COLLECTIVE
DOSES AT SELECTED PLANTS IN 1995

BWR's with High Collective Doses

Millstone Point 1 (620 rem)

Outage dose/duration: 500 rem/59 days
 Average daily outage dose: 8.47 rem/day
 Average daily operating dose: N/A

- Weld repair (drywell) (162.5 rem)
- ISI (in-service inspection) (drywell) (75.6 rem)
- Hanger work (drywell) (28.6 rem)
- Insulation removal/replacement (drywell) (26.4 rem)
- Staging (drywell) (24.9 rem)
- Refueling (18.9 rem)
- Cleanup valve replacement (drywell) (13.7 rem)
- Shielding (drywell) (10.9 rem)

Pilgrim (482 rem)

Outage dose/duration: 410 rem/73 days
 Average daily outage dose: 5.62 rem/day
 Average daily operating dose: 0.25 rem/day

- ISI (in-service inspection) (includes doses due to scaffolding and insulation) (74.5 rem)
- Refueling (Total of 69 rem)
 Reactor head removal/replacement, cavity decon
 - 44.9 rem
- Modifications (63.9 rem)
- MOV (motor-operated valve) repair/replacement (49.5 rem)
- Corrective maintenance (43.5 rem)
- Health physics support (22.6 rem)
- Miscellaneous support (19.1 rem)
- Shielding (15.6 rem)
- Operations support (15.5 rem)
- Preventive maintenance (13 rem)
- Decontamination (9.8 rem)

Dresden 2, 3 (876 rem)

Outage dose/duration (U2): 685 rem/210 days
 Outage dose/duration (U3): 23 rem/127 days
 Average daily outage dose(U2): 3.26 rem/day
 Average daily outage dose(U3): 0.18 rem/day
 Average daily operating dose (U2+3): 0.42 rem/day

Unit 2

- RWCU (reactor water cleanup system) pipe and heat exchanger replacement (81.1 rem)
- Valve work/replacement (Total of 87.6 rem)
 Two 16" MOVs (motor-operated valves) replaced
 - 52.2 rem
 MSIV (main steam isolation valve) repair - 16.2 rem
 Electromagnetic and safety relief valve repair - 17.2 rem
- ISI (in-service inspection) in drywell (70.4 rem)
- Shielding (Total of 47.1 rem)
 Perm. reconfiguration ring header shielding installation
 - 31.2 rem
 Temporary drywell shielding installation/removal
 - 15.9 rem
- Outage activities support (Total of 46.7 rem)
 HP support - 29.2 rem
 Operations support - 17.4 rem
- Chemical decontamination (recirc and RWCU) (23.7 rem)
- Installed instrument caps on LPCI (low pressure coolant injection) recirc. risers for injecting decon solution (13.7 rem)
- Inspect/clean main condenser water boxes (11.6 rem)
- Insulation removal/replacement in drywell (10.5 rem)
- CRD (control rod drive) removal/installation (10.3 rem)
- Unoclog drain line at bottom of reactor vessel (9.4 rem)

WNP 2 (456 rem)

Outage dose/duration: 297 rem/49 days
 Average daily outage dose: 6.06 rem/day
 Average daily operating dose: 0.6 rem/day

- Shielding (drywell) installation/removal (30 rem)
- Reactor disassembly/reassembly (Total of 25.5 rem)
 Reactor reassembly - 14.3 rem
 Reactor disassembly - 10.3 rem
- Chemical decontamination of RWCU (reactor water cleanup system) (20.6 rem)
- ISI (in-service inspection) for erosion/corrosion (19.5 rem)
- Main steam relief valve removal/replacement (14.8 rem)

**TABLE 4.8a (Continued)
ACTIVITIES CONTRIBUTING TO HIGH COLLECTIVE
DOSES AT SELECTED PLANTS IN 1985**

BWR's with High Collective Doses

Nine Mile Pt 1, 2 (759 rem)

Outage dose/duration (U1): 312 rem/56 days
 Outage dose/duration (U2): 325 rem/56 days
 Average daily outage dose (U1): 5.51 rem/day
 Average daily outage dose (U2): 5.67 rem/day
 Average daily operating dose : N/A

Unit 1

- ISI (in-service inspection) (94.4 rem)
- Valve work/replacement (Total of 62.2 rem)
 - EC (emergency cooling) check valve repair - 23.8 rem
 - Drywell Limit torque valve work - 18.4 rem
 - Modifications to pressure relief valves - 7.3 rem
- CRD (control rod drive) exchanges (16.8 rem)
- Health physics surveys and support (16 rem)
- Refueling (including reactor head removal/replacement, ISI, decon, fuel sipping) (12.3 rem)
- RRP cooler replacement (11.5 rem)
- Operations (drywell) (9.6 rem)
- Shielding (drywell) (8.9 rem)
- Insulation work (8.2 rem)
- Housekeeping (drywell) (6.1 rem)

Unit 2

- ISI (Total of 86 rem)
 - Inside bioshield - 43.8 rem
 - Outside bioshield - 34.6 rem
- Snubber related work (Total of 47.4 rem)
 - Snubber reduction modifications - 26.1 rem
 - Snubber functional testing - 21.3 rem
- Valve work/replacement (Total of 36.5 rem)
 - MOV (motor-operating valve) testing - 17.2 rem
 - SRV (safety relief valve) change out - 6.7 rem
- Refueling (Total of 17.7 rem)
 - Reactor head removal/replacement - 11.5 rem
 - Operations and support - 6.2 rem
- CRD exchanges (12.6 rem)
- Health physics surveys and job coverage (10.9 rem)
- Temporary shielding (7.1 rem)
- Neutron monitor replacement/repair (7 rem)
- Decontamination (drywell) (5.7 rem)

**TABLE 4.8b
ACTIVITIES CONTRIBUTING TO HIGH COLLECTIVE
DOSES AT SELECTED PLANTS IN 1995**

PWR's with High Collective Doses

Maine Yankee (653 rem)

Outage dose/duration*: 897 rem/358 days
Average daily outage dose: 1.88 rem/day
Average daily operating dose: N/A
*Outage extended from 1/23/95 to 1/16/96

- Steam generator related work (Total of 272.1 rem)
 - Tube sleeving (17,000 tubes sleeved) - 142.3 rem
 - ECT (eddy current testing) - 83.2 rem
 - Sledge lancing and inspections - 38 rem
 - Manual hand rolling - 7.4 rem
- RCP (Reactor Coolant Pump) work (Total of 90.3 rem)
 - Rotating assembly replacement - 45.3 rem
 - Motor removal/installation - 21 rem
 - Seal replacement - 13.8 rem
- Outage support (Total of 90 rem)
 - Rad Controls outage support - 69.2 rem
- Valve work (Total of 59.6 rem)
 - Valve and SRV (safety relief valve) maintenance - 36.2 rem
 - MOV (motor-operated valve) testing and repair - 21.4 rem
- Decontamination (Total of 48.6 rem)
 - Reactor coolant system loop - 32.4 rem
- Refueling Operation (Total of 42.3 rem)
 - Reactor head removal/replacement - 29.2 rem
 - CEA (control element assembly) shaft replacement - 8.3 rem
- ISI (in-service inspection) (22.1 rem)
- Pressurizer inconel inspection (14.4 rem)
- Temporary shielding (9 rem)

Indian Point 2 (548 rem)*

Outage dose/duration: 488.9 rem/122 days
Average daily outage dose: 4.1 rem/day
Average daily operating dose: 0.20 rem/day
*Indian Point performed a full system decontamination in 1995

- Modifications (Total of 67.8 rem)
 - Steam generator nozzle ring installation - 16.3 rem
 - Reactor vessel head split pin repair - 14.9 rem
- Refueling (55.7 rem)
- Maintenance (51.2 rem)
- Radiation protection (47.3 rem)
- Radwaste (40.4 rem)
- Steam generator work (Total of 36.6 rem)
 - Primary side (eddy current testing) - 32.5 rem
 - Secondary side (sledge lancing) - 4.1 rem
- Scaffolding and insulation installation/removal (34 rem)
- Supervisory plant tours (33.1 rem)
- ISI (in-service inspection) (23.7 rem)
- Full system decontamination (21 rem)
- RCP (Reactor Coolant Pump) work (20 rem)
- Operations (20.3 rem)
- MOV (motor-operated valve) work (16.5 rem)
- Services (lighting, air) (10.6 rem)

Palisades (462 rem)

Outage dose/duration: 421 rem/93 days
Average daily outage dose: 4.53 rem/day
Average daily operating dose: 0.15 rem/day

- Refueling (Total of 65.8 rem)
 - Reactor head removal/replacement - 50.9 rem
 - Fuel movement - 5.3 rem
- ISI (in-service inspection) (Total of 55.2 rem)
 - Inconel weld inspections (26.1 rem)
- Valve work (36.5 rem)
- Insulation removal/replacement (34.6 rem)
- Steam generator work (Total of 32 rem)
 - Nozzle dam installation/removal - 12.2 rem
 - ECT (eddy current testing) - 8.3 rem
- Scaffolding installation/removal (30.8 rem)
- Health Physics surveys (19.2 rem)
- Mechanical maintenance (15.4 rem)
- Pump work (11.1 rem)
- Ventilation system maintenance (10.5 rem)
- Decontamination and cleanup (8.5 rem)
- Temporary shielding (7.3 rem)
- Electrical maintenance (7.1 rem)

**TABLE 4.8b (Continued)
ACTIVITIES CONTRIBUTING TO HIGH COLLECTIVE
DOSES AT SELECTED PLANTS IN 1995**

PWR's with High Collective Doses

Zion 1, 2 (797 rem)

Outage dose/duration (U1): 480 rem/89 days
 Outage dose/duration (U2): 167 rem/103 days
 Average daily outage dose (U1): 4.66 rem/day
 Average daily outage dose (U2): 1.62/day
 Average daily operating dose: N/A

UNIT 1

- Steam generator work (183.7 rem)
- Valve work (74.1 rem)
- Scaffolding installation/removal (36.6 rem)
- ISI (in-service inspection) (34.4 rem)
- Radiation protection support (30.6 rem)
- Refueling (Total of 24.3 rem)
 - Reactor head disassembly/assembly - 21 rem
 - Fuel shuffle and inspection - 3.3 rem
- Snubber/hanger work (23.5 rem)
- Shielding (15.9 rem)
- Flange work (15.4 rem)
- Reactor coolant pump work (11.2 rem)
- Operating department routines (10.2 rem)

Unit 2

- Steam generator work (42.7 rem)
- Valve work (24.6 rem)
- Scaffolding installation/removal (20.8 rem)
- ISI (17.7 rem)
- Radiation protection support (15.9 rem)
- Refueling (Total of 15.9 rem)
 - Reactor head disassembly/assembly - 12 rem
 - Fuel shuffle and inspection - 3.9 rem
- Snubber/hanger work (13.9 rem)
- Shielding (5.7 rem)
- Reactor coolant pump work (5 rem)

Haddam Neck (442 rem*)

Outage dose/duration: 454 rem/81 days
 Average daily outage dose: 5.6 rem/day
 Average daily operating dose: 0.07 rem/day
 *442 rem total year dose measured by TLD,
 454 rem outage dose measured by pocket ion chamber

- Steam generator related work (Total of 121.6 rem)
 - Eddy current and ultrasonic testing - 42 rem
 - Tube plugging and rerolls - 31.5 rem
 - Equipment setup/teardown - 14.4 rem
 - Remove/install manways - 11.2 rem
 - install/remove nozzle covers - 6.6 rem
 - HP surveys/job coverage - 6.7 rem
- Valve related work (Total of 68.5 rem)
 - MOV (motor-operated valve) testing and repairs - 26.3 rem
 - Misc. valve repair - 22.2 rem
 - Gate valve pressure locking fix - 20 rem
- Inspection and repair of service water system piping (52.3 rem)
- ISI (in-service inspection) (Total of 45.6 rem)
 - UT (ultrasonic tests)/liquid penetrant exams - 16.5 rem
 - Insulation removal/replacement - 10.1 rem
 - Scaffolding installation/removal - 6.4 rem
- Refueling (40.6 rem)
- Operations (21.3 rem)
- HP coverage (19.2 rem)
- Facilities and waste management (6.8 rem)
- Shielding (7.1 rem)
- RCP (Reactor Coolant Pump) seal replacement (6.4 rem)

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.

From the above analysis, one can see that the largest contributor to the collective dose is usually associated with outages at a site. In analyzing collective dose trends, it is useful to examine the outage data for reactors to look for a relationship between the collective dose and the outage information for the reactors. Figure 4.5 displays the total number of outage days for BWRs and PWRs respectively. The collective dose and average measurable dose are also plotted to allow for the comparison of outage duration to collective dose.

4.6 Collective Dose by Work Function and Employee Type

Each plant is required by its Technical Specifications to submit an annual statistical report that 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 1995 data for BWRs, PWRs, and LWRs. Table 4.9 shows that, at both BWRs and PWRs, about 62% 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. This is because the Technical Specifications of each plant require 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 dosimeter of record (usually thermoluminescent dosimeters) in compiling the data. Also, when examining the number of personnel shown on these reports, it should be remembered that individuals who perform tasks in more than one category may be counted more than once.

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 25% and 35% of the total. For the past 9 years, 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, values have been fairly stable over the years with these two categories, special maintenance

Figure 4.5
Outage Days, Average Dose, and Collective Dose

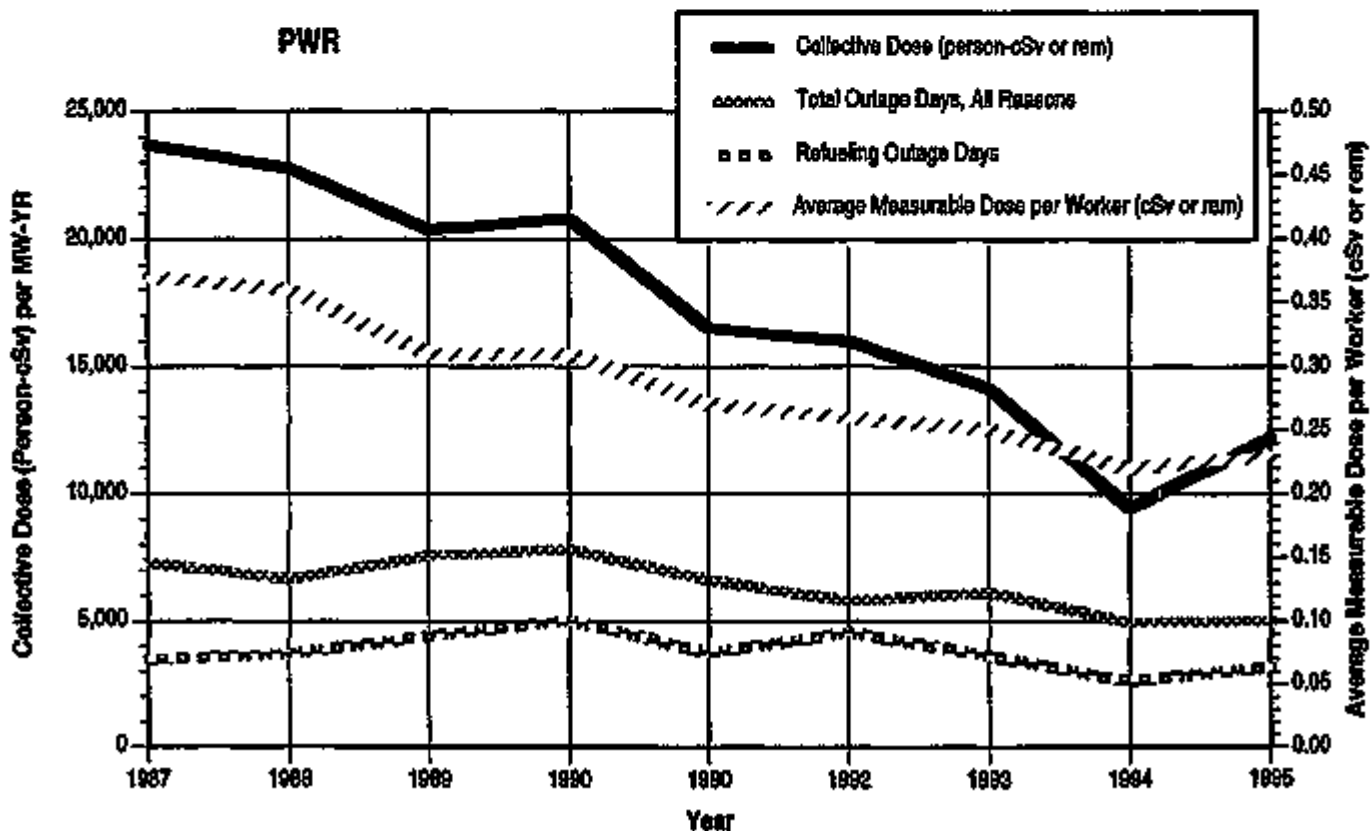
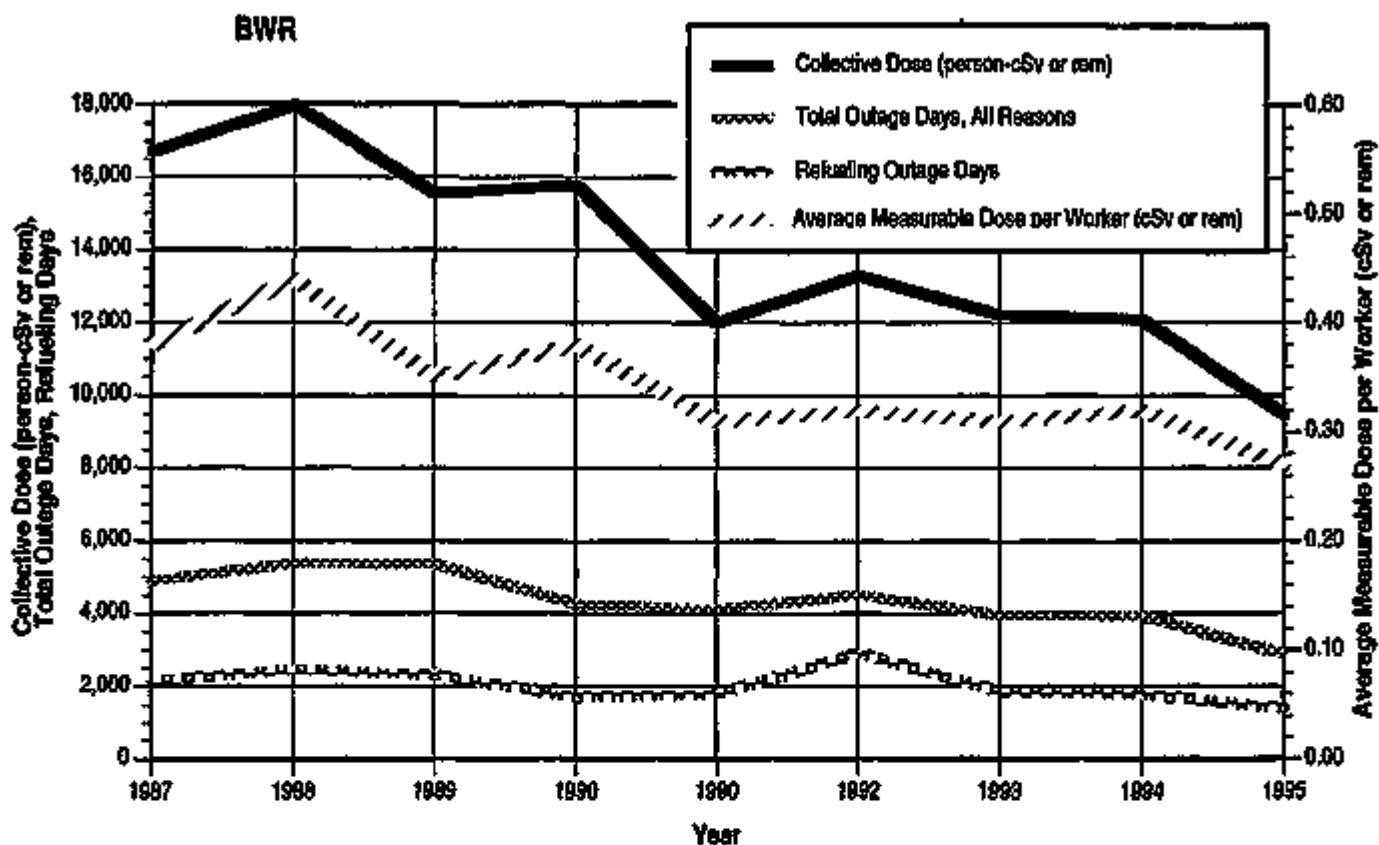


TABLE 4.9
ANNUAL COLLECTIVE DOSE
BY WORK FUNCTION AND PERSONNEL TYPE
1995

WORK AND JOB FUNCTION	STATION EMPLOYEES		UTILITY EMPLOYEES		CONTRACT WORKERS		TOTAL PER WORK FUNCTION	
	PERSON-cSv	% OF TOTAL	PERSON-cSv	% OF TOTAL	PERSON-cSv	% OF TOTAL	PERSON-cSv	% OF TOTAL
<u>BOILING WATER REACTORS</u>								
REACTOR OPS & SURV	1,069	11.6%	74	0.8%	499	5.4%	1,643	17.8%
ROUTINE MAINTENANCE	1,623	17.6%	425	4.6%	2,179	23.6%	4,227	45.8%
IN-SERVICE INSPECTION	53	0.6%	81	0.9%	627	6.8%	761	8.2%
SPECIAL MAINTENANCE	311	3.4%	242	2.6%	1,276	13.8%	1,829	19.8%
WASTE PROCESSING	106	1.1%	13	0.1%	52	0.6%	171	1.9%
REFUELING	150	1.6%	64	0.7%	392	4.2%	607	6.6%
TOTAL	3,313	35.9%	900	9.7%	5,025	54.4%	9,238	100.0%
<u>PRESSURIZED WATER REACTORS</u>								
REACTOR OPS & SURV	687	5.5%	40	0.3%	539	4.4%	1,246	10.2%
ROUTINE MAINTENANCE	1,770	14.5%	397	3.3%	2,916	23.9%	5,083	41.7%
IN-SERVICE INSPECTION	114	0.9%	191	1.6%	1,158	9.5%	1,462	12.0%
SPECIAL MAINTENANCE	466	3.8%	257	2.1%	1,419	11.6%	2,144	17.6%
WASTE PROCESSING	143	1.2%	13	0.1%	195	1.6%	352	2.9%
REFUELING	522	4.3%	121	1.0%	1,255	10.3%	1,898	15.6%
TOTAL	3,684	30.2%	1,019	8.4%	7,481	61.4%	12,184	100.0%
<u>ALL LIGHT WATER REACTORS</u>								
REACTOR OPS & SURV	1,737	8.1%	114	0.5%	1,038	4.8%	2,888	13.5%
ROUTINE MAINTENANCE	3,393	15.8%	822	3.8%	5,085	23.8%	9,310	43.6%
IN-SERVICE INSPECTION	167	0.8%	272	1.3%	1,784	8.3%	2,223	10.4%
SPECIAL MAINTENANCE	779	3.6%	499	2.3%	2,695	12.6%	3,973	18.6%
WASTE PROCESSING	249	1.2%	27	0.1%	247	1.2%	523	2.4%
REFUELING	672	3.1%	166	0.8%	1,647	7.7%	2,505	11.7%
TOTAL	6,997	32.7%	1,919	9.0%	12,506	58.4%	21,422	100.0%

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TABLE 4.10

**PERCENTAGES OF ANNUAL COLLECTIVE
DOSE AT LWRs BY WORK FUNCTION
1984 - 1995**

WORK FUNCTION	PERCENTAGE OF COLLECTIVE DOSE EACH YEAR											
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
REACTOR OPERATIONS AND SURVEILLANCE	11.4%	12.8%	12.8%	11.9%	11.0%	12.2%	12.3%	14.0%	11.6%	11.2%	12.8%	13.5%
ROUTINE MAINTENANCE	28.9%	34.6%	33.2%	35.0%	37.7%	36.2%	36.5%	38.1%	38.7%	42.0%	42.7%	43.5%
IN-SERVICE INSPECTION	6.3%	8.6%	8.3%	8.0%	8.7%	9.5%	8.8%	8.9%	9.2%	10.8%	8.5%	10.4%
SPECIAL MAINTENANCE	45.4%	32.5%	35.5%	33.2%	30.1%	31.3%	31.6%	28.2%	25.8%	22.0%	19.9%	18.5%
WASTE PROCESSING	3.6%	5.1%	4.0%	3.9%	3.6%	3.4%	3.0%	3.1%	3.1%	2.5%	2.7%	2.4%
REFUELING	6.4%	6.5%	6.2%	8.1%	8.8%	7.3%	7.7%	9.7%	11.6%	11.4%	13.3%	11.7%

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 1992 through 1995, when it increased to over 11%) is due to the fact that some sites include doses other than those directly associated with fuel movement in this category.

Figure 4.6 graphically shows the trends in the collective dose by work function and type of personnel for the years 1990 through 1995 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 1995 at all LWRs among five occupational categories. As in past years, maintenance personnel incurred the majority (65%) of the collective dose with contractor maintenance personnel receiving about twice as much as the station maintenance employees combined. None of the values listed changed significantly from those found for 1987 through 1994. 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 that had been required to be submitted pursuant to 10 CFR 20.2206.

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.
- (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 obtained from the § 20.2206 annual reports. 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 § 20.2206 annual reports to yield the collective dose shown in this column of Appendix C.

TABLE 4.11
ANNUAL COLLECTIVE DOSE
BY OCCUPATION AND PERSONNEL TYPE
1995

OCCUPATION	STATION EMPLOYEES		UTILITY EMPLOYEES		CONTRACT WORKERS		TOTAL PER WORK FUNCTION	
	PERSON-cSv	% OF TOTAL	PERSON-cSv	% OF TOTAL	PERSON-cSv	% OF TOTAL	PERSON-cSv	% OF TOTAL
<u>BOILING WATER REACTORS</u>								
MAINTENANCE	1,757	19.0%	750	8.1%	4,074	44.1%	6,581	71.2%
OPERATIONS	703	7.6%	21	0.2%	158	1.7%	882	9.5%
HEALTH PHYSICS	502	5.4%	62	0.7%	307	3.3%	870	9.4%
SUPERVISORY	175	1.9%	8	0.1%	108	1.2%	289	3.1%
ENGINEERING	177	1.9%	61	0.7%	378	4.1%	616	6.7%
TOTAL	3,313	35.9%	900	9.7%	5,025	54.4%	9,238	100.0%
<u>PRESSURIZED WATER REACTORS</u>								
MAINTENANCE	1,835	15.1%	883	7.3%	4,604	37.8%	7,332	60.2%
OPERATIONS	681	5.6%	25	0.2%	250	2.1%	957	7.9%
HEALTH PHYSICS	720	5.9%	31	0.3%	1,121	9.2%	1,872	15.4%
SUPERVISORY	214	1.8%	17	0.1%	425	3.5%	655	5.4%
ENGINEERING	234	1.9%	53	0.4%	1,082	8.9%	1,368	11.2%
TOTAL	3,684	30.2%	1,019	8.4%	7,481	61.4%	12,184	100.0%
<u>ALL LIGHT WATER REACTORS</u>								
MAINTENANCE	3,582	16.8%	1,643	7.7%	8,677	40.5%	13,913	64.9%
OPERATIONS	1,384	6.5%	46	0.2%	408	1.9%	1,838	8.6%
HEALTH PHYSICS	1,221	5.7%	93	0.4%	1,428	6.7%	2,742	12.8%
SUPERVISORY	389	1.8%	23	0.1%	533	2.5%	944	4.4%
ENGINEERING	411	1.9%	114	0.5%	1,460	6.8%	1,985	9.3%
TOTAL	6,997	32.7%	1,919	9.0%	12,506	58.4%	21,422	100.0%

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- (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 numbers shown in these tables is 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 55% of the personnel performed routine or special maintenance functions, 26% were involved with reactor operations and surveillance, and the remaining 19% 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 differences occurred in the maintenance and supervisory percentages for 1995. Overall, 56% of the personnel were contractors, 36% were station employees, and 8% were utility employees in 1995.

Table 4.14 presents the average annual dose incurred by workers in the five occupational categories in 1995. 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 maintenance and health physics personnel incur the highest average doses. Examination of the values of the averages given in Table 4.14 is subject to several sources of error: (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; and (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. Because of these mitigating factors, the usefulness of the numbers of individuals obtained from the reports provided in Appendix D is limited; therefore, they are not used to develop any other statistics in this document.

TABLE 4.12
NUMBER OF PERSONNEL*
BY WORK FUNCTION AND PERSONNEL TYPE
1995

WORK AND JOB FUNCTION	STATION EMPLOYEES		UTILITY EMPLOYEES		CONTRACT WORKERS		TOTAL PER WORK FUNCTION	
	NUMBER	% OF TOTAL	NUMBER	% OF TOTAL	NUMBER	% OF TOTAL	NUMBER	% OF TOTAL
<u>BOILING WATER REACTORS</u>								
REACTOR OPS & SURV	20,294	18.1%	1,673	1.5%	11,865	10.6%	33,832	30.1%
ROUTINE MAINTENANCE	14,290	12.7%	2,641	2.3%	28,932	25.7%	45,863	40.8%
IN-SERVICE INSPECTION	541	0.5%	346	0.3%	7,654	6.8%	8,541	7.6%
SPECIAL MAINTENANCE	2,351	2.1%	1,198	1.1%	9,476	8.4%	13,025	11.6%
WASTE PROCESSING	2,752	2.4%	274	0.2%	1,290	1.1%	4,316	3.8%
REFUELING	1,901	1.7%	670	0.6%	4,354	3.9%	6,825	6.1%
TOTAL	42,129	37.5%	6,702	6.0%	63,571	56.8%	112,402	100.0%
<u>PRESSURIZED WATER REACTORS</u>								
REACTOR OPS & SURV	9,372	10.3%	1,976	2.2%	6,617	7.3%	17,965	19.8%
ROUTINE MAINTENANCE	13,280	14.7%	4,109	4.5%	18,485	20.4%	35,874	39.6%
IN-SERVICE INSPECTION	1,130	1.2%	1,216	1.3%	4,143	4.6%	6,489	7.2%
SPECIAL MAINTENANCE	3,855	4.3%	2,399	2.6%	11,074	12.2%	17,328	19.1%
WASTE PROCESSING	1,444	1.6%	391	0.4%	1,615	1.8%	3,450	3.8%
REFUELING	2,816	3.1%	1,026	1.1%	5,644	6.2%	9,486	10.5%
TOTAL	31,897	35.2%	11,117	12.3%	47,578	52.5%	90,592	100.0%
<u>ALL LIGHT WATER REACTORS</u>								
REACTOR OPS & SURV	29,688	14.6%	3,649	1.8%	18,482	9.1%	51,797	25.5%
ROUTINE MAINTENANCE	27,670	13.6%	6,750	3.3%	47,417	23.4%	81,737	40.3%
IN-SERVICE INSPECTION	1,671	0.8%	1,562	0.8%	11,797	5.8%	15,030	7.4%
SPECIAL MAINTENANCE	6,206	3.1%	3,597	1.8%	20,550	10.1%	30,353	15.0%
WASTE PROCESSING	4,196	2.1%	665	0.3%	2,905	1.4%	7,766	3.8%
REFUELING	4,717	2.3%	1,586	0.8%	9,998	4.9%	16,311	8.0%
TOTAL	74,026	36.5%	17,819	8.8%	111,149	54.8%	202,994	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.

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TABLE 4.13
NUMBER OF PERSONNEL*
BY OCCUPATION AND PERSONNEL TYPE
1995

OCCUPATION	STATION EMPLOYEES		UTILITY EMPLOYEES		CONTRACT WORKERS		TOTAL PER WORK FUNCTION	
	NUMBER	% OF TOTAL	NUMBER	% OF TOTAL	NUMBER	% OF TOTAL	NUMBER	% OF TOTAL
<u>BOILING WATER REACTORS</u>								
MAINTENANCE	12,853	11.8%	3,412	3.1%	45,414	41.7%	61,679	56.7%
OPERATIONS	12,581	11.5%	527	0.5%	3,393	3.1%	16,481	15.1%
HEALTH PHYSICS	7,187	6.6%	785	0.7%	4,571	4.2%	12,523	11.5%
SUPERVISORY	2,495	2.3%	309	0.3%	2,470	2.3%	5,274	4.8%
ENGINEERING	5,450	5.0%	1,409	1.3%	5,981	5.5%	12,840	11.8%
TOTAL	40,546	37.3%	6,422	5.9%	61,829	56.8%	108,797	100.0%
<u>PRESSURIZED WATER REACTORS</u>								
MAINTENANCE	10,954	13.6%	4,935	6.2%	23,314	29.2%	39,103	48.9%
OPERATIONS	8,195	10.3%	539	0.7%	2,235	2.8%	10,969	13.7%
HEALTH PHYSICS	4,006	5.0%	368	0.5%	7,299	9.1%	11,673	14.6%
SUPERVISORY	3,054	3.8%	310	0.4%	5,421	6.8%	8,785	11.0%
ENGINEERING	1,844	2.3%	1,727	2.2%	5,806	7.3%	9,377	11.7%
TOTAL	27,953	35.0%	7,879	9.9%	44,077	53.2%	79,909	100.0%
<u>ALL LIGHT WATER REACTORS</u>								
MAINTENANCE	23,707	12.6%	8,347	4.4%	68,728	36.4%	100,782	53.4%
OPERATIONS	20,759	11.0%	1,066	0.6%	5,628	3.0%	27,453	14.5%
HEALTH PHYSICS	11,193	5.9%	1,133	0.6%	11,870	6.3%	24,196	12.8%
SUPERVISORY	5,549	2.9%	619	0.3%	7,891	4.2%	14,059	7.5%
ENGINEERING	7,294	3.9%	3,138	1.7%	11,789	6.2%	22,219	11.8%
TOTAL	68,499	36.3%	14,301	7.6%	105,906	56.1%	188,706	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.

TABLE 4.14
AVERAGE DOSES BY OCCUPATION
AND PERSONNEL TYPE*
1995

OCCUPATION	STATION			UTILITY			CONTRACT			TOTAL		
	COLL. DOSE	NUMBER OF EMPLOYEES	AVG. DOSE	COLL. DOSE	NUMBER OF EMPLOYEES	AVG. DOSE	COLL. DOSE	NUMBER OF EMPLOYEES	AVG. DOSE	COLL. DOSE	NUMBER OF EMPLOYEES	AVG. DOSE
<u>BOILING WATER REACTORS</u>												
MAINTENANCE	1,757	12,853	0.14	750	3,412	0.22	4,074	45,414	0.09	6,581	61,679	0.11
OPERATIONS	703	12,581	0.06	21	527	0.04	158	3,393	0.05	882	16,481	0.05
HEALTH PHYSICS	502	7,187	0.07	62	765	0.08	307	4,571	0.07	870	12,523	0.07
SUPERVISORY	175	2,495	0.07	6	309	0.02	108	2,470	0.04	289	5,274	0.05
ENGINEERING	177	5,450	0.03	61	1,409	0.04	378	5,981	0.06	616	12,840	0.05
TOTAL	3,313	40,548	0.08	900	6,422	0.14	5,025	61,829	0.08	9,238	108,797	0.08
<u>PRESSURIZED WATER REACTORS</u>												
MAINTENANCE	1,835	10,854	0.17	893	4,935	0.18	4,604	23,314	0.20	7,332	39,103	0.19
OPERATIONS	681	8,195	0.08	25	539	0.05	250	2,235	0.11	957	10,969	0.09
HEALTH PHYSICS	720	4,006	0.18	31	368	0.09	1,121	7,299	0.15	1,872	11,673	0.16
SUPERVISORY	214	3,054	0.07	17	310	0.05	425	5,421	0.08	655	8,785	0.07
ENGINEERING	234	1,844	0.13	53	1,727	0.03	1,082	5,808	0.19	1,368	9,379	0.15
TOTAL	3,684	27,953	0.13	1,019	7,879	0.13	7,481	44,077	0.17	12,184	79,909	0.15
<u>ALL LIGHT WATER REACTORS</u>												
MAINTENANCE	3,592	23,707	0.15	1,643	8,347	0.20	8,877	68,728	0.13	13,913	100,782	0.14
OPERATIONS	1,384	20,768	0.07	46	1,066	0.04	408	5,628	0.07	1,838	27,450	0.07
HEALTH PHYSICS	1,221	11,193	0.11	93	1,133	0.08	1,428	11,870	0.12	2,742	24,196	0.11
SUPERVISORY	389	5,549	0.07	23	619	0.04	533	7,891	0.07	944	14,059	0.07
ENGINEERING	411	7,294	0.06	114	3,136	0.04	1,460	11,789	0.12	1,885	22,219	0.09
TOTAL	6,997	68,499	0.10	1,919	14,301	0.13	12,508	105,906	0.12	21,422	188,706	0.11

* 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.

4.8 Graphical Representation of Dose Trends in Appendix E

Each page of Appendix E presents two types of graphs for one site. One graph plots selected dose-performance indicators from 1973 through 1995, and the other indicates the collective dose by job function for 1978 through 1995. The dose and performance indicators shown in the top graph illustrate the history of the collective dose for the site, the rolling 3-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 1995. However, any data reported prior to 1973 are not included. The 3-year average collective dose per reactor data is included because it provides 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 2 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 2- to 3-year cycle) and occasional high-dose maintenance activities, and gives a better idea of collective dose trends over the life of the plant. For sites with more than one reactor, the plot of the 3-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 1995. 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 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 1 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 Atomic 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 76,822 workers receiving the average dose of 0.32 cSv (rem) continuously during an entire working career (working from age 18 until age 65) or the maximum accidental dose of 5.1 cSv (rem) to the whole body during 1995 (see Section 6) might expect an increased cancer death risk of about 9 chances in 1000 for the average dose and 4 chances per 1000 for the maximum dose.¹⁰ Should a worker receive 0.32 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 0.32 cSv (rem) would be approximately 21%.

The potential genetic effects from a worker population receiving 24,536 person-cSv (person-rem) (Table 3.1) are small compared to genetic damages that normally occur spontaneously in a population of this size. Approximately 100,000 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 76,822 exposed workers would, according to NUREG/CR-4214 [Ref. 17], be an increase of

¹⁰These 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)

about 8 cases (approximately 0.01%) compared to the expected 8,000 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.

4.10 Estimation of Future Occupational Radiation Exposure at Commercial Reactor Sites

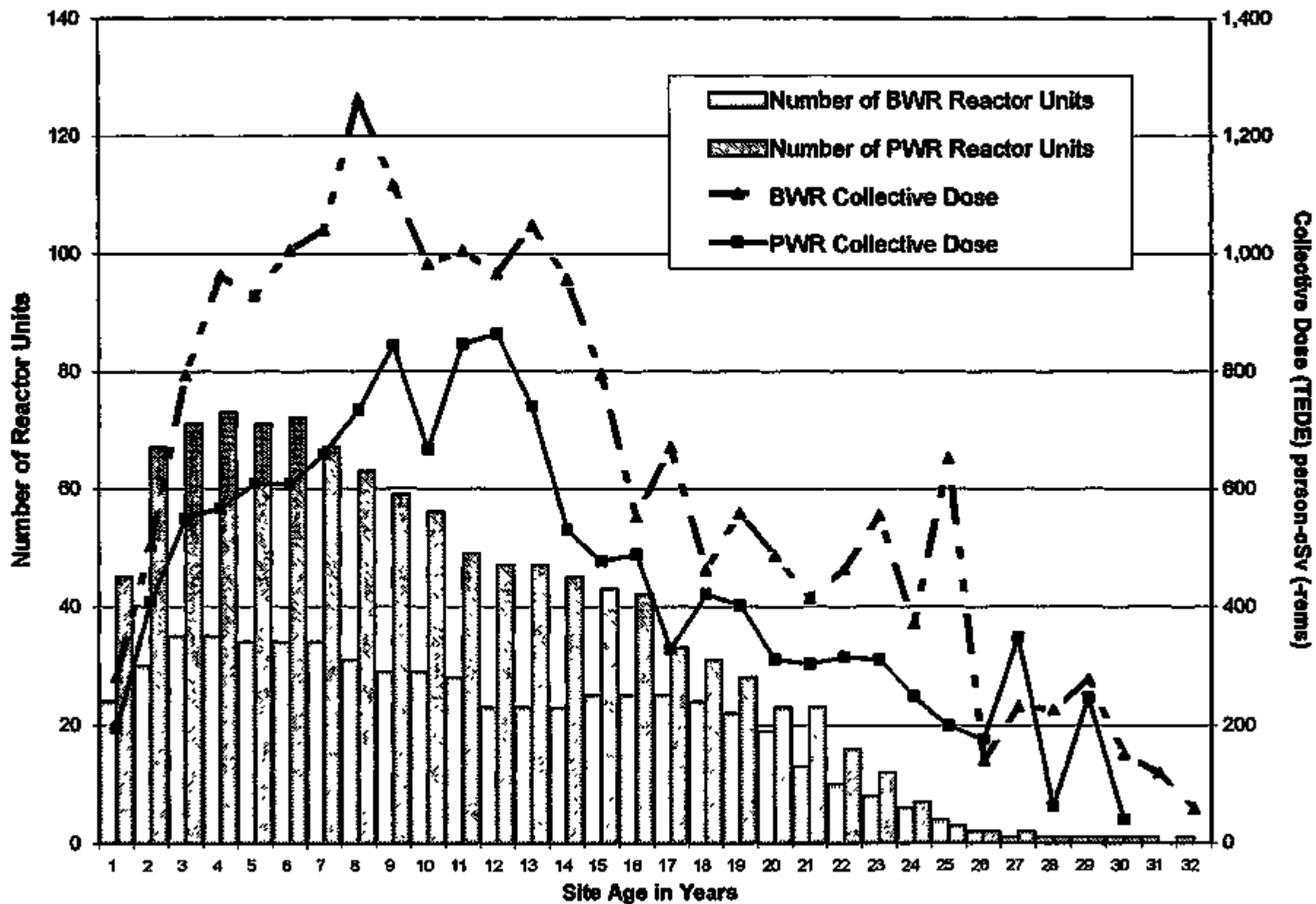
Data on occupational exposure from 1973 to 1995 suggest that commercial power reactor sites show a consistent life-cycle exposure pattern, as illustrated in Figure 4.7. The horizontal axis shows the average age of reactors at a site in years, while the vertical axis shows the average yearly collective dose per site in cSv (rem). The general shape of the curve supports the hypothesis that exposure increases during the startup and "shakedown" phase of operation, and then gradually decreases as operations become more routine and sources of exposures are identified and remediated. While BWR and PWR reactors show the same general pattern, the average exposure levels at PWR reactors are lower until well into the second decade of operation.

A regression model that captures this life-cycle pattern was developed based on exposures at U.S. power plants from 1973 to 1995. The model uses information on average site age and other factors, such as type of reactor, site capacity, and amount of power generated in a year, that can influence worker exposure. Only reactors completing a full year of commercial power operation are included. Dose information for reactors that began operation prior to 1973 are not included, so the initial years of operation for these reactors are not included in the model or reflected on the graphs. In addition, only those sites where the reactor unit age difference is <5 years are included. Because the average refueling cycle is 18-24 months, the model uses a 3-year exposure total to minimize the effect of the year-to-year differences that can occur within that cycle. The analysis summarizes dose and reactor information by site, because exposure data per reactor unit are not available. Data that allow separate calculations for each reactor at a site would increase the model's accuracy. The model estimates the collective dose in cSv (rem) at each site based on the parameters shown in Table 4.15.

¹¹

Assuming that, on the average, each exposed person will have one live-born child in the future, i.e., 78,822 children born to this worker population. The estimates were calculated from Table 4.1 of reference 17.

Figure 4.7 Average Collective Dose by Site Age



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Table 4.15 Parameters Used in Collective Dose vs. Plant Age Data Model	
Parameter	Description
Site Age	Average age of reactor units at the site in years. Only includes sites where reactor unit age differences are < 5 years and only includes data from 1973 to 1995.
Capacity	Total capacity in megawatts
MW Years	A measure of amount of power generated during the year
Reactor Type	PWR, BWR ¹²
Dose Year 1	Total dose 1 year ago
Dose Year 2	Total dose 2 years ago
Dose Year 3	Total dose 3 years ago
RX Size	1 if average reactor size at site is ≥ 1000 MW; 0 if less than 1000 MW
Site Size	1 if capacity is ≥ 1000 MW or there is more than 1 reactor at the site; 0 if the capacity is less than 1000 MW

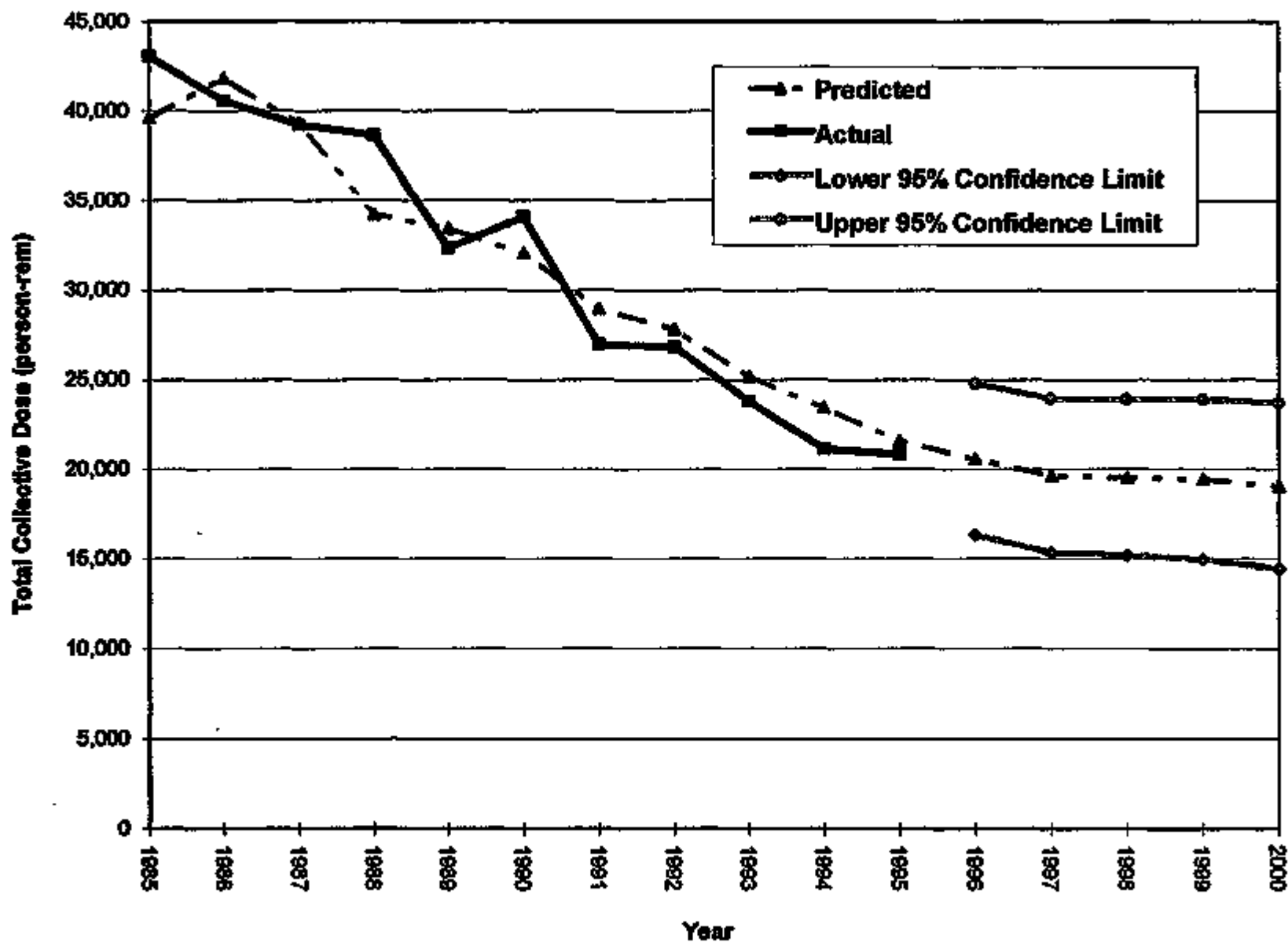
Because exposure levels were impacted significantly in the wake of the TMI incident, a single model will not fit the data before and after this incident. Most of the post-TMI mandated plant modifications were completed from 1980 to 1985. Collective exposure per site dropped from 860 cSv (rem) for 1973-1985 to 473 cSv (rem) in 1986-1995; exposure per megawatt rated capacity dropped from 1.1 cSv/MW (rem/MW) to 0.5 cSv/MW (rem/MW) between the two periods. The model included here uses all the available data, and provides the best fit for the post-TMI period, to provide the most accurate projections for future years.

The model generates year-by-year estimates of expected dose that can be aggregated to estimate total U.S. worker exposure for a given year. This allows predictions to be made for the United States as a whole, while taking into account the varying ages and histories of reactors at each site. Figure 4.8 compares the actual versus projected aggregate U.S. exposure levels for 1985-1995¹³, and shows projections through 2005. The projections (also

¹²Only one site had both PWR and BWR reactors (Milestone Point), and it was classified as a PWR site. The single site does not provide enough data to test whether its exposures are significantly different from a PWR-only site. The single HTGR reactor did not provide enough data to be included in the analysis.

¹³The projections through 1993 have been adjusted by using actual dose for the first 3 years of a site's operation, because a site must have at least 3 years of operating history before the next year's dosage can be estimated. For 1994 and later years, no adjustment is needed.

Figure 4.8 Reactor Collective Dose Projections



shown in Table 4.16) take into account all of the factors listed in Table 4.15, the aging of the reactor population, and the scheduled closing of Big Rock Point in 2000. The actual dates of future reactor shutdowns are unknown and may be affected by petitions for plant license extensions. The model does not take into account any exposure associated with decommissioning after these reactors cease commercial power operations. Because the exact amount of power generated and actual future dosages are unknown, the most recent 3-year averages were used as values for megawatt-years and Dose Year 1 through Dose Year 3. The results are best used to identify expected trends, rather than predicting the actual exposure in any single year.

Year	Projected Collective Dose (TEDE) person-cSv (-rem)
1996	20,553
1997	19,620
1998	19,531
1999	18,401
2000	18,056

From this analysis, it is anticipated that the total collective dose at reactor sites will continue to decrease over the next several years. Other factors, such as extended unanticipated outages or shutdowns, may have a significant impact on future doses. The projections are an estimation of the general trend over the next 5 years. Any given year may have a collective dose above or below these estimated values.

5 TRANSIENT WORKERS AT NRC LICENSED FACILITIES

5.1 Termination Reports

Under the revised 10 CFR 20, licensees are required to submit NRC Form 5s to the Commission for each individual who is required to be monitored at the end of the monitoring year or upon the individual's termination of employment at the facility. The "termination reports" submitted in accordance with the old § 20.408, listing the individual's complete dose history during employment at the facility, are no longer required.

However, the Form 5s submitted to the NRC upon an individual's termination of employment serve the same function as the previous requirements with regard to the analysis of transient workers at NRC-licensed facilities. The following analysis examines the workers who had more than one Form 5 dose record at more than one NRC-licensed facility during the monitoring year. These workers are defined to be transient in that they worked at more than one facility during the monitoring year.

The term "monitoring year" is used here in accordance with the definition of a year given in § 20.1003, which defines a year as "the period of time beginning in January used to determine compliance with the provisions of this part. The licensee may change the start date of the monitoring year used to determine compliance provided that the change is made at the beginning of the monitoring/calendar year and that no day is omitted or duplicated in consecutive years".

5.2 Transient Workers at NRC Facilities

Examination of the data reported for workers who began and terminated two or more periods of employment with two or more different facilities within one monitoring year is useful in many ways. For example, the number and average dose for these "annual transients" can be determined from examining these data.

Additionally, the distribution of the doses received by transient workers can be useful in determining the impact that the inclusion of these individuals in each of two or more licensees' annual reports has on the annual summary (as reported in Appendices B and F) for all nuclear power facilities, and all NRC licensees combined (one of the problems mentioned in Section 2). Table 5.1 shows the "actual distribution" of transient worker doses as determined from the above-mentioned Form 5 termination reports and compares it with the "reported distribution" of the doses of these workers as they would have appeared in a summation of the annual reports submitted by each of the licensees.

TABLE 5.1

EFFECTS OF TRANSIENT WORKERS ON ANNUAL STATISTICAL COMPILATIONS

1995

License Category	Number of Individuals with TEDE in the Ranges (cSv or rem)											Total Number Monitored	Number with Measurable Exposure	Collective TEDE (person-cSv or rem)	Average TEDE (cSv or rem)	Average Meas. TEDE (cSv or rem)		
	No Measurable Exposure	Measurable <0.10	0.10-0.25	0.25-0.5	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	
POWER REACTORS																		
FORM 5 SUMMATION ①	81,032	38,575	20,245	15,279	6,884	3,336	3,077	125	5			186,559	87,526	21,674	0.13	0.25		
TRANSIENTS - AS REPORTED ②	24,454	13,521	8,053	6,330	2,765	1,367	1,367	75	2			57,984	33,510	9,008	0.16	0.27		
TRANSIENTS- ACTUAL ③	5,502	4,627	2,960	3,134	2,027	1,367	2,195	540	118	2		22,472	16,970	9,008	0.40	0.53		
CORRECTED DISTRIBUTION (1-(2-3))	82,086	29,661	15,152	12,083	6,146	3,308	3,805	590	121	2		133,069	70,906	21,674	0.16	0.31		
ALL LICENSEES																		
FORM 5 SUMMATION ①	84,689	41,301	21,312	16,223	7,446	3,707	3,832	370	79	6	1	179,176	94,277	24,684	0.14	0.26		
TRANSIENTS - AS REPORTED ②	24,980	13,737	8,172	6,430	2,902	1,420	1,408	84	6			59,034	34,054	9,043	0.15	0.27		
TRANSIENTS- ACTUAL ③	5,442	4,627	2,969	3,168	2,059	1,364	2,235	554	124	5		22,595	17,153	9,043	0.40	0.53		
CORRECTED DISTRIBUTION (1-(2-3))	85,361	32,191	16,189	12,979	6,763	3,881	4,664	640	197	11	1	142,737	77,376	24,684	0.17	0.32		

Because >95% of these transients are reported by nuclear power facilities, these data were considered separately. Table 5.1 shows that the power reactor transient data constitute the vast majority of the transient worker exposure. The nonreactor licensees contribute only an additional 0.5% of the transient workforce and an additional 0.4% to the collective dose.

The following definitions apply to Table 5.1:

Form 5 Summation	The summation of the TEDE from each of the Form 5s submitted for the monitoring year. This is the summation of each dose record grouped by licensee and individual. This distribution takes into account multiple Form 5s for an individual at one NRC-licensed facility but <u>not</u> multiple exposures at multiple licensees.
Transients - As Reported	This distribution represents the population of transient workers as they were reported by each licensee. This distribution is the subset of all Form 5s where individuals were monitored at more than one licensee during the monitoring year. This is the summation of dose records grouped by <u>individual and by licensee</u> , so the distribution represents how the transient worker population would appear within the total distribution of all workers. This distribution takes into account multiple Form 5s for an individual at one NRC-licensed facility but <u>not</u> multiple exposures at multiple licensees.
Transients - Actual	This is the actual distribution for transient workers summed per individual. This represents the true number of individuals and places each individual in the correct dose range. This distribution accounts for multiple records per individual and multiple licensees.
Corrected Distribution	This distribution represents the correction of the reported distribution by subtracting the difference in the reported and actual distribution for transient workers. This represents the most accurate dose distribution for the licensee category and accounts for the multiple reporting of individuals.

Table 5.1 illustrates the impact that the multiple reporting of these transient individuals had on the staff's summation of the exposure reports for 1995. Because each licensee reports the doses received by workers while monitored by the particular licensee 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 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 1995, Table 5.1 shows that the summation of annual reports for reactor licensees indicated that 130 individuals 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 713 workers who received doses greater than 2 cSv (rem). Correcting for the multiple counting of individuals also has a significant effect on the average measurable dose for these workers. The corrected average measurable dose for transient workers is twice as high as the value calculated by the summation of licensee records. The transient workers represent 22% of the workforce that receives measurable dose and increases the average measurable dose for all licensees by 19% from 0.26 cSv (rem) to 0.32 cSv (rem).

One purpose of the REIRS database, which tracks occupational radiation exposures at NRC-licensed facilities, is to identify individuals who may have exceeded the occupational radiation exposure limits because of multiple exposures at different facilities throughout the year. The REIRS database stores the radiation exposure information for an individual by their unique identification number and identification type [Ref. 18, Section 1.5] and sums the exposure for all facilities during the monitoring year. An individual exceeding the TEDE 5 cSv (rem) per year regulatory limit would be identified in Table 5.1 in one of the dose ranges >5 rem. In 1995, no individual exceeded this dose limit, and since 1985, there have been no additional transient workers identified as having received a dose of >5 cSv (rem) that have not appeared in 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 because the collective dose has decreased during this same time period.

6 EXPOSURES TO PERSONNEL IN EXCESS OF REGULATORY LIMITS

6.1 Control Levels

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, or may not, be the case.

The implementation date for the revised 10 CFR 20 was January 1, 1994. The separate limits on internal and external exposure in the old 10 CFR 20 are no longer applicable. The revised 10 CFR 20 now includes requirements for summing internal and external dose equivalents to yield TEDE and to implement a similar limitation system for organs and tissues (such as the lung, liver, and bone surfaces). The dose equivalent limits for the skin of the whole body and for the extremities have been revised, and a new limit for dose equivalent to the lens of the eye has been added. The revised 10 CFR 20.1201 limits the TEDE of workers to ionizing radiation from licensed material and other sources of radiation within the licensee's control. The revised 10 CFR 20 no longer contains quarterly exposure limits but has reporting requirements for planned special exposures (PSEs)*. The annual TEDE limit for adult workers is 5 cSv (rem).

The revised 10 CFR 20.2202 and 10 CFR 20.2203 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 20.2202(a)(1) - a TEDE to any individual to 25 cSv (rem) or more; an eye dose equivalent of 0.75 Sv (75 rem) or more; or a shallow-dose equivalent to the skin or extremities of 2.5 Gy (250 rad) or more. The Commission must be notified immediately of these events.

(2) Category B

10 CFR 20.2202(b)(1) - a TEDE to any individual to 5 cSv (rem) or more; an eye dose equivalent of 0.15 Sv (15 rem) or more; or a shallow-dose equivalent to the skin or extremities of 0.5 Sv (50 rem) or more in a 24-hour period. The Commission must be notified within 24 hours of these events.

*See 10 CFR 20.1206, 20.2204 and Regulatory Guide 8.35 for more information on PSEs and their reporting requirements.

(3) **Category C**

10 CFR 20.2203 - In addition to the notification required by 20.2202 (category A and B occurrences), each licensee must submit a written report within 30 days after learning of any of the following occurrences: (1) Any incident for which notification is required by 20.2202; or (2) Doses that exceed the limits in 20.1201, 20.1207, 20.1208, 20.1301 (for adults, minors, the embryo/fetus of a declared pregnant worker, and the public, respectively), or any applicable limit in the license; or (3) Levels of radiation or concentrations of radioactive material that exceed any applicable license limit for restricted areas or that, for unrestricted areas, are in excess of 10 times any applicable limit set forth in this part or in the license (whether or not involving exposure of any individual in excess of the limits in 20.1301); or (4) For licensees subject to the provisions of the Environmental Protection Agency's generally applicable environmental radiation standards in 40 CFR 190, levels of radiation or releases of radioactive material in excess of those standards, or of license conditions related to those standards.

6.2 Limitations of the Data

It is important to note that this summary of events includes *only*:

- Occupational radiation exposures in excess of regulatory limits
- Events at NRC-licensed facilities
- Final dose of record assigned to an individual

It *does not* include:

- Medical misadministrations to medical patients
- Exposures in excess of regulatory limits to the general public
- Agreement State-licensed activities
- Other radiation-related violations, such as high dose rate areas or effluent limits
- Exposures to dosimeters that, upon evaluation, have been determined to be high dosimeter readings only and are not assigned to an individual as the dose of record by the NRC

Care should be taken when comparing the summary information presented here with other reports and analyses published by the NRC or other agencies. Various reports may include other types of "overexposure" events; therefore, the distinctions should be noted.

The analysis and summary of incidents presented here involving exposures in excess of regulatory limits represent the status of events as of the publication of this report. Exposure events of this type typically undergo a long review and evaluation process by the licensee, the NRC inspector for the regional office, and NRC headquarters. Preliminary dose estimates submitted by licensees are often conservatively high and do not represent the final (record) dose assigned for the event. It is therefore not uncommon for an "overexposure" event to be reassessed and the final assigned dose to be categorized as not having been in excess of the regulatory limits. In other cases, the exposure may not be identified until a later date, such as during the next scheduled audit or inspection of the licensee's exposure records.

For these reasons, an attempt is made to keep current the exposure events summary presented here. An event that has been reassessed and determined not to be an exposure in excess of the limits is not included in this report. In addition, events that occurred in prior years are added to the summary in the appropriate year of occurrence. The reader should note that the summary presented here represents a "snapshot" of the status of events as of the publication date of this report. Previous or future reports may not correlate in the exact number of events because of the review cycle and reassessment of the events.

6.3 Summary of Exposures in Excess of Regulatory Limits

Table 6.1 summarizes the occupational exposures in excess of regulatory limits as reported by Commission licensees pursuant to 10 CFR 20.2202 and 10 CFR 20.2203 from 1994 to 1995. Table 6.2 shows the data reported under 10 CFR 20.403 and 10 CFR 20.405 for the period 1985-1993. Note that the categorization criteria changed effective with the revised 10 CFR 20. The dose reporting thresholds have been revised — the skin of the whole body and the extremities now have the same dose limits, and a new set of dose limits has been added for the lens of the eye.

For the period 1990-1993, Table 6.2 shows the number of individuals who exceeded various limits while employed by one of several types of licensees. For the period 1985-1989, 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 1995, three workers received doses that exceeded the regulatory limit. There were no occurrences in which individuals received an exposure of the magnitude described previously as "Category A." One "Category B" occurrence was reported.

The incident involved an individual working at a multi-location radiography licensee that received 5.100 cSv (rem) during 1995. The worker received 2.670 cSv (rem) during the first half of the year, causing the licensee to begin corrective measures. The licensee counseled the worker concerning reducing his exposure, but the individual stated that personal problems

had distracted him. During the third quarter the licensee limited the individual's work activities, but by the end of the year the individual exceeded the 5 cSv (rem) TEDE annual limit. The NRC regional office was notified via telephone and a written report was submitted as required.

Two exposures to the skin in excess of the annual limit of 50 cSv (rem) were reported in 1995. Both of these exposures were because of "hot particles," which are small pieces of radioactive material that can cause high doses to a localized area of the skin of the exposed worker. Both of the exposures occurred at the same licensee, which is a manufacturer and distributor of radionuclides (Type A - Broad, see Section 3.3.2). The exposures were from Iridium-192. One individual received an estimated absorbed dose to the skin of 230 rads in March 1995, and the other received 342 rem to the skin in September. After the first incident, the NRC issued a Notice of Violation. Upon the second event the licensee suspended all operations involving Ir-192 and the NRC began conducting a review of the licensee's hot particle procedures.

6.4 Maximum Exposures Below the NRC Limits

Because few exposures exceed the NRC occupational exposure limits, certain researchers have expressed an interest in a listing of the maximum exposures received at NRC licensees that do not exceed the limits. This would allow an examination of exposures that approach, but do not exceed the limits. Table 6.3 shows the maximum exposures for each dose category required to be reported to the NRC. In addition, the number of exposures in certain dose ranges is shown to reflect the number of exposures that approach the NRC limits.

**TABLE 6.1
OCCUPATIONAL EXPOSURES IN EXCESS OF REGULATORY LIMITS
1984 - 1995**

YEAR	LICENSE CATEGORY	PERSONS AND DOSES (REM)	TYPES OF EXPOSURES AND DOSES								
			TEDE (cSv or rem)			Lens of the Eye (cSv or rem)			Skin/Extremity (cSv or rem)		
			<5	5-25	>25	<15	15-75	>75	<50	50-250	>250 rad
1985	INDUSTRIAL	NO. OF PERSONS		1							
	RADIOGRAPHY	SUM OF DOSES		5.1							
	POWER REACTORS	NO. OF PERSONS SUM OF DOSES									
	MEDICAL FACILITIES	NO. OF PERSONS SUM OF DOSES									
	MARKETING & MANUFACT.	NO. OF PERSONS SUM OF DOSES							2 ^a	572	
OTHER	NO. OF PERSONS SUM OF DOSES										
1994	INDUSTRIAL	NO. OF PERSONS		2							
	RADIOGRAPHY	SUM OF DOSES		122							
	POWER REACTORS	NO. OF PERSONS SUM OF DOSES						1	34		
	MEDICAL FACILITIES	NO. OF PERSONS SUM OF DOSES									
	MARKETING & MANUFACT.	NO. OF PERSONS SUM OF DOSES							1 ^b	180	
OTHER	NO. OF PERSONS SUM OF DOSES										

^a These two exposures (230 cSv and 342 cSv) were the result of hot particles.

^b This exposure was from a hot particle to a localized area of the skin.

**TABLE 6.2
OCCUPATIONAL EXPOSURES IN EXCESS OF REGULATORY LIMITS
1985 - 1993**

YEAR	LICENSE CATEGORY	PERSONS AND DOSES (REM)	TYPES OF EXPOSURES AND DOSES								
			WHOLE BODY (REM)			SKIN (REMS)			EXTREMITY (REMS)		
			(^a)	(3-25)	(25)	(7.5-30)	(30-60)	(>150)	(18.75-75)	(75-375)	(>375)
1993	INDUSTRIAL RADIOGRAPHY	NO. OF PERSONS SUM OF DOSES		1 8							
	POWER REACTORS	NO. OF PERSONS SUM OF DOSES									
	MEDICAL FACILITIES	NO. OF PERSONS SUM OF DOSES	1 1.3					3 ^b 187.3			
	MARKETING & MANUFACT.	NO. OF PERSONS SUM OF DOSES	6 10.6								
	OTHER	NO. OF PERSONS SUM OF DOSES	2 ^c 4.0	1 ^d 5.4						1 275	
1992	INDUSTRIAL RADIOGRAPHY	NO. OF PERSONS SUM OF DOSES									1 300-1000
	POWER REACTORS	NO. OF PERSONS SUM OF DOSES	1 1.9			4 57.7					
	MEDICAL FACILITIES	NO. OF PERSONS SUM OF DOSES						4 143.8	1 272		
	MARKETING & MANUFACT.	NO. OF PERSONS SUM OF DOSES									
	OTHER	NO. OF PERSONS SUM OF DOSES	1 ^e 1.9			1 24.1			1 40.5		
1991	INDUSTRIAL RADIOGRAPHY	NO. OF PERSONS SUM OF DOSES	2 5.8								
	POWER REACTORS	NO. OF PERSONS SUM OF DOSES									
	MEDICAL FACILITIES	NO. OF PERSONS SUM OF DOSES	2 3.8								
	MARKETING & MANUFACT.	NO. OF PERSONS SUM OF DOSES							1 22.3		
	OTHER	NO. OF PERSONS SUM OF DOSES	1 2.4								
1990	INDUSTRIAL RADIOGRAPHY	NO. OF PERSONS SUM OF DOSES	3 7.2	3 ^f 49.9				1 ^g 6000		1 111	2 ^h 3882
	POWER REACTORS	NO. OF PERSONS SUM OF DOSES							1 46.8		
	MEDICAL FACILITIES	NO. OF PERSONS SUM OF DOSES	3 ^b 8.9								
	MARKETING & MANUFACT.	NO. OF PERSONS SUM OF DOSES									
	OTHER	NO. OF PERSONS SUM OF DOSES	1 2.3								
1989	INDUSTRIAL RADIOGRAPHY	NO. OF PERSONS SUM OF DOSES	3 6.1		1 83				1 72		
	ALL OTHER	NO. OF PERSONS SUM OF DOSES	4 6.6			1 9.2			2 105	1 178	
1988	INDUSTRIAL RADIOGRAPHY	NO. OF PERSONS SUM OF DOSES	3 6.1	1 6.1						1 118	
	ALL OTHER	NO. OF PERSONS SUM OF DOSES	7 19.94			4 66.8	1 61	1 275	1 58	1 127	
1987	INDUSTRIAL RADIOGRAPHY	NO. OF PERSONS SUM OF DOSES	1 3.1							1 180	
	ALL OTHER	NO. OF PERSONS SUM OF DOSES	2 2.8	1 7.5		5 128.4			3 72.9	1 850	
1986	INDUSTRIAL RADIOGRAPHY	NO. OF PERSONS SUM OF DOSES	2 4.4								
	ALL OTHER	NO. OF PERSONS SUM OF DOSES	3 9.5						1 41.2	1 135	2 830
1985	INDUSTRIAL RADIOGRAPHY	NO. OF PERSONS SUM OF DOSES	6 16.7	3 32.6	1 27.0					1 265	
	ALL OTHER	NO. OF PERSONS SUM OF DOSES	7 11.8						3 60.2	1 93	

^a Same individual exceeded 1.25 rem/yr limit twice during 1993.

^b This 1992 exposure was reported in 1994.

^c This individual received a whole-body dose of 24 rem in addition to a 6000 rem extremity dose.

^d One of these individuals received a 9 rem whole-body dose in addition to a 1070 rem extremity dose.

^e One of these individuals exceeded the quarterly whole-body dose limits three times in one calendar year.

^f An additional 1993 exposure was reported in 1994.

**TABLE 6.3
MAXIMUM OCCUPATIONAL EXPOSURES FOR EACH EXPOSURE CATEGORY
1995**

Exposure Category	Maximum Exposure Reported cSv (rem)	Max Dose Percent of the Limit	Number of Individuals with Measurable Dose	Number of Individuals > 25% of the Limit	Number of Individuals > 50% of the Limit	Number of Individuals > 75% of the Limit	Number of Individuals > 85% of the Limit
SDE-ME	41.960	84%	61,245	112	18	2	0
SDE-WB	22.710	45%	75,957	1	0	0	0
LDE	4.232	26%	73,311	37	0	0	0
CEDE	3.315**		2,495				
CDE	28.805**		1,685				
DDE	5.1*		76,822				
TEDE	5.1*	> limit	76,822	3,539	500	40	1 (>limit)
TODE	29.065**	58%	76,822	163	3	0	0

*These doses were received by the same individual

**These internal doses were received by the same individual

Shaded boxes represent dose categories that do not have specific dose limits defined in 10 CFR 20.

As can be seen from Table 6.3, few exposures exceed half of the NRC occupational annual limits. Only the extremity and TEDE doses exceed 50%. The only dose to come within 5% of the limit was the one exposure that exceeded the limit.

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APPENDIX A

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

1995

**APPENDIX A
ANNUAL WHOLE BODY DOSES FOR NON-REACTOR NRC LICENSEES
CY 1985**

NUREG-0713

A-2

PROGRAM CODE - LICENSEE NAME	LICENSE#	Number of Individuals with Whole Body Doses in the Ranges (cSv or rem)												TOTAL NUMBER MONI- TORED	NUMBER WITH MEAS. DOSE	TOTAL COLLECTIVE TEDE (person- cSv, rem)	AVERAGE MEAS. TEDE (cSv, rem)	
		No Meas. Exposure	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- 10.00	10.00- 20.00					
NUCLEAR PHARMACIES - 02500																		
CAPITAL PHARMACY INC.	21-28587-01MD	9	2												11	2	0.120	0.06
MALLINCKRODT INCORPORATED	24-04206-08MD		9	4											13	13	1.122	0.09
MALLINCKRODT MEDICAL, INC.	24-04208-01MD	8	6	2	1										14	9	0.740	0.08
MALLINCKRODT MEDICAL, INC.	24-04208-12MD	1	6	1		1									9	6	1.060	0.13
MALLINCKRODT MEDICAL, INC.	24-04208-13MD	2	8	4	1										16	14	2.420	0.17
MALLINCKRODT MEDICAL, INC.	24-04208-14MD	9	5	5	1										14	11	1.270	0.12
MALLINCKRODT MEDICAL, INC.	24-04208-15MD	2	5		3	1									11	9	1.670	0.19
MALLINCKRODT MEDICAL, INC.	24-04208-17MD		2												3	3	0.240	0.08
MALLINCKRODT MEDICAL, INC.	24-04208-19MD	2	7	3	1										14	11	1.270	0.12
MID-AMERICA ISOTOPES, INC.	24-28241-01	13	9												22	9	0.110	0.01
NORTHERN VIRGINIA ISOTOPES, INC.	45-25221-01MD	8	4												12	4	0.120	0.03
OKLAHOMA, UNIVERSITY OF	35-03178-04MD	13	24	2	2										41	28	1.470	0.05
PHARMALOGIC LTD.	44-30124-01MD	9	1	1											11	2	0.160	0.08
SPECTRUM PHARMACY INC.	19-28387-01	3	21	3	1	2									31	28	3.590	0.13
SYNCR CORPORATION	34-18854-01MD	108	49	7	4	1									168	60	4.220	0.07
Total	15	179	187	33	14	6	1								390	211	19.582	0.09
MANUFACTURING AND DISTRIBUTION - TYPE A BROAD - 03211																		
ABB INDUSTRIAL SYSTEMS INC.	34-00255-03	2	1												3	1	0.010	0.01
ADVANCED MEDICAL SYS., INC.	34-19089-01	36	4	1	1										38	8	1.827	0.23
AMERSHAM CORPORATION	20-12338-01	20	10	7	5	2									54	34	13.840	0.41
DU PONT MERCK PHARM. CO.	20-28596-01	238	228	89	47	23	30	55	21	10	1				780	482	237.920	0.49
E. I. DU PONT DE NEMOURS & CO., INC	20-00320-21		4	10	1										15	15	2.480	0.16
E. R. SQUIBB & SONS, INC.	29-00199-02	369	106	18	6	4									602	133	11.410	0.09
MALLINCKRODT, INC.	24-04206-01	86	49	20	18	23	10	52	38	22	2				324	236	288.465	1.23
Total	7	107	400	129	78	59	42	133	59	32	3				2,016	908	656.832	0.81

**APPENDIX A
ANNUAL WHOLE BODY DOSES FOR NON-REACTOR NRC LICENSEES
CY 1995**

PROGRAM CODE - LICENSEE NAME	LICENSE#	Number of Individuals with Whole Body Doses in the Ranges (cSv or rem)											TOTAL NUMBER MONI- TORED	NUMBER WITH MEAS. DOSE	TOTAL COLLECTIVE TEDE (person- cSv, rem)	AVERAGE MEAS. TEDE (cSv, rem)	
		No Meas. Exposure	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- >(20)
MANUFACTURING AND DISTRIBUTION - TYPE B BROAD - 03212																	
BEST INDUSTRIES, INC.	45-16757-01	30	10	4	5	1								50	20	3.329	0.17
FRONTIER TECHNOLOGY CORP.	SNM-1957	1	5	2	1		2							11	10	2.775	0.28
Total	2	31	15	6	6	1	2							61	30	6.104	0.20
MANUFACTURING AND DISTRIBUTION - OTHER - 03214																	
BERTHOLD SYSTEMS, INC.	37-21226-01	8	11	1	1									22	14	2.140	0.15
CERBERUS TECHNOLOGIES, INC.	29-06864-03	1												1			
CIS-US, INC.	20-20973-01	8	11	3	2		1	2						27	19	5.310	0.28
ELIAS USA, INC.	45-26355-01	1												1			
HALLIBURTON CO.	39-00502-03			2										2	2	0.230	0.12
HERLEY-MEI	20-13279-01	8	1											10	1	0.010	0.01
INTEGRATED INDUSTRIAL SYS., INC.	09-21253-01	17	4											21	4	0.050	0.01
LIFECODES CORPORATION	06-25766-01	13	3											16	3	0.040	0.01
RTS TECHNOLOGY, INC.	20-27966-01	2	3	1										6	4	0.340	0.08
SANT-GOBAINNORTON	34-08558-05	50	9											59	9	0.200	0.02
SEAMAN NUCLEAR CORPORATION	45-12016-01			1	1	1	1	1						6	6	3.360	0.67
THERATRONICS INTERNATIONAL LTD	64-28316-01	18	8	2	1									29	11	0.860	0.08
Total	12	127	50	18	5	1	2	4						199	72	12.540	0.17
LOW LEVEL WASTE DISPOSAL FACILITIES - 03231																	
CHEMNUCLEAR SYSTEMS, INC.	12-13538-01	153	21	7	7	4	2							193	40	7.224	0.18
U. S. ECOLOGY, INC.	16-19204-01	3	11	5										19	16	1.243	0.08
Total	2	156	32	12	7	4	2							212	56	8.467	0.15

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APPENDIX A
ANNUAL WHOLE BODY DOSES FOR NON-REACTOR NRC LICENSEES
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PROGRAM CODE - LICENSEE NAME	LICENSE#	Number of Individuals with Whole Body Doses in the Ranges (cSv or rem)											TOTAL NUMBER MONI- TORED	NUMBER WITH MEAS. DOSE	TOTAL COLLECTIVE TEDE (person- cSv, rem)	AVERAGE MEAS. TEDE (cSv, rem)	
		No Meas. Exposure	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- 12.00
INDUSTRIAL RADIOGRAPHY - SINGLE LOCATION - 03310																	
ARMY, DEPARTMENT OF THE	13-18235-01	35	8											43	8	0.114	0.01
ARROW TANK & ENGINEERING CO.	22-13253-01			1										1	1	0.100	0.10
ATLANTIC RESEARCH CORP	45-02808-04	5	1											6	1	0.020	0.02
BABCOCK & WILCOX COMPANY	34-02180-03	13	4											17	4	0.040	0.01
BUCKEYE STEEL CASTINGS	34-08827-01	2												2	-	-	-
CARONDELET FOUNDRY COMPANY	24-26138-01	5	4											9	4	0.130	0.03
CONNEX PIPE SYSTEMS INC	45-28591-01	1	4											5	4	0.014	-
DURALOY	37-02278-02		2	1	1									4	4	0.470	0.12
DURIRON CO., INC., (THE)	34-08388-01	1	1	1										3	2	0.220	0.11
EMPIRE STEEL CASTINGS, INC.	37-02448-01	4												4	-	-	-
GENERAL MOTORS CORP.	21-08578-06	3												3	-	-	-
GENERAL MOTORS CORPORATION	34-15315-02	17												17	-	-	-
GM POWERTRAIN	21-02382-01	5												5	-	-	-
GREDE-PRYOR, INC.	35-18099-01	2												2	-	-	-
HARRISON STEEL CASTINGS CO	13-02141-01	4	2											6	2	0.100	0.05
INGERSOLL-RAND CO.	29-02015-02	2												2	-	-	-
LUCIUS PITKIN, INC.	29-27816-01	2	3	2	3									10	8	1.356	0.17
LYNCHBURG FOUNDRY COMPANY	45-17484-01	8	2											10	2	0.020	0.01
MANOR - ELECTRO ALLOYS, INC.	34-24348-01	5	3	2		1								11	6	0.960	0.16
MINNESOTA VALLEY ENGINEERING	22-24393-01	1	1	3	2									7	6	1.190	0.20
MISSOURI STEEL CASTINGS	24-15192-01	3												5	-	-	-
NILES STEEL TANK CO.	21-04741-01		1											1	1	0.020	0.02
FELTON CASTEEL, INC.	45-02888-02	2	1											3	1	0.020	0.02
THE WILLIAM POWELL COMPANY	34-02983-01	3												3	-	-	-
TRANS WORLD AIRLINES, INC.	24-05151-06	95												96	-	-	-
WALKESHA FOUNDRY DIVISION	45-13778-01	3	1											4	1	0.040	0.04
WISCONSIN CENTRIFUGAL, INC.	45-11841-01	1	1	2	2	1								7	6	1.650	0.28
Total	27	224	39	12	5	2								285	81	6.463	0.11

**APPENDIX A
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PROGRAM CODE - LICENSEE NAME	LICENSE#	Number of Individuals with Whole Body Doses in the Ranges (cSv or rem)													TOTAL NUMBER MONI- TORED	NUMBER WITH MEAS. DOSE	TOTAL COLLECTIVE TEDE (person- cSv, rem)	AVERAGE MEAS. TEDE (cSv, rem)
		No. Meas. Exposure	Less <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- 12.0	>12.0				
INDUSTRIAL RADIOGRAPHY - MULTIPLE LOCATION - 03320																		
ABC TESTING, INC.	20-19775-01		3	1	2										6	6	1.000	0.17
ACCU-TECH EVAL. SERVICES, INC	20-28358-01	9	10	2	3	1	1								28	17	3.400	0.20
AKRON INDUSTRIAL SERV., INC.	34-24873-01				1			1							2	2	1.610	0.81
ALASKA INDUSTRIAL X-RAY	50-16084-01	1		1	1	2	1	1	1						9	8	7.280	0.91
ALLEGHENY LABORATORIES	37-20794-01		2												2	2	0.090	0.05
ALONSO & CARUS IRON WORKS, INC.	62-21350-01	1	6												7	6	0.254	0.04
AMERICAN AIRLINES, INC.	35-13984-01	20	6	1											27	7	0.280	0.04
AMERICAN FOUNDRY GROUP, INC.	35-28893-01	9													3		-	-
ANVL CORPORATION	46-23236-03	11	8	6	9	10	2	3							48	37	15.220	0.41
ARMY, DEPARTMENT OF THE	30-02405-05	2													2		-	-
ASTROTECH, INC.	37-09926-01	3	7	1	1	1									13	10	1.280	0.13
BAKER TESTING SERV., INC.	20-19097-01	9	3	1	2	1									18	7	1.690	0.24
BARNETT INDUSTRIAL X-RAY	35-28953-01		3	4	5	1	1	2							18	16	6.320	0.40
BILL MILLER, INC.	35-19046-01	3	6	10	11	5									33	30	7.390	0.25
BRANCH RADIOGRAPHIC LABS, INC.	29-03405-02	3	5	4	1	2	2								17	14	4.380	0.31
BRAUN INTERTEC CORPORATION	22-16597-02	4	11	3	4	4		1							27	23	5.590	0.24
CALUMET TESTING SERV., INC.	13-16347-01	11	3	1	1	2	4	4							27	18	17.480	1.09
CAPITAL X-RAY SERV., INC.	35-11114-01				9	1	4	4	5						24	24	34.820	1.45
CENTERON SERVICE COMPANY	34-29406-01	2	3	1	1										7	5	0.561	0.11
CENTURY INSPECTION, INC.	42-06459-02	12	14	17	23	15	15	3	2						106	94	60.350	0.54
CERTIFIED TESTING LABS, INC.	29-14150-01		3	2				1							6	6	1.838	0.31
CHICAGO BRIDGE AND IRON CO	42-13553-02	31	30	5	6	8	2	8							80	49	12.220	0.25
COLBY & THIELMEIER TESTING CO.	24-13797-01		1		1	1	1	4							8	6	7.550	0.94
COMO TECH INSPECTION	15-28978-01	23	1	1	4	1	1								10	8	2.909	0.36
CONAM INSPECTION	12-16559-01	42	34	30	27	15	10	11	6	1					176	134	87.617	0.50
CONNELL LIMITED PARTNERSHIP	35-43735-01	1				1									2	1	0.590	0.59
CONSUMERS POWER CO.	21-06906-03	6	5	5	1	1									18	12	2.057	0.17
CRAMER & LINDSELL ENGINEERS, INC.	08-20794-01	6	10	6	5										27	21	3.080	0.15
CJT, INC.	50-19202-01	29	20	25	31	16	12	7	2						142	113	49.612	0.44
CURTIS INSPECTION SERVICES, INC.	35-27436-01	6	11	6	7	2									32	28	4.745	0.18

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APPENDIX A
ANNUAL WHOLE BODY DOSES FOR NON-REACTOR NRC LICENSEES
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PROGRAM CODE - LICENSEE NAME	LICENSE#	Number of Individuals with Whole Body Doses in the Ranges (cSv or rem)											TOTAL NUMBER MONI- TORED	NUMBER WITH MEAS. DOSE	TOTAL COLLECTIVE TEDE (person- cSv, rem)	AVERAGE MEAS. TEDE (cSv, rem)		
		No Meas. Exposure	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- >12.0	
INDUSTRIAL RADIOGRAPHY - MULTIPLE LOCATION - 03320 Continued																		
DAYTON X-RAY CO.	34-06949-01	2	2	4	7	4	2	4							26	23	11.710	0.51
DIAMOND H TESTING COMPANY	11-27319-01	2	2	4	3		2	5							18	18	9.836	0.61
EASTERN TESTING & INSPECTION, INC.	29-09814-01	5	1	3	1	3	1	2							16	11	5.810	0.53
EDWARDS PIPELINE TESTING, INC.	35-23193-01	2	21	24	39	25	20	17							148	146	74.546	0.51
EG & G FLORIDA, INC., SOC-005	09-21233-01	29	8												37	8	0.190	0.02
FROELING & ROBERTSON, INC.	45-08890-01	5	7	1	2										16	10	1.220	0.12
GENERAL DYNAMICS CORP	08-01761-08		23	16	4										43	43	4.891	0.11
GLITSCH FIELD SERVICES/INDE/INC.	34-14071-01	2	18	9	6	3	2	2							40	38	10.260	0.27
GLOBE X-RAY SERV., INC.	35-15194-01	4	1	1	5	4	2	4	4	3	1	1			30	26	40.770	1.57
GREAT LAKES TESTING, INC.	48-26484-01		1	3	2			3							9	9	5.742	0.64
GRINNELL CORPORATION	38-26730-01	3	3	1	1										8	6	0.520	0.10
H&G INSPECTION COMPANY, INC.	42-28538-01	1		3	2	1	1	3	2						16	16	16.280	1.09
H. R. INSPECTION SERV., INC.	16-06209-01	2	1	2	2			4							11	9	7.590	0.84
HIGH MOUNTAIN INSP. SERV. INC.	49-26608-02	2	2	3	2										9	7	1.390	0.20
HUNTINGDON ENGINEERING	22-01378-02	5	4	5	2	1	2	3	2						27	22	16.450	0.75
HUNTINGTON TESTING & TECH	47-23076-01	1	2	7	8	3	2	5	5						36	35	31.100	0.89
HUTCHINSON TECHNICAL COLLEGE	22-15554-01	117	6	1											124	7	0.240	0.03
INDUSTRIAL NOT CO., INC.	38-24868-01	1	3	2	3	1	1	2	2						15	14	10.370	0.74
INDUSTRIAL NOT SERVICES DIVISION	13-08147-04	1	7	2	1	1		2							14	13	3.520	0.27
INSPECTION MANAGEMENT CORP	35-26624-01	1	3	2	1	1		2	2	1					14	13	20.860	1.60
INTERMOUNTAIN TESTING CO.	05-07672-01		3	2	5	3	4	6	5						28	28	28.361	1.01
JAN X-RAY SERVICES, INC.	21-18560-01		3	6	10	8	8	9	1	1					46	46	36.500	0.79
MAGNA CHEK, INC.	21-19111-02	2	5	1											8	6	0.220	0.04
MARYLAND Q.C. LABORATORIES, INC.	19-28853-01	5	2	2	2	2		3							18	11	5.880	0.53
MASSACHUSETTS MATERIALS RES.	07-01173-03	2	2	1	2	1		1							9	7	3.220	0.46
MATERIAL TESTING LABS, INC.	45-17191-01	7	3	1	2			1							14	7	2.790	0.40
MATTINGLY TESTING SERVICES, INC.	25-21479-01		5		3	1	1	1							11	11	4.205	0.38
NET-CHEM TESTING LABS, INC.	43-27382-01	5	4	1	4	4		2	2	1					23	18	15.314	0.85
MID AMERICAN INSP. SERV, INC	21-26080-01				1	2	3	3	2						11	11	13.870	1.26
MIDWEST INDUSTRIAL X-RAY, INC.	33-27427-01	3	1		1	2	1	4	3						15	12	14.890	1.24

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PROGRAM CODE - LICENSEE NAME	LICENSE#	Number of Individuals with Whole Body Doses in the Range (cSv or rem)											TOTAL NUMBER MONI- TORED	NUMBER WITH MEAS. DOSE	TOTAL COLLECTIVE TEDE (person- cSv, rem)	AVERAGE MEAS. TEDE (cSv, rem)			
		No Meas. Exposure	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- 12.00	>12.00	
INDUSTRIAL RADIOGRAPHY - MULTIPLE LOCATION - 03320 Continued																			
MIDWEST INSPECTION SERVICES	35-27005-01	2	2	2		2	1	10	6	2						27	25	39.980	1.60
MONTANA X-RAY, INC.	25-21134-01			1		1	1									3	3	1.700	0.57
MQS INSPECTION, INC.	12-00822-07	90	79	39	35	19	17	31	6	1						316	226	106.860	0.47
NDE SERVICES, INC.	11-29082-01		2			1										3	3	0.584	0.19
NDT SERVICES, INC.	52-19435-01	8	7	8	1	2	3	2								24	18	7.830	0.42
NDT SPECIALISTS, INC.	48-25917-01					1										1	1	0.520	0.52
NEWPORT NEWS SHIPBUILDING	45-09425-02	2	29	7	9											47	45	5.634	0.13
NON-DESTRUCTIVE TESTING CORP.	28-19742-01	4	5	1	1	2										13	9	1.570	0.17
NOOTER CORPORATION	24-03763-01	4	10	4												18	14	0.880	0.08
NORFOLK SHIPBUILDING & DRYDOCK CO.	46-12042-01	8	3	1		1										13	5	0.760	0.16
NORTH AMERICAN INSPECTION, INC.	37-23370-01	1	6	7	5	7		8	6							40	39	33.150	0.85
NORTHWEST INSP. & TESTING SERV. INC	11-27394-01		1				1									2	2	0.877	0.47
PENN INSPECTION CO.	35-21144-01		1	4	2	6	4	6								22	22	15.831	0.72
PITT-DES MOINES, INC.	37-27878-01	11	7	3	3	2	1	2								29	18	6.910	0.38
PRECISION COMPONENTS CORP.	37-16280-01	43	14	3	2											62	19	1.500	0.08
PROFESSIONAL SERVICE INDUSTRIES	12-16941-03	2	6	4	1	1	3	10	4	2						33	31	35.450	1.14
PROFESSIONAL WELDING ASSOC. INC.	48-25606-01	4														4			
PROGRESS SERV., INC.	34-18592-01	4	3	1	1											9	5	0.460	0.09
PSI ENERGY, INC.	13-15544-08	1	3	1												5	4	0.320	0.08
QSL INSPECTION, INC.	37-28085-01	6	6	8	4	1	2	9	7	1						44	38	40.100	1.06
QUALITY ENERGY SERV. & TESTS CORP.	35-28915-01	4		2		1		2	5	1						15	11	18.712	1.70
QUALITY INSPECTION & TESTING	50-29038-01		2	2				1	1							6	6	3.810	0.84
RAYTHEON ENGINEERS & CONST.	29-07056-03		2	1	1	3	1	1								9	9	6.030	0.66
S. K. MCBRYDE, INC.	32-25137-01	2		3	1											6	4	0.790	0.20
SAM-SON INSPECTION & TECH. SERV. INC.	34-25966-01	3	2	5	3	2	1	4								20	17	9.880	0.58
SENIOR ENGINEERING CO.	24-18500-01	4														4			
SIERRA TESTING, INC.	35-26960-01	1	1	3	3		1		4	5						18	17	28.744	1.69
SOUTHWEST X-RAY CORPORATION	49-27434-01	7	2			1	1	4	2	1						18	11	16.900	1.54
SPEC CONSULTANTS, INC.	37-27891-01	10	6	6	1	1		3								27	17	5.900	0.35
ST. LOUIS TESTING LABS., INC.	24-00188-02	1	4	1	3	3		2	1							15	14	8.320	0.59

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		No Meas. Equivalent	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					>(2.0)
INDUSTRIAL RADIOGRAPHY - MULTIPLE LOCATION - 03320																	
TENNECO GAS PIPELINE COMPANY	42-09073-02	8	10											15	10	0.175	0.02
TENNESSEE VALLEY AUTHORITY	41-06832-05	7	6	6	4	1	2							26	19	5.103	0.27
TESTING TECHNOLOGIES, INC.	45-25007-01	1	5	1	3	2	2	1						15	14	6.190	0.44
TESTMASTER INSPECTION CO., INC.	34-24672-01		2	1	5	4	1	4	1					18	18	12.975	0.72
TRI STATE ASSOCIATES, INC.	45-24887-01	2	1		1		1							5	3	1.140	0.38
TRI STATE INSPECTION & CONSULT.	37-19840-01	1		1				1						3	2	1.555	0.78
TULSA GAMMA RAY, INC.	35-17178-01	3	4	8	6	3	1	7	10					42	39	39.560	1.01
TWIN PORTS TESTING, INC.	48-23478-01	14	5	3	2	2		4						30	18	7.610	0.48
UNITED STATES TESTING CO., INC.	41-25235-01	35	48	23	25	22	5	13	3	1				175	140	60.902	0.44
VALLEY INDUSTRIAL X-RAY	04-29079-01		9	4	4	2	4	7	3					33	33	23.770	0.72
VALLEY INSPECTION SERVICE, INC.	37-28385-01	2	3					2						7	5	2.820	0.56
VENEGAS INDUSTRIAL TESTING	28-14547-02		1		1									2	2	0.360	0.18
VERMONT NONDESTRUCT. TESTING INC.	44-26509-01	4	1											5	1	0.010	0.01
VOITH HYDRO, INC.	37-18280-03	11	1											12	1	0.010	0.01
WALASHEK ENTERPRISES, INC.	53-23225-01	1	4											5	4	0.110	0.03
WESTERN IND. X-RAY INSPECTION CO.	49-27358-01		3	1										4	4	0.295	0.07
WESTERN STRESS, INC.	42-28900-01	11												11			
WESTERN STRESS, INC.	45-27518-01	2	2		2	1	1		1					9	7	4.800	0.69
WESTERN X-RAY COMPANY	35-19883-01			1	2	1	2	10						16	16	18.470	1.15
WISCONSIN INDUSTRIAL TESTING, INC.	48-17460-01	5	20	12	11	6	4	10	1					69	64	29.680	0.46
X-R-I TESTING	21-05472-01	35	18	4	2				1					110	25	3.680	0.15
X-RAY, INC.	48-03414-03	8	11	1	4	2		1						24	19	4.880	0.26
Total	112	641	703	417	425	255	163	802	110	26	2	1	3,245	2,404	1,331.557	0.55	

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		No Meas. Exposure	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- 8.00					8.00- 12.00	
FUEL FABRICATION FACILITIES - 21210																		
B&W FUEL CO.	SNM-1188	162	64	24	18	4	3	8							280	118	22.904	0.19
BABCOCK AND WILCOX CO., NAVAL	SNM-0042	39	66	37	88	31	17	41	3	1					323	284	141.939	0.50
CONDUCTION ENGINEERING, INC.	ENM-0033	29	48	29	28	23	19	64	11						248	219	167.167	0.78
GENERAL ATOMCS	SNM-0886	106	18	12	4										140	94	3.760	0.11
GENERAL ELECTRIC CO.	ENM-1097	270	42	136	133	34	53	34	13						1,245	975	399.651	0.36
NUCLEAR FUEL SERVICES INC.	ENM-0124	192	166	12	18	8									392	200	15.186	0.08
SIEMENS POWER CORP.	SNM-1227	188	329	102	48	40	38	27							770	582	131.694	0.23
WESTINGHOUSE ELECTRIC CORP.	SNM-1107	161	163	37	59	44	32	36	45	8					708	547	394.780	0.69
Total	8	1147	1316	489	392	232	160	328	72	10				4,106	2,959	1,217.280	0.41	
FRESH FUEL STORAGE AT REACTOR SITES - 23100																		
GENERAL ELECTRIC CO.	SNM-2500	68	14	6	9	3	8	4	6	1					104	49	60.720	1.04
Total	1	68	14	6	9	3	8	4	6	1				104	49	60.720	1.04	

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APPENDIX B
Annual Whole Body Doses at Licensed Nuclear Power Facilities
1996

APPENDIX B
ANNUAL WHOLE BODY DOSES AT LICENSED NUCLEAR POWER FACILITIES
CY 1985

PLANT NAME	TYPE	Number of Individuals with Whole Body Doses in the Ranges (cSv or rem)														TOTAL NUMBER MONITORED	NUMBER WITH MEAS. DOSE	TOTAL COLLECTIVE DOSE (person-cSv, rem)
		No Meas. Exposure	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	5.00-8.00	8.00-7.00	7.00-12.00	>12.0			
ARKANSAS 1,2	PWR	1,437	1,244	632	304	107	39	35	-	-	-	-	-	-	-	3,698	2,258	388
BEAVER VALLEY 1,2	PWR	1,221	494	395	350	183	84	68	1	-	-	-	-	-	-	2,757	1,636	453
BIG ROCK POINT	BWR	124	113	25	34	11	6	18	-	-	-	-	-	-	-	329	205	54
BRAIDWOOD 1,2	PWR	1,224	464	324	235	84	15	12	-	-	-	-	-	-	-	2,358	1,134	238
BROWNS FERRY 1,2,3	BWR	2,400	1,285	677	435	115	23	2	-	-	-	-	-	-	-	4,840	2,540	408
BRUNSMICK 1,2	BWR	1,634	1,237	481	473	207	151	106	-	-	-	-	-	-	-	4,181	2,657	853
BYRON 1,2	PWR	1,349	398	291	203	133	50	34	-	-	-	-	-	-	-	2,458	1,107	308
CALLAWAY 1	PWR	958	624	289	189	50	18	11	-	-	-	-	-	-	-	2,020	1,092	187
CALVERT CLIFFS 1,2	PWR	1,907	988	309	200	79	40	7	-	-	-	-	-	-	-	2,610	1,203	235
CATAWBA 1,2	PWR	1,720	753	493	387	129	73	57	-	-	-	-	-	-	-	3,612	1,892	482
CLINTON	BWR	826	398	307	322	135	29	15	-	-	-	-	-	-	-	2,110	1,182	316
COMANCHE PEAK 1,2	PWR	588	485	238	161	70	22	5	-	-	-	-	-	-	-	1,537	851	179
COOK 1,2	PWR	1,169	678	375	174	58	18	8	-	-	-	-	-	-	-	2,468	1,310	203
COOPER STATION	BWR	1,121	494	280	219	87	24	11	-	-	-	-	-	-	-	2,216	1,095	228
CRYSTAL RIVER 3	PWR	851	195	14	-	-	-	-	-	-	-	-	-	-	-	1,080	208	8
DAVIS-BESSE	PWR	780	240	14	2	-	-	-	-	-	-	-	-	-	-	1,048	258	7
DIABLO CANYON 1,2	PWR	1,739	927	327	222	85	32	42	-	-	-	-	-	-	-	3,354	1,616	288
DRESDEN 2,3	BWR	2,106	867	509	455	281	175	215	-	-	-	-	-	-	-	4,588	2,482	575
DUANE ARNOLD	BWR	787	406	241	211	118	88	57	-	-	-	-	-	-	-	1,978	1,129	367
FARLEY 1,2	PWR	788	572	379	342	123	87	75	3	-	-	-	-	-	-	2,350	1,581	483
FERM 2	BWR	1,440	304	89	19	1	-	-	-	-	-	-	-	-	-	1,830	390	28
FITZPATRICK	BWR	1,188	526	279	210	114	77	41	-	-	-	-	-	-	-	2,437	1,248	327
FORT CALHOUN	PWR	585	258	161	124	62	17	5	-	-	-	-	-	-	-	1,222	627	138
GENA	PWR	873	374	193	109	35	15	12	-	-	-	-	-	-	-	1,611	736	136
GRAND GULF	BWR	1,138	796	339	253	115	58	38	-	-	-	-	-	-	-	2,727	1,589	342
HADDAM NECK	PWR	785	286	183	180	130	91	124	2	-	-	-	-	-	-	1,791	1,006	442
HARRIS	PWR	912	618	223	148	45	16	21	-	-	-	-	-	-	-	1,980	1,058	174
HATCH 1,2	BWR	970	519	314	285	150	78	107	5	-	-	-	-	-	-	2,428	1,458	488
HOPE CREEK 1	BWR	818	608	384	201	82	19	18	1	-	-	-	-	-	-	2,390	1,571	199
INDIAN POINT 2	PWR	850	601	365	327	188	115	80	8	-	-	-	-	-	-	2,540	1,880	548
INDIAN POINT 3	PWR	907	388	188	54	8	2	-	-	-	-	-	-	-	-	1,545	636	67
Kewaunee	PWR	284	146	101	102	34	18	12	-	-	-	-	-	-	-	679	415	109
LASALLE 1,2	BWR	1,185	508	376	343	247	92	57	-	-	-	-	-	-	-	2,618	1,623	512
LIMBRICK 1,2	BWR	2,088	899	344	227	59	32	19	1	-	-	-	-	-	-	3,688	1,581	260
MAINE YANKEE	PWR	659	217	226	248	180	96	102	24	3	-	-	-	-	-	1,828	1,167	653
MOGUIRE 1,2	PWR	2,283	793	338	103	24	3	-	-	-	-	-	-	-	-	3,542	1,258	138
MILLSTONE POINT 1	BWR	565	328	175	164	79	53	96	14	1	-	-	-	-	-	1,505	910	620
MILLSTONE POINT 2,3	PWR	1,105	609	328	305	148	99	175	25	1	-	-	-	-	-	2,796	1,691	418
MONTICELLO	BWR	582	98	53	51	14	-	2	-	-	-	-	-	-	-	792	200	44
NINE MILE POINT 1,2	BWR	1,239	794	540	442	246	112	153	11	-	-	-	-	-	-	3,543	2,304	769

APPENDIX B (Continued)
ANNUAL WHOLE BODY DOSES AT LICENSED NUCLEAR POWER FACILITIES
CY 1995

PLANT NAME	TYPE	Number of Individuals with Whole Body Doses in the Ranges (cSv or rems)														TOTAL NUMBER NON-TOXED	NUMBER WITH MEAS. DOSE	TOTAL COLLECTIVE DOSE (person-cSv, rem)
		No Meas. Exposure	Meas. <0.10	0.10-0.25	0.25-0.5	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			
NORTH ANNA 1,2	PWR	1,373	644	403	297	113	66	37	1	-	-	-	-	-	2,024	1,551	387	
OCONEE 1,2,3	PWR	1,761	706	477	280	74	19	16	4	-	-	-	-	-	3,337	1,556	304	
OYSTER CREEK	BWR	538	472	178	88	15	5	3	-	-	-	-	-	-	1,299	761	90	
PALISADES	PWR	484	403	214	266	140	102	86	7	-	-	-	-	-	1,694	1,230	462	
PALO VERDE 1,2,3	PWR	1,723	824	388	332	181	83	77	-	-	-	-	-	-	3,598	1,875	482	
PEACH BOTTOM 2,3	BWR	1,747	983	437	290	120	62	48	-	-	-	-	-	-	3,687	1,940	395	
PERRY	BWR	1,158	336	184	51	4	-	-	-	-	-	-	-	-	1,748	957	84	
PILGRIM	BWR	853	325	264	277	224	124	60	-	-	-	-	-	-	2,147	1,294	482	
POINT BEACH 1,2	PWR	437	171	120	101	76	39	38	-	-	-	-	-	-	965	540	190	
PRAIRIE ISLAND 1,2	PWR	581	220	119	104	43	12	1	-	-	-	-	-	-	1,080	499	107	
QUAD CITIES 1,2	BWR	1,218	629	498	392	273	145	164	-	-	-	-	-	-	3,254	2,041	736	
RIVER BEND 1	BWR	1,522	414	146	83	14	7	3	-	-	-	-	-	-	2,189	667	85	
ROBINSON 2	PWR	862	492	256	200	75	19	16	-	-	-	-	-	-	1,820	1,056	216	
SALEM 1,2	PWR	622	889	277	163	47	15	14	-	-	-	-	-	-	1,817	1,195	218	
SAN ONOFRE 2,3	PWR	3,304	785	446	379	220	62	22	-	-	-	-	-	-	8,218	1,914	456	
SEABROOK	PWR	1,293	445	243	99	13	-	-	-	-	-	-	-	-	2,093	800	102	
SEQUOYAH 1,2	PWR	1,984	727	406	272	133	46	33	1	-	-	-	-	-	3,302	1,918	356	
SOUTH TEXAS 1,2	PWR	1,711	708	372	248	98	41	18	-	-	-	-	-	-	3,198	1,486	291	
ST. LUCIE 1,2	PWR	1,083	563	366	324	114	65	58	7	-	-	-	-	-	2,581	1,468	413	
SUMMER 1	PWR	601	217	37	3	-	-	-	-	-	-	-	-	-	1,058	257	13	
SURRY 1,2	PWR	1,009	657	358	343	113	58	46	8	-	-	-	-	-	2,692	1,533	408	
SUSQUEHANNA 1,2	BWR	1,589	698	431	336	163	74	61	-	-	-	-	-	-	3,342	1,773	476	
THREE MILE ISLAND 1	PWR	785	693	273	174	57	22	1	-	-	-	-	-	-	2,005	1,220	213	
TURKEY POINT 3,4	PWR	1,187	505	328	218	67	17	7	-	-	-	-	-	-	2,339	1,142	216	
VERMONT YANKEE	BWR	1,254	235	215	181	71	19	6	-	-	-	-	-	-	1,891	737	182	
VOGTLE 1,2	PWR	853	408	273	169	76	15	14	-	-	-	-	-	-	1,809	963	199	
WASHINGTON NUCLEAR 2	BWR	1,218	772	280	280	181	104	57	-	-	-	-	-	-	2,910	1,694	456	
WATERFORD 3	PWR	1,068	629	282	137	26	9	7	-	-	-	-	-	-	2,160	1,082	153	
WOLF CREEK 1	PWR	857	208	25	8	1	-	-	-	-	-	-	-	-	1,199	242	14	
ZION 1,2	PWR	1,498	508	302	388	225	181	221	4	-	-	-	-	-	3,303	1,807	797	
TOTALS: 37 BWRs		31,335	15,264	7,968	8,332	3,117	1,597	1,360	32	1	-	-	-	-	68,994	35,659	9,467	
TOTALS: 72 PWRs		49,897	23,311	12,269	8,647	3,767	1,799	1,717	93	4	-	-	-	-	101,564	51,867	12,207	
TOTALS: 109 LWRs		81,092	38,575	20,245	15,279	6,884	3,338	3,077	125	5	-	-	-	-	198,558	87,529	21,674	

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APPENDIX B (Continued)
ANNUAL WHOLE BODY DOSES AT LICENSED NUCLEAR POWER FACILITIES
FACILITIES NOT IN OPERATION OR IN OPERATION LESS THAN ONE YEAR
CY 1986

PLANT NAME	TYPE	Number of Individuals with Whole Body Doses in the Ranges (cSv or rems)														TOTAL NUMBER MONITORED	NUMBER WITH MEAS. DOSE	TOTAL COLLECTIVE DOSE (person-cSv, rem)	
		No Meas. Exposure	Meas. <0.10	0.10-0.25	0.25-0.5	0.50-0.75	0.75-1.00	1.00-2.00	2.00-3.00	3.00-4.00	4.00-6.00	6.00-8.00	8.00-7.00	7.00-12.00	>12.0				
BELLEFONTE	PWR																		
DRESDEN 1*	BWR	Reported with Dresden 2,3																	
FORT ST. VRAIN*	HTGR	499	62	52	40	29	15	43	34	3	-	-	-	-	-	-	738	278	210
HUMBOLDT BAY*	BWR	158	39	3	-	-	-	-	-	-	-	-	-	-	-	-	186	42	2
INDIAN POINT 1*	PWR	Reported with Indian Point 2																	
LACROSSE*	BWR	80	17	12	2	-	-	-	-	-	-	-	-	-	-	-	111	31	3
RANCHO SECO*	PWR	177	16	1	-	-	-	-	-	-	-	-	-	-	-	-	193	18	1
SAN ONOFRE 1*	PWR	Reported with San Onofre 2,3																	
THREE MILE ISLAND 2*	PWR	124	109	43	27	9	3	-	-	-	-	-	-	-	-	-	315	191	2
TROJAN*	PWR	220	48	27	32	19	9	6	-	-	-	-	-	-	-	-	361	141	44
WATTS BAR 1,2	PWR																		
YANKEE-ROWE*	PWR																		
TOTAL REPORTING: 6		1,217	280	138	101	57	27	49	34	3							1,916	699	262

* Indicates plants that are no longer in commercial operation.

APPENDIX C*

Personnel, Dose, and Power Generation Summary

1969-1995

***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	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)					Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type			
						Opera- tions	Maint & Others	Con- tractor	Station & Utility		
ARKANSAS 1,2 Docket 50-313, 50-368; DPR-51; NPF-6 1st commercial operation 12/74 Type - PWRs Capacity - 836, 868 MWe	1975	588.0	76.5	147	21					0.14	0.0
	1976	464.6	56.6	476	289	27	262	109	189	0.61	0.6
	1977	610.3	76.8	601	256	28	228	111	145	0.43	0.4
	1978	627.2	77.5	722	189	32	157	109	80	0.26	0.3
	1979	397.0	55.3	1,321	399	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	1,606	803	97	706	505	298	0.50	0.9
	1983	915.0	54.7	2,109	1,397	96	1,301	1,146	252	0.68	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	68.9	2,135	1,141	194	947	681	260	0.53	1.1
	1987	1,366.1	88.9	1,123	392	92	290	205	177	0.34	0.3
	1988	1,070.3	68.4	2,421	1,387	138	1,249	1,094	293	0.57	1.3
	1989	1,066.3	72.0	2,063	711	38	675	522	189	0.34	0.7
	1990	1,351.9	84.2	2,493	782	32	730	525	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
	1993	1,606.0	91.3	1,961	298	9	259	194	74	0.14	0.2
1994	1,662.8	93.6	1,361	172	80	91	122	49	0.13	0.1	
1995	1,397.0	82.7	2,259	396	34	362	273	113	0.17	0.3	
BEAVER VALLEY 1,2 Docket 50-334, 50-412; DPR-66; NPF-73 1st commercial operation 10/76, 11/87 Type - PWRs Capacity - 810, 820	1977	355.6	57.0	331	678	79	58	29		0.26	0.2
	1978	304.2	40.8	646	190	11	179	151	39	0.29	0.6
	1979	221.0	40.0	704	132	22	110	67	65	0.19	0.6
	1980	39.8	6.8	1,817	553	78	477	477	76	0.30	13.9
	1981	573.4	73.6	1,237	229	38	191	142	87	0.19	0.4
	1982	326.7	41.6	1,755	599	128	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	81.9	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	664.1	83.8	1,262	210	43	167	137	73	0.16	0.3
	1988	1,366.1	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	

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

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)						Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type		Station & Utility		
						Operations	Maint & Others	Con- tractor	Station & Utility			
BEAVER VALLEY 1,2 (continued)	1993	1,157.9	73.1	2,087	621	59	562	490	131	0.30	0.5	
	1994	1,514.6	88.6	487	44	9	34	5	38	0.09	0.0	
	1995	1,389.2	83.1	1,536	453	46	407	336	117	0.29	0.3	
BIG ROCK POINT Docket 50-155; DPR-8 1st commercial operation 3/83 Type - BWR Capacity - 67 MWe	1969	48.1		165	136					0.82	2.8	
	1970	43.5		290	194					0.67	4.5	
	1971	44.4		260	184					0.71	4.1	
	1972	43.6		195	161					0.93	4.2	
	1973	50.9		241	285			119	165	1.18	5.6	
	1974	40.7	70.3	261	276	54	222	42	234	0.98	6.8	
	1975	35.1	59.8	300	180	58	122	20	180	0.60	5.1	
	1976	29.6	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	283	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	281	0.63	7.5	
	1983	42.3	71.0	493	263	32	231	55	208	0.53	6.2	
	1984	60.3	78.6	297	155	37	118	21	134	0.52	3.1	
	1985	43.8	73.5	435	291	54	237	60	231	0.57	6.6	
	1986	61.0	85.5	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	26	145	0.56	3.7	
	1989	50.2	79.0	418	177	38	139	32	145	0.42	3.5	
1990	61.3	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	228	0.56	8.5		
1993	51.2	79.4	419	152	30	122	41	111	0.38	3.0		
1994	49.5	75.3	310	119	25	93	24	94	0.38	2.4		
1995	62.2	85.0	205	54	20	34	13	41	0.26	0.9		
BRAIDWOOD 1,2 Docket 50-458, 50-457; NPF-72, NPF-77 1st commercial operation 7/88, 10/88 Type - PWRs Capacity - 1120, 1120 MWe	1989	1,381.8	75.4	1,480	298	7	289	198	98	0.20	0.2	
	1990	1,740.2	84.1	1,081	166	9	177	107	79	0.17	0.1	
	1991	1,377.2	68.9	1,641	550	101	449	387	163	0.34	0.4	
	1992	1,885.9	89.0	1,059	228	29	199	140	86	0.22	0.1	
	1993	1,899.3	88.9	1,043	273	23	250	170	103	0.26	0.1	
	1994	1,606.1	77.2	1,237	298	17	2800	179	118	0.24	0.1	
1995	1,914.7	85.4	1,134	236	13	223	2	234	0.21	0.1		

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

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)					Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type			
						Operations	Maint & Others	Con- tractor	Station & Utility		
BROWNS FERRY 1,2,3 Docket 50-259, 50-260, 50-296 DPR - 33, - 52, - 69 1st commercial operation 8/74, 3/75, 3/77 Type - BWRs Capacity - 1035, 1065, 1065 MWe	1975	161.7	17.8	2,390	325					0.14	2.0
	1976	337.6	26.9	2,207	234					0.11	0.7
	1977	1,327.5	73.7	1,858	863	60	803	249	614	0.46	0.7
	1978	1,992.1	73.5	2,376	1,792	4	1,788	261	1,531	0.75	0.9
	1979	2,393.0	78.1	2,689	1,667	0	1,667	289	1,378	0.62	0.7
	1980	2,182.1	73.6	2,712	1,826	4	1,822	50	1,776	0.67	0.8
	1981	2,132.9	68.5	3,379	2,380	100	2,280	464	1,976	0.70	1.1
	1982	2,025.4	67.6	3,277	2,220	181	2,039	317	1,803	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	1,169	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	1,191	187	994	222	859	0.38	—
	1988	0.0	0.0	3,324	1,156	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
	1993	675.1	68.8	3,594	870	78	782	600	270	0.24	1.3
	1994	860.2	83.4	3,299	855	54	800	649	205	0.26	0.9
1995	1,165.8	98.6	2,540	409	64	345	261	128	0.16	0.4	
BRUNSWICK 1,2 Docket 50-324, 50-325; DPR-62, -71 1st commercial operation 3/77, 11/75 Type - BWRs Capacity - 767, 754 MWe	1975	297.2	56.0	1,285	326	15	311	222	104	0.26	1.1
	1977	291.1	65.7	1,512	1,120	48	1,071	782	337	0.74	3.8
	1978	1,173.1	83.7	1,458	1,004	99	905	695	309	0.69	0.9
	1979	810.0	80.1	2,891	2,602	97	2,505	2,074	528	0.90	3.2
	1980	687.2	52.2	3,788	3,870	111	3,759	3,098	772	1.02	5.6
	1981	925.2	58.9	3,854	2,638	169	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	162	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	2,848	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	852.8	64.5	2,686	778	120	659	451	327	0.30	0.8
	1992	375.9	27.9	2,690	623	85	528	464	159	0.23	1.7
	1993	470.0	33.8	2,921	872	118	754	645	227	0.30	1.9
	1994	1,268.4	83.7	3,049	999	122	876	720	276	0.33	0.7
	1995	1,411.7	92.9	2,657	683	101	582	482	201	0.26	0.5

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

Person-cSv (-rems)

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)					Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function	Per Personnel Type	Station & Utility	Contractor		
					Operations	Maint & Others					
BYRON 1,2 Docket 50-454, 50-455; NPF-37, NPF-86 1st commercial operation 9/85, 8/87 Type - PWRs Capacity - 1105, 1105	1986	894.5	88.6	1,081	76	12	64	47	29	0.07	0.1
	1987	850.9	70.9	1,826	769	11	758	667	102	0.42	1.2
	1988	1,534.7	86.3	1,222	459	0	459	333	126	0.38	0.3
	1989	1,812.6	90.2	1,109	172	21	151	105	67	0.16	0.1
	1990	1,567.3	78.9	1,396	434	38	396	266	168	0.31	0.3
	1991	1,816.3	89.9	1,077	288	42	228	158	110	0.25	0.1
	1992	1,888.4	90.1	1,021	199	43	156	118	81	0.19	0.1
	1993	1,785.6	83.5	1,370	432	57	375	248	184	0.32	0.2
	1994	1,953.3	90.7	962	280	17	262	164	115	0.29	0.1
	1995	1,900.6	85.5	1,107	306	1	305	183	123	0.28	0.2
C-5 CALLAWAY 1 Docket 50-483; NPF-30 1st commercial operation 12/84 Type - PWR Capacity - 1115 MWs	1985	967.4	90.0	864	38	16	20	7	29	0.04	0.0
	1986	865.2	81.3	1,052	225	53	172	129	98	0.21	0.3
	1987	769.0	71.1	1,082	393	89	304	249	144	0.36	0.5
	1988	1,069.2	93.4	353	27	12	15	2	25	0.08	0.0
	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
	1993	1,002.9	86.4	1,126	225	73	152	157	68	0.20	0.2
	1994	1,196.4	100.0	191	14	6	7	0	13	0.07	0.0
1995	989.8	84.7	1,062	187	30	157	118	69	0.18	0.2	
CALVERT CLIFFS 1,2 Docket 50-317, 50-318; DPR-83, -69 1st commercial operation 5/75, 4/77 Type - PWRs Capacity - 835, 840 MWs	1976	763.4	85.2	507	74	28	46	8	68	0.15	0.1
	1977	683.0	72.1	2,265	547	38	511	224	323	0.24	0.9
	1978	1,188.6	75.8	1,391	500	13	487	143	357	0.36	0.4
	1979	1,161.0	74.0	1,428	605	32	773	428	379	0.56	0.7
	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	607	29	578	378	229	0.39	0.4
	1983	1,397.2	81.6	1,915	668	5	863	143	525	0.35	0.5
	1984	1,389.4	79.3	1,369	479	61	418	79	400	0.36	0.3
	1985	1,189.8	68.4	1,588	694	69	625	144	550	0.43	0.6
	1986	1,630.0	87.2	1,298	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	1,298	291	30	261	90	201	0.22	0.2
	1989	333.6	20.1	1,788	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	82	0.07	0.1
1992	1,271.2	73.9	1,979	330	35	295	228	102	0.17	0.3	
1993	1,462.1	83.9	1,462	405	13	392	298	106	0.28	0.3	

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

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)						Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type				
						Opera- tions	Maint & Others	Con- tractor	Station & Utility			
CALVERT CLIFFS 1,2 (continued)	1984	1,342.1	79.4	1,482	454	30	424	333	121	0.31	0.3	
	1985	1,542.8	89.9	1,203	235	29	206	174	61	0.20	0.2	
CATAWBA 1,2 Docket 50-413, 50-414; NPF-35, NPF-52 1st commercial operation 6/85, 8/86 Type - PWR Capacity - 1129, 1129 MWe	1986	638.9	49.9	1,724	286	27	269	68	218	0.17	0.4	
	1987	1,651.2	75.9	1,865	449	32	417	181	288	0.24	0.3	
	1988	1,875.2	77.2	2,009	566	71	495	200	356	0.28	0.3	
	1989	1,733.6	79.5	1,860	334	46	286	110	224	0.20	0.2	
	1990	1,616.3	70.8	2,174	809	58	751	292	517	0.37	0.5	
	1991	1,891.5	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	
	1993	1,896.1	81.5	1,564	398	29	367	59	337	0.25	0.2	
	1994	2,105.2	90.2	1,268	207	35	172	47	160	0.16	0.1	
	1995	2,011.9	85.3	1,892	462	62	400	83	379	0.24	0.2	
CLINTON Docket 50-461; NPF-62 1st commercial operation 11/87 Type - BWR Capacity - 930 MWe	1988	701.3	84.2	769	130	48	82	64	66	0.17	0.2	
	1989	348.3	48.5	1,196	372	91	281	281	111	0.31	1.1	
	1990	435.8	65.1	1,390	653	407	146	438	115	0.40	1.3	
	1991	722.7	80.8	1,010	233	222	11	143	90	0.23	0.3	
	1992	569.7	68.6	1,195	431	63	368	287	144	0.36	0.7	
	1993	701.5	79.6	1,253	498	48	450	387	131	0.40	0.7	
	1994	883.3	84.8	409	83	1	62	7	56	0.15	0.0	
1995	731.1	83.0	1,182	316	25	291	202	114	0.27	0.4		
COMANCHE PEAK 1,2 Docket 50-445; NPF-87 1st commercial operation 8/90, 8/93 Type - PWR Capacity - 1150 1150 MWe	1991	644.4	82.2	985	148	13	135	111	37	0.15	0.2	
	1992	830.8	84.0	1,128	188	28	160	156	30	0.17	0.2	
	1993	853.8	81.2	945	109	25	84	92	17	0.12	0.1	
	1994	1,750.0	93.7	970	90	22	68	75	15	0.09	0.1	
	1995	2,022.6	92.5	951	179	21	158	154	25	0.19	0.1	
COOK 1,2 Docket 5-315; DPR-58, -74 1st commercial operation 8/75, 7/78 Type - PWRs Capacity - 1000, 1060 MWe	1976	807.4	83.1	395	116	13	103	71	45	0.29	0.1	
	1977	573.0	76.1	802	300	21	278	138	161	0.37	0.6	
	1978	744.8	73.6	778	336	49	287	139	197	0.43	0.5	
	1979	1,373.0	65.3	1,445	718	45	673	454	264	0.50	0.6	
	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	

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

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)						Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type				
						Opera- tions	Maint & Others	Con- tractor	Station & Utility			
COOK 1,2 (continued)	1986	1,307.1	73.4	1,774	746	64	681	585	160	0.42	0.6	
	1987	1,199.5	70.2	1,695	656	79	587	525	141	0.39	0.6	
	1988	1,160.4	63.5	2,266	857	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	1,318.6	67.9	1,851	530	67	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	
	1993	1,927.7	96.5	587	44	10	34	29	15	0.07	0.0	
	1994	1,105.2	65.2	1,748	479	26	453	362	117	0.27	0.4	
	1995	1,656.0	82.1	1,310	203	29	174	142	61	0.15	0.1	
COOPER STATION Docket 50-298; DPR-46 1st commercial operation 7/74 Type - BWR Capacity - 764 MWe	1975	456.4	83.6	579	117	30	87	19	98	0.20	0.3	
	1976	433.3	75.5	763	350	39	314	210	140	0.46	0.8	
	1977	538.2	86.2	315	198	50	147	66	131	0.63	0.4	
	1978	576.0	91.0	297	158	40	118	58	100	0.53	0.3	
	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	1,890	1,333	49	1,284	1,104	229	0.67	10.5	
	1986	490.0	74.7	895	320	49	271	115	205	0.36	0.7	
	1987	632.3	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	483	64	16	68	16	68	0.18	0.1		
1993	436.1	58.8	1,130	391	33	358	245	146	0.36	0.9		
1994	262.2	35.1	333	79	24	55	7	72	0.24	0.3		
1995	486.5	66.8	1,095	228	31	197	137	91	0.21	0.5		
CRYSTAL RIVER 3 Docket 50-302; DPR-72 1st commercial operation 3/77 Type - PWR Capacity - 818 MWe	1978	311.5	41.4	643	321	8	313	244	77	0.50	1.0	
	1979	453.0	56.9	1,150	495	29	466	346	149	0.43	1.1	
	1980	404.1	53.2	1,053	625	24	601	382	243	0.59	1.5	
	1981	490.4	62.2	1,120	408	18	390	236	172	0.36	0.8	
	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	669	44	645	424	265	0.35	2.0		

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

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)					Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type			
						Opera- tions	Maint & Others	Con- tractor	Station & Utility		
CRYSTAL RIVER 3 (continued)	1986	319.5	41.8	1,057	472	26	447	298	174	0.45	1.5
	1987	436.0	60.9	1,384	488	49	439	302	166	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
	1993	722.4	85.0	683	60	4	56	31	29	0.09	0.1
	1994	711.9	84.3	1,079	228	7	221	156	72	0.21	0.3
	1995	866.3	100.0	209	8	1	7	1	7	0.04	0.0
DAVIS-BESSE 1 Docket 50-346; NPF-3 1st commercial operation 7/78 Type - PWR Capacity - 868 MWe	1978	326.4	48.7	421	48	13	35	14	34	0.11	0.1
	1979	361.0	67.0	304	30	8	22	5	26	0.10	0.1
	1980	256.4	38.2	1,283	154	4	150	121	33	0.12	0.6
	1981	531.4	87.4	578	58	1	57	32	26	0.10	0.1
	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	516.5	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
	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	6	33	5	33	0.09	0.0
	1990	500.0	56.7	1,377	489	14	475	414	75	0.38	1.0
	1991	703.6	61.8	1,000	216	38	178	169	57	0.22	0.3
	1992	915.2	100.0	287	19	10	9	0	19	0.07	0.0
1993	729.5	83.4	1,244	348	12	336	269	79	0.28	0.5	
1994	768.4	88.0	861	144	28	115	69	75	0.17	0.2	
1995	920.4	100.0	256	7	2	5	0	7	.03	0.0	
DIABLO CANYON 1,2 Docket 50-275, 50-323; DPR-80, DPR-82 1st commercial operation 5/85, 3/86 Type - PWRs Capacity - 1073, 1087 MWe	1986	641.5	80.8	1,260	304	4	300	206	98	0.24	0.5
	1987	1,688.6	83.0	1,170	336	5	331	226	110	0.29	0.2
	1988	1,386.1	87.6	1,826	877	4	873	593	284	0.48	0.6
	1989	1,899.0	87.5	1,646	465	3	462	329	136	0.28	0.2
	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
	1993	2,008.6	91.4	1,508	281	0	281	182	99	0.19	0.1
1994	1,832.6	83.3	2,317	590	1	589	389	191	0.26	0.3	
1995	1,850.3	90.0	1,615	288	2	284	189	97	0.18	0.1	

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

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)					Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type			
						Opera- tions	Maint & Others	Con- tractor	Station & Utility		
DRESDEN 1 ^{1,2,3}	1969	99.7			296						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, 11/71	1972	1,243.7			728						0.6
Type - BWRs	1973	1,112.2		1,341	939	143	796	344	595	0.70	0.8
Capacity - 197, 772, 773 MWe	1974	842.5	54.9	1,594	1,662			57	1,605	1.04	2.0
	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	318	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	1,600	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	138	2,787	1,731	1,192	1.14	2.7
	1983	913.6	65.6	2,854	3,582	178	3,408	2,127	1,455	1.26	3.9
	1984	789.8	55.3	2,261	1,774	153	1,621	815	969	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	1,164.2	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	819	128	491	272	347	0.34	0.7
	1993	960.1	66.5	2,751	1,855	125	1,530	1,116	539	0.60	1.7
	1994	890.2	51.7	2,336	833	93	740	517	316	0.38	1.2
	1995	643.1	49.8	2,482	875	69	606	2	873	0.35	1.4
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	0.68	6.5
Type - BWR	1979	352.0	78.0	757	275	35	240	219	56	0.36	0.8
Capacity - 515 MWe	1980	339.1	73.3	1,106	671	32	639	570	101	0.61	2.0
	1981	277.7	69.8	1,286	790	58	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

¹Dresden 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 (continued)
PERSONNEL, DOSE AND POWER GENERATION SUMMARY

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)					Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type			
						Operations	Maint & Others	Con- tractor	Station & Utility		
DUANE ARNOLD (continued)	1988	385.5	82.0	476	187	49	138	94	93	0.39	0.5
	1987	308.4	64.7	1,094	687	241	426	478	189	0.61	2.2
	1986	386.5	75.2	1,136	614	71	543	416	196	0.54	1.6
	1985	388.5	79.0	425	194	49	145	58	136	0.46	0.5
	1990	387.4	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	602	123	379	276	226	0.48	1.2
	1993	393.4	79.6	1,043	407	86	321	299	108	0.39	1.0
	1994	498.6	94.0	493	120	14	106	24	96	0.24	0.2
	1995	452.5	83.8	1,129	357	39	318	217	140	0.32	0.8
C-10 FARLEY 12 Docket 50-348, 50-364; NPF-2, -8 1st commercial operation 12/77, 7/81 Type - PWR Capacity - 812, 822 MWe	1978	713.8	86.5	527	106	39	69	34	74	0.20	0.2
	1979	211.0	28.6	1,227	643	108	535	460	183	0.52	3.0
	1980	557.3	69.3	1,330	435	106	329	185	250	0.33	0.8
	1981	310.2	41.4	1,331	612	96	416	270	242	0.38	1.7
	1982	1,271.5	79.2	1,453	484	155	329	196	268	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	86.8	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	454	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
1993	1,455.5	88.3	1,284	333	22	311	224	109	0.26	0.2	
1994	1,587.2	93.0	1,035	250	29	221	150	100	0.24	0.2	
1995	1,311.2	83.8	1,574	460	60	400	307	153	0.29	0.4	
FERMI 2 Docket 50-341; NPF-43 1st commercial operation 1/88 Type - BWR Capacity - 1085 MWe	1989	624.0	68.5	1,270	255	35	220	182	73	0.20	0.4
	1990	848.2	84.7	462	83	31	52	14	69	0.18	0.1
	1991	739.0	77.0	1,223	228	53	175	151	77	0.19	0.3
	1992	874.3	81.3	1,213	245	60	195	151	94	0.20	0.3
	1993	984.3	92.9	360	35	23	12	7	28	0.10	0.0
	1994	0.0	2.2	1,130	213	58	145	153	60	0.19	—
1995	618.3	86.9	390	28	21	7	10	18	0.07	0.0	

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

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)					Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type			
						Opera- tions	Maint & Others	Con- tractor	Station & Utility		
FITZPATRICK Docket 50-333; DPR-59 1st commercial operation 7/75 Type - BWR Capacity - 774 MWe	1976	469.0	71.6	600	202					0.34	0.4
	1977	460.5	68.4	1,390	1,080	14	1,066	937	143	0.78	2.3
	1978	497.0	72.1	904	909	166	743	597	312	1.01	1.8
	1979	349.0	50.8	850	859	169	690	539	321	1.01	2.6
	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	75.3	2,322	1,180	136	1,054	863	327	0.51	2.0
	1983	546.2	70.6	1,745	1,080	158	932	587	423	0.64	2.0
	1984	576.2	76.8	1,810	871	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	505	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	208	0.28	0.8
	1992	0.0	0.0	2,374	674	70	604	476	198	0.28	—
1993	559.6	81.7	1,427	232	33	199	81	151	0.16	0.4	
1994	588.4	83.2	1,595	322	276	46	141	181	0.20	0.5	
1995	589.8	74.5	1,249	327	292	35	151	176	0.28	0.6	
FORT CALHOUN Docket 50-285; DPR-40 1st commercial operation 6/74 Type - PWR Capacity - 478 MWe	1976	252.3	67.4	469	294			92	202	0.63	1.2
	1976	265.9	69.5	516	313	28	285	38	275	0.61	1.2
	1977	351.8	79.4	535	297	33	284	72	225	0.56	0.8
	1978	342.3	75.1	596	410	59	351	151	259	0.69	1.2
	1979	440.0	95.7	451	126	19	107	47	79	0.28	0.3
	1980	242.3	60.4	891	688	38	630	425	242	0.75	2.8
	1981	260.9	72.3	822	458	61	397	254	204	0.58	1.8
	1982	418.0	89.7	604	217	45	172	102	115	0.38	0.5
	1983	330.4	73.1	850	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	387.0	73.7	982	373	54	319	231	142	0.38	1.0
	1986	431.8	94.3	758	74	26	46	30	44	0.10	0.2
	1987	368.0	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	250	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	
1993	369.7	80.8	713	157	16	141	87	70	0.22	0.4	
1994	492.8	99.6	211	23	5	18	6	17	0.11	0.0	
1995	402.8	83.2	627	139	16	123	62	77	0.22	0.3	

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

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)						Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type		Station & Utility		
						Opera- tions	Maint & Others	Con- tractor	Station & Utility			
GINNA Docket 50-244; DPR-18 1st commercial operation 7/70 Type - PWR Capacity - 470 MWe	1971	327.8		340	430	69	351	108	322	1.26	1.3	
	1972	293.6		677	1,032	71	951	278	754	1.52	3.5	
	1973	409.5		319	224	56	169	84	140	0.70	0.5	
	1974	253.7	62.4	884	1,225					1.39	4.8	
	1975	365.2	76.7	685	538					0.79	1.5	
	1976	248.8	59.2	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	362	0.66	1.2	
	1979	355.0	72.6	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	389.0	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	185	200	0.65	1.0	
	1985	436.7	87.9	845	426	89	337	183	243	0.60	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	281	27	234	144	117	0.31	0.6		
1993	419.6	86.3	856	193	18	175	101	92	0.23	0.5		
1994	405.3	83.2	679	138	19	119	66	72	0.20	0.3		
1995	437.0	89.6	738	136	8	128	95	41	0.18	0.3		
GRAND GULF Docket 50-416; NPF-29 1st commercial operation 7/85 Type - BWR Capacity - 1143 MWe	1986	494.7	60.9	1,488	436	66	369	329	107	0.29	0.9	
	1987	920.7	82.2	1,358	420	106	314	303	117	0.31	0.5	
	1988	1,136.6	96.7	692	147	57	90	52	95	0.21	0.1	
	1989	932.6	80.0	1,972	498	93	405	333	165	0.25	0.5	
	1990	883.5	78.9	1,765	482	52	430	321	161	0.27	0.5	
	1991	1,085.2	94.0	899	94	22	72	25	69	0.13	0.1	
	1992	989.0	83.7	2,032	484	68	418	349	135	0.24	0.5	
	1993	938.4	81.5	1,807	332	38	294	223	109	0.18	0.4	
	1994	1,143.2	95.6	455	56	31	25	13	43	0.12	0.0	
	1995	952.9	80.4	1,589	342	27	315	208	134	0.22	0.4	

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

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)					Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type			
						Operations	Maint & Others	Con- tractor	Station & Utility		
HADDAM NECK Docket 50-213; DPR-61 1st commercial operation 1/68 Type - FWR Capacity - 560 MWe	1969	438.5		138	106			27	79	0.77	0.2
	1970	424.7		734	689			463	226	0.94	1.6
	1971	502.2		289	342			165	176	1.18	0.7
	1972	515.6		355	325			181	144	0.91	0.6
	1973	293.1		951	697			544	153	0.73	2.4
	1974	521.4	91.2	550	201					0.37	0.4
	1975	494.3	89.9	795	703	20	683			0.68	1.4
	1976	482.9	82.5	644	449	5	444	253	198	0.70	0.9
	1977	480.7	83.9	694	641	59	582	440	201	0.72	1.3
	1978	563.4	98.6	216	117	25	92	18	99	0.64	0.2
	1979	493.0	87.5	1,228	1,162	74	1,068	783	379	0.95	2.4
	1980	426.8	75.0	1,860	1,353	175	1,178	1,076	277	0.73	3.2
	1981	487.5	84.3	1,554	1,036	174	862	809	227	0.67	2.1
	1982	543.9	93.4	559	128	46	80	22	104	0.23	0.2
	1983	453.7	77.8	1,645	1,384	107	1,277	1,022	362	0.84	3.1
	1984	404.0	71.7	1,430	1,218	154	1,062	803	413	0.65	3.0
	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	760	99	651	553	197	0.43	2.5
	1988	397.4	70.3	735	237	43	194	107	130	0.32	0.6
1989	356.4	67.2	1,455	696	66	526	472	124	0.41	1.7	
1990	142.7	32.2	979	421	75	346	266	153	0.43	3.0	
1991	444.4	76.4	1,168	690	80	510	463	127	0.51	1.3	
1992	465.2	80.1	797	202	28	174	129	73	0.25	0.4	
1993	448.6	81.6	1,004	406	42	366	312	96	0.41	0.9	
1994	455.6	77.7	463	135	0	0	0	0	0.29	0.3	
1995	439.4	77.7	1,006	442	74	368	346	94	0.44	1.0	
HARRIS 1 Docket 50-400; NPF-63 1st commercial operation 5/87 Type - PWR Capacity - 860 MWe	1988	652.9	75.0	721	169	29	140	118	51	0.23	0.3
	1989	680.6	79.5	829	156	32	124	85	71	0.17	0.2
	1990	776.4	89.6	453	85	13	72	47	38	0.19	0.1
	1991	724.8	81.5	872	226	27	199	150	76	0.26	0.3
	1992	651.8	74.9	930	213	34	179	134	79	0.23	0.3
	1993	913.0	99.7	327	31	9	22	10	21	0.09	0.0
	1994	740.8	82.7	1,089	222	22	200	167	55	0.20	0.3
1995	731.1	83.8	1,068	174	11	163	121	53	0.16	0.2	

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

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)						Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type				
						Operations	Maint & Others	Con- tractor	Station & Utility			
HATCH 1,2	1976	496.3	83.8	630	134	79	65	4	130	0.21	0.3	
Docket 50-321, 50-366; DPR-57;	1977	446.8	66.3	1,303	465	96	389	220	245	0.36	1.0	
NPF-05	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 - 741, 765 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	398	0.43	1.9	
	1983	834.7	68.6	3,428	1,299	253	1,046	851	448	0.38	1.4	
	1984	668.6	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	380	0.43	1.7	
	1987	1,295.4	69.7	2,202	816	207	609	435	381	0.37	0.6	
	1988	1,001.4	70.4	2,509	1,401	275	1,128	927	474	0.56	1.4	
	1989	1,271.1	87.1	1,350	556	154	402	305	251	0.41	0.4	
	1990	1,288.0	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	799	363	0.46	1.0	
	1992	1,293.8	88.6	1,615	550	119	431	294	256	0.34	0.4	
	1993	1,189.6	65.5	1,733	669	139	530	339	270	0.39	0.6	
	1994	1,289.0	87.1	2,243	864	168	696	659	305	0.39	0.7	
	1995	1,376.3	80.6	1,458	488	85	403	240	248	0.33	0.4	
HOPE CREEK 1	1987	869.2	86.4	589	117	21	86	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	
	1993	1,049.2	97.8	688	98	22	76	8	90	0.14	0.1	
	1994	852.0	81.2	1,779	326	34	292	194	132	0.18	0.3	
	1995	844.5	79.8	1,571	198	27	169	101	95	0.12	0.2	
HUMBOLDT BAY ²	1969	44.6		125	164	69	95	12	152	1.31	3.7	
Docket 50-133; DPR-7	1970	49.3		115	208	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	80	208			1.27	5.3	
	1974	43.4	83.8	296	318	103	215			1.07	7.3	

² Humboldt Bay has been shutdown since 1976, 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.

**APPENDIX C (continued)
PERSONNEL, DOSE AND POWER GENERATION SUMMARY**

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)					Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type			
						Operations	Maint & Others	Con- tractor	Station & Utility		
HUMBOLDT BAY ³ (continued)	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	1,053	1,906	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	5	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	—
	1993	0.0	0.0	24	1	0	0	0	0	0.04	—
	1994	0.0	0.0	21	1	0	0	0	0	0.05	—
	1995	0.0	0.0	42	2	***	***	***	***	0.05	***
INDIAN POINT 1 ⁴ , 2, 3 ⁵	1969	205.2			298						1.4
Docket 50-3, 50-247, 50-286;	1970	43.3			1,639						37.8
DPR-5, -26, -84	1971	154.0			768						5.0
1st commercial operation 10/62, 8/74,	1972	142.3			957						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, 951, 965	1975	584.4	74.8	891	705	165	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
INDIAN POINT 1 ⁶ , 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	387.5	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

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³ Humboldt Bay has been shutdown since 1976, 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.

⁴ 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.

⁵ Indian Point 3 was purchased by a different utility and now reports separately.

⁶ 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.

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

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)						
					Collective Dose	Per Work Function		Per Personnel Type		Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
						Opera- tions	Maint & Others	Con- tractor	Station & Utility		
INDIAN POINT 1 ^{7,2} (continued)	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	457.6	58.2	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 - 951 MWe	1988	719.3	68.9	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	68.6	1,061	608	66	542	450	158	0.57	1.0
	1991	461.2	55.7	1,610	1,466	179	1,289	927	541	0.81	3.2
	1992	930.9	99.1	489	97	27	70	39	58	0.20	0.1
	1993	702.1	75.7	1,514	675	77	598	480	195	0.45	1.0
	1994	903.8	100.0	381	48	0	0	0	0	0.13	0.1
	1995	582.4	70.8	1,690	548	97	451	368	180	0.32	0.9
INDIAN POINT 3 ⁸	1979	574.0	66.5	608	636	63	573	482	154	0.79	1.1
Docket 50-268; 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	58.8	677	364	46	318	255	109	0.54	1.0
Type - PWR	1982	171.5	22.6	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	64	416	365	135	0.36	0.9
	1988	792.5	83.3	451	83	41	52	39	54	0.21	0.1
	1989	587.8	61.1	1,800	676	130	746	776	100	0.49	1.5
	1990	595.3	62.9	1,066	356	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
	1993	140.5	14.9	476	60	23	37	19	41	0.13	0.4
	1994	0.0	0.0	529	58	36	22	28	30	0.11	—
	1995	174.8	21.4	638	67	37	30	32	35	0.11	0.4

⁷ Indian Point 1 was de-fueled 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.

⁸ Indian Point 3 was purchased by a different utility and now reports separately.

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

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)					Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type			
						Opera- tions	Main- & Others	Con- tractor	Station & Utility		
KEWAUNEE Docket 50-305; DPR-43 1st commercial operation 6/74 Type - PWR Capacity - 511 MWe	1975	401.9	88.2	104	28	1	27	12	16	0.27	0.1
	1976	405.9	78.9	391	270	16	254	193	77	0.71	0.7
	1977	425.0	79.9	312	140	8	131	76	63	0.45	0.3
	1978	466.6	89.5	335	154	11	143	89	65	0.46	0.3
	1979	412.0	79.0	343	127	8	121	79	48	0.37	0.3
	1980	433.8	82.1	401	165	7	158	103	62	0.41	0.4
	1981	451.6	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
	1985	443.1	82.4	519	176	9	167	114	62	0.34	0.4
	1986	481.7	85.8	502	189	8	181	111	58	0.34	0.4
	1987	480.0	89.7	755	226	8	218	173	53	0.30	0.6
	1988	487.5	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	488.8	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
	1993	457.1	86.8	436	106	2	104	65	41	0.24	0.2
1994	475.6	88.8	364	72	2	70	38	34	0.20	0.2	
1995	465.6	87.8	415	109	3	106	71	38	0.26	0.2	
LACROSSE ⁹ Docket 50-409; DPR-45 1st commercial operation 11/69 Type - BWR Capacity - 48 MWe	1970	15.3			111			40	71		7.2
	1971	323.1		218	158					0.72	4.8
	1972	29.2			151	172				1.14	6.9
	1973	24.4			157	221				1.41	9.1
	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	106	0.93	5.2
	1977	11.3	33.7	141	225	60	164	8	216	1.60	18.9
	1978	21.6	62.0	182	164	69	98	6	168	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	0.68	4.2
	1982	17.2	44.6	148	205	65	140	16	189	1.39	11.9
	1983	24.8	59.7	180	313	103	210	31	282	1.98	12.6
1984	38.5	80.5	288	252	141	111	5	247	0.88	6.5	
1985	39.2	86.7	373	173	78	97	22	151	0.48	4.4	

⁹ 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.

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

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)						Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type		Station & Utility		
						Operations	Maint & Others	Con- tractor	Station & Utility			
LACROSSE ¹⁰ (continued)	1986	19.6	46.1	260	290					1.12	14.8	
	1987	0.0	0.0	127	68	42	26	2	66	0.54	—	
	1993	0.0	0.0	46	8	0	0	0	0	0.17	—	
	1994	0.0	0.0	65	8	3	5	4	4	0.12	—	
	1995	0.0	0.0	31	3	***	***	***	***	0.10	***	
LASALLE 1,2 Docket 50-373, -374; NPF-11, -18 1st commercial operation 1/84, 6/84 Type - BWR Capacity - 1036, 1036 MWe	1984	677.8	77.8	1,245	252	29	223	66	164	0.20	0.4	
	1985	987.9	93.0	1,635	685	68	597	420	265	0.42	0.7	
	1986	929.5	90.6	1,614	896	143	795	527	371	0.56	1.0	
	1987	1,030.0	93.3	1,744	1,396	217	1,179	969	407	0.80	1.4	
	1988	1,317.6	71.6	2,737	2,471	253	2,216	1,976	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	1,764.3	64.6	1,930	948	130	816	503	445	0.52	0.5	
	1991	1,837.0	66.7	1,985	808	161	645	427	379	0.41	0.4	
	1992	1,447.4	72.0	2,418	1,167	195	972	646	519	0.48	0.8	
	1993	1,542.0	76.0	1,701	854	204	650	367	467	0.50	0.6	
	1994	1,580.0	77.6	1,812	726	105	621	426	300	0.40	0.5	
	1995	1,666.6	82.1	1,629	512	98	414	270	242	0.32	0.3	
	LIMERICK 1, 2 Docket 50-362, 50-353; NPF-39, -85 1st commercial operation 2/86, 1/90 Type - BWRs Capacity - 1055, 1055 MWe	1987	636.1	70.2	2,156	174	7	167	114	60	0.08	0.3
1988		794.9	96.5	950	62	20	32	23	29	0.05	0.1	
1989		828.4	66.0	1,818	266	70	196	156	110	0.15	0.4	
1990		1,527.7	78.2	1,422	175	37	138	78	97	0.12	0.1	
1991		1,810.9	66.8	1,151	106	24	82	52	54	0.09	0.1	
1992		1,741.4	64.6	1,559	330	23	307	182	148	0.21	0.2	
1993		1,913.2	91.6	1,287	217	33	184	113	104	0.17	0.1	
1994		1,944.4	94.9	1,543	276	44	231	161	114	0.19	0.1	
1995		1,957.1	93.0	1,691	260	136	124	136	124	0.16	0.1	
MAINE YANKEE Docket 50-309; DPR-36 1st commercial operation 12/72 Type - PWR Capacity - 850 MWe	1973	408.7		782	117			59	58	0.15	0.3	
	1974	432.6	68.7	619	420	64	356	186	232	0.66	1.0	
	1975	542.9	79.9	440	319	15	304	181	136	0.72	0.6	
	1976	712.2	95.0	244	85	27	58	26	59	0.35	0.1	
	1977	617.6	82.2	506	245	46	199	112	133	0.48	0.4	
	1978	642.7	84.1	638	420	54	366	262	156	0.66	0.7	

¹⁰ 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 (continued)
PERSONNEL, DOSE AND POWER GENERATION SUMMARY**

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)						Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type				
						Opera- tions	Maint & Others	Con- tractor	Station & Utility			
MAINE YANKEE (continued)	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	524.2	78.2	868	424	11	413	306	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	162	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	62	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	
	1993	674.8	79.8	1,016	377	74	303	309	68	0.37	0.6	
	1994	782.8	90.9	297	84	16	68	57	27	0.28	0.1	
1995	23.6	3.7	1,167	653	116	537	533	120	0.56	27.7		
MCGUIRE 1,2 Docket 50-369, -370; NPF-9, -17 1st commercial operation 12/81, 3/84 Type - PWR Capacity - 1129, 1129 MWe	1982	524.9	80.4	1,560	169	28	143	29	140	0.11	0.3	
	1983	558.3	55.4	1,751	521	35	486	123	388	0.30	0.9	
	1984	754.1	68.5	1,663	507	35	472	106	401	0.30	0.7	
	1985	808.4	77.0	2,217	771	92	679	277	494	0.35	1.0	
	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	0.38	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	1,698.8	74.4	1,619	418	38	380	114	304	0.28	0.2	
	1993	1,470.4	66.2	1,695	463	16	447	83	380	0.27	0.3	
1994	1,846.0	80.2	1,637	387	7	380	80	317	0.24	0.2		
1995	2,132.3	92.9	1,259	138	7	131	29	109	0.11	0.1		
MILLSTONE POINT 1 Docket 50-246; DPR-21 1st commercial operation 3/71 Type - BWR Capacity - 641 MWe	1972	377.6		612	596	50	546	340	256	0.97	1.6	
	1973	225.1		1,184	663	125	538	422	241	0.56	2.9	
	1974	430.3	79.1	2,477	1,430					0.58	3.3	
	1975	465.4	75.6	2,587	2,022					0.76	4.3	
	1976	449.8	76.1	1,387	1,194	54	1,140	955	239	0.86	2.7	
	1977	575.7	69.6	1,076	394	118	274	159	233	0.37	0.7	
	1978	556.6	87.6	1,391	1,416	160	1,258	1,036	380	1.02	2.5	
1979	505.0	77.3	2,001	1,785	198	1,597	1,327	468	0.90	3.6		

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

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)						Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type		Station & Utility		
						Operations	Maint & Others	Con- tractor	Station & Utility			
MILLSTONE POINT 1 (continued)	1980	405.6	69.0	3,024	2,157	100	2,057	1,863	294	0.71	5.3	
	1981	304.3	51.6	2,506	1,486	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	1,892	836	80	756	531	305	0.42	1.6	
	1985	548.5	83.6	732	606	65	543	369	239	0.63	1.1	
	1986	826.8	95.4	389	160	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	858.8	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	355	131	42	88	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	
	1993	627.9	96.8	305	81	27	54	32	49	0.27	0.1	
	1994	394.0	63.6	1,321	391	12	379	308	83	0.30	1.0	
1995	520.6	80.0	910	620	29	591	639	81	0.68	1.2		
MILLSTONE POINT 2,3 Docket 50-336, 50-423; DPR-65, NPF-49 1st commercial operation 12/73, 4/86 Type - PWR Capacity - 873, 1137 MW _e	1976	545.7	78.7	620	166	26	142	73	95	0.27	0.3	
	1977	518.7	65.7	667	242	38	204	153	89	0.36	0.5	
	1978	536.6	67.3	1,420	1,444	65	1,379	1,386	78	1.02	2.7	
	1979	520.0	62.8	525	471	81	390	304	167	0.90	0.9	
	1980	579.3	69.2	893	637	78	561	616	122	0.71	1.1	
	1981	722.4	82.6	890	531	44	487	393	138	0.60	0.7	
	1982	695.9	70.6	2,093	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	762.7	93.6	285	120	11	109	63	67	0.42	0.2	
	1985	417.8	49.4	1,306	1,581	60	1,521	1,256	325	0.63	3.8	
	1986	1,313.8	60.4	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	623	261	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	1,852	593	35	558	491	102	0.36	0.4	
1991	819.5	69.7	1,084	381	21	360	256	125	0.36	0.5		
1992	1,115.1	59.9	3,190	1,280	35	1,245	1,173	107	0.40	1.1		
1993	1,525.2	79.7	2,064	567	29	528	234	323	0.27	0.4		
1994	1,556.6	73.1	1,249	186	35	153	123	85	0.15	0.1		
1995	1,278.1	60.6	1,691	416	150	266	284	132	0.26	0.3		

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

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)					Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type			
						Opera- tions	Maint & Others	Con- tractor	Station & Utility		
MONTICELLO Docket 50-263; DPR-22 1st commercial operation 6/71 Type - BWR Capacity - 536 MWe	1972	424.4		99	61	40	21	1	60	0.62	0.1
	1973	389.6		401	176	48	128	67	109	0.44	0.5
	1974	349.3	74.9	842	349			91	258	0.41	1.0
	1975	344.8	72.2	1,353	1,353					1.00	3.9
	1976	476.4	91.5	325	283	59	204	52	212	0.81	0.6
	1977	425.6	79.9	860	1,000	135	665	661	339	1.16	2.3
	1978	459.4	87.2	679	375	62	313	165	210	0.65	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	83.3	1,307	993	130	863	780	233	0.78	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	598	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	89.8	376	110	40	70	10	100	0.29	0.2
	1989	318.2	76.2	1,102	807	99	408	113	384	0.48	1.8
	1990	536.0	95.9	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	45	68	10	104	0.25	0.2	
1993	458.1	84.4	954	494	118	376	94	400	0.52	1.1	
1994	471.3	87.0	788	395	83	312	102	293	0.50	0.8	
1995	564.7	100.0	200	44	27	17	3	41	0.22	0.1	
NINE MILE POINT 1,2 Docket 50-220, 50-410; DPR-63, NPF-69 1st commercial operation 12/69, 4/88 Type - BWR Capacity - 585, 994 MWe	1970	227.0		821	44	12	32	17	27	0.05	0.2
	1971	346.5		1,008	195	43	152	63	132	0.19	0.6
	1972	381.8		735	285	59	226	28	257	0.39	0.7
	1973	411.0		690	667	139	428	118	449	1.03	1.4
	1974	385.9	70.5	740	824	42	782	279	545	1.11	2.1
	1975	359.0	72.1	649	661	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	1,099	1,383	41	1,342	883	500	1.27	4.0
	1978	527.7	95.1	591	314	59	255	28	288	0.66	0.8
	1979	354.0	66.1	1,328	1,497	108	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	9.6
	1983	329.8	58.2	1,405	850	60	810	678	264	0.61	2.6
	1984	426.6	71.9	1,530	890	163	727	372	518	0.68	2.1
	1985	580.9	96.4	1,007	285	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	642.6	93.3	1,190	141	35	106	39	102	0.12	0.3	

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

Person-cSv (-rems)

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)					Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function	Per Personnel Type	Station & Utility	Contractor		
					Operations	Maint & Others					
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	658.2	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	865.8	61.8	1,800	563	102	461	184	379	0.31	0.6
	1993	1,380.2	64.6	2,352	633	90	543	427	206	0.27	0.5
	1994	1,589.6	95.9	800	149	56	93	52	97	0.19	0.1
	1995	1,382.2	82.5	2,304	759	87	672	579	180	0.33	0.6
NORTH ANNA 1,2											
	1979	507.0	61.7	2,026	449	78	371	190	259	0.22	0.9
	1980	681.8	86.5	2,088	216	128	90	85	133	0.10	0.3
	1981	1,241.9	71.5	2,416	680	188	492	343	337	0.28	0.5
	1982	777.7	45.8	2,872	1,915	78	1,837	1,207	708	0.67	2.5
	1983	1,338.4	76.1	2,228	665	129	536	296	389	0.30	0.6
	1984	1,021.3	58.8	3,062	1,945	155	1,790	1,417	528	0.64	1.9
	1985	1,516.9	85.1	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	0.6
	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	892	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	580	12	578	433	157	0.27	0.4
	1991	1,597.5	88.6	2,065	629	19	610	461	168	0.30	0.4
	1992	1,403.2	84.1	2,359	576	15	561	413	163	0.27	0.4
	1993	1,428.4	80.1	2,768	908	12	896	711	197	0.33	0.6
	1994	1,717.1	95.9	1,038	193	17	176	93	100	0.19	0.1
	1995	1,666.4	90.8	1,551	367	9	358	193	174	0.24	0.2
OCONEE 1,2,3											
	1974	650.6	60.1	844	517	18	499	144	373	0.61	0.8
	1975	1,838.3	75.5	829	497	72	425	90	407	0.60	0.3
	1976	1,581.4	63.0	1,215	1,026	65	961	219	607	0.84	0.7
	1977	1,566.4	65.9	1,595	1,329	244	1,084	294	1,034	0.83	0.8
	1978	1,909.0	75.8	1,638	1,393	179	1,214	340	1,053	0.85	0.7
	1979	1,708.0	67.7	2,100	1,001	123	876	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	68.8	2,445	1,211	113	1,096	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	89	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	1,995.0	79.0	2,499	949	36	913	261	688	0.38	0.5

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

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)					Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type			
						Opera- tions	Maint & Others	Con- tractor	Station & Utility		
OCONEE 1,2,3 (continued)	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	694	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	1,866	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
	1993	2,399.2	91.3	1,489	237	23	214	43	194	0.16	0.1
	1994	2,144.3	82.2	1,923	637	40	497	114	423	0.26	0.2
	1995	2,366.1	89.5	1,586	304	31	273	63	241	0.19	0.1
OYSTER CREEK Docket 50-219; DPR-18 1st commercial operation 12/69 Type - BWR Capacity - 619 MWe	1970	413.6		95	63	21	42	11	52	0.66	0.1
	1971	448.9		249	240	50	190	92	148	0.96	0.6
	1972	515.0		339	562	150	432	167	415	1.72	1.1
	1973	424.6		782	1,236	195	1,041	683	553	1.58	2.9
	1974	434.5	70.4	935	984	168	818	162	622	1.05	2.3
	1975	373.6	73.3	1,210	1,140	189	971	271	689	0.94	3.1
	1976	486.6	79.3	1,582	1,076	70	1,008	587	491	0.68	2.4
	1977	385.7	70.1	1,873	1,614	76	1,538	1,046	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	487	95	372	135	332	0.55	0.9
	1980	232.9	41.4	1,988	1,733	97	1,636	1,183	550	0.88	7.4
	1981	314.8	59.8	1,889	917	48	869	479	436	0.54	2.9
	1982	242.7	62.5	1,270	866	33	632	491	374	0.68	3.6
	1983	27.9	11.5	2,303	2,257	85	2,192	1,863	394	0.98	80.9
	1984	37.1	9.6	2,389	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	2,438	268	2,148	1,924	812	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	267.6	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	351.8	60.5	3,089	1,186	151	1,034	938	247	0.38	3.4	
1992	536.3	83.9	2,771	667	70	587	438	219	0.24	1.2	
1993	551.9	87.8	2,560	416	60	356	238	178	0.16	0.6	
1994	431.7	70.8	2,382	844	66	788	621	223	0.35	2.0	
1995	615.4	97.4	761	90	21	69	17	73	0.12	0.1	

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

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)					Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type			
						Opera- tions	Maint & Others	Con- tractor	Station & Utility		
PALISADES Docket 50-255; DPR-20 1st commercial operation 12/71 Type - PWR Capacity - 730 MWe	1972	216.8			78						0.4
	1973	286.8		975	1,133	16	1,117	681	472	1.16	4.0
	1974	10.7	5.5	774	627					0.81	58.6
	1975	302.0	64.5	485	306					0.62	1.0
	1976	346.9	55.2	742	696	23	673	109	587	0.94	2.0
	1977	816.6	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	1,589	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	185	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	877	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	16.1	1,436	672	148	524	204	466	0.47	6.6
	1987	319.2	48.2	1,122	456	85	371	216	240	0.41	1.4
	1988	413.4	56.8	1,472	730	138	592	466	264	0.50	1.8
	1989	442.8	89.1	1,028	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	
1993	424.4	53.7	908	289	45	244	188	101	0.32	0.7	
1994	541.8	67.0	397	60	17	43	21	39	0.15	0.1	
1995	583.5	75.8	1,230	462	65	397	315	147	0.38	0.8	
PALO VERDE 1,2,3 Docket 50-528, 50-529; 50-530; NPF-41, NPF-51, NPF-74 1st commercial operation 1/86, 9/86, 1/88 Type - PWRs Capacity - 1221, 1221, 1221 MWe	1987	1,638.1	86.1	1,792	669	101	568	437	232	0.37	0.4
	1988	1,700.9	85.5	2,173	688	77	611	472	216	0.32	0.4
	1989	965.3	28.5	2,815	720	87	633	559	161	0.28	0.7
	1990	2,500.9	67.5	2,238	499	68	431	373	126	0.22	0.2
	1991	3,043.9	78.9	2,242	605	79	526	422	183	0.27	0.2
	1992	3,102.3	82.0	1,991	541	53	488	373	169	0.27	0.2
	1993	2,677.1	74.3	2,124	592	61	541	435	157	0.26	0.2
	1994	2,627.6	79.1	2,048	462	40	422	310	152	0.23	0.2
1995	3,285.2	85.6	1,875	462	62	420	278	204	0.26	0.1	
PEACH BOTTOM 2,3 Docket 50-277, 50-278; DPR-44, -36 1st commercial operation 7/74, 12/74 Type - BWR Capacity - 1093, 1035 MWe	1975	1,234.3	80.9	971	228					0.23	0.2
	1976	1,379.2	73.0	2,136	840	180	660	434	408	0.39	0.6
	1977	1,052.4	58.7	2,827	2,036	223	1,813	1,374	662	0.72	1.9
	1978	1,636.3	84.0	2,244	1,317	162	1,155	709	608	0.59	0.8
	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	766	0.63	1.7

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

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)						Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type				
						Opera- tions	Maint & Others	Con- tractor	Station & Utility			
PEACH BOTTOM 2,3 (continued)	1961	1,161.8	59.0	2,857	2,506	273	2,233	1,860	626	0.86	2.2	
	1962	1,583.3	76.9	2,734	1,977	313	1,664	1,348	629	0.72	1.2	
	1963	824.7	41.0	3,107	2,863	331	2,632	2,422	541	0.95	3.6	
	1964	1,185.8	57.5	3,313	2,450	225	2,225	2,045	405	0.74	2.1	
	1965	682.7	37.5	4,209	3,354	385	2,959	2,727	627	0.80	4.9	
	1966	1,395.0	71.7	2,454	1,080	294	786	671	409	0.44	0.8	
	1967	385.7	20.3	4,363	2,195	178	2,017	1,712	483	0.50	6.0	
	1968	0.0	0.0	4,204	2,327	114	2,213	2,025	302	0.55	—	
	1969	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	196	0.24	0.2	
	1991	1,210.9	82.3	2,702	934	137	797	610	324	0.35	0.8	
	1992	1,516.6	78.7	1,911	502	121	381	256	246	0.28	0.3	
	1993	1,654.0	81.9	1,757	652	135	417	282	260	0.31	0.3	
	1994	1,927.4	93.8	2,133	579	97	482	374	205	0.27	0.3	
1995	1,955.9	95.1	1,940	396	118	280	226	172	0.21	0.2		
PERRY Docket 50-440; NPP-58 1st commercial operation 11/87 Type - BWR Capacity - 1166 MWe	1988	859.3	79.0	782	105	34	71	36	69	0.13	0.1	
	1989	642.2	57.0	1,883	767	113	654	604	163	0.41	1.2	
	1990	782.7	67.1	1,537	838	51	587	494	144	0.42	0.8	
	1991	1,074.2	91.9	600	146	24	122	50	96	0.24	0.1	
	1992	856.2	75.6	1,487	571	28	543	440	131	0.38	0.7	
	1993	479.2	48.2	1,235	278	30	248	106	172	0.23	0.6	
	1994	550.8	50.2	2,098	891	71	820	529	162	0.33	1.3	
	1995	1,090.9	95.6	587	64	13	51	17	47	0.11	0.1	
PILGRIM 1 Docket 50-293; DPR-35 1st commercial operation 12/72 Type - BWR Capacity - 670 MWe	1973	484.0		230	126	49	77			0.55	0.3	
	1974	234.1	39.2	464	415					0.91	1.8	
	1975	308.1	71.3	473	798	142	656	412	386	1.69	2.6	
	1976	287.8	60.7	1,317	2,848	66	2,582	2,270	378	2.01	9.2	
	1977	316.6	61.4	1,875	3,142	146	2,996	2,176	966	1.68	9.9	
	1978	519.6	83.1	1,687	1,327	167	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	405.9	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	778	386	0.50	2.1	
	1984	1.4	0.4	4,542	4,062	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	1,465	94	0.34	—		
1988	0.0	0.0	2,073	392	68	334	218	174	0.19	—		

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

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)					Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type			
						Opera- tions	Maint & Others	Con- tractor	Station & Utility		
PILGRIM 1 (continued)	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	58	157	0.12	0.4
	1991	406.3	65.8	2,636	605	113	492	410	195	0.21	1.5
	1992	581.0	85.4	1,332	261	50	231	122	159	0.21	0.5
	1993	513.7	80.9	1,328	435	54	381	283	152	0.33	0.8
	1994	453.6	71.4	758	200	41	159	79	121	0.26	0.4
	1995	531.7	80.7	1,294	482	55	427	297	185	0.37	0.9
POINT BEACH 1,2 Docket 50-266, 50-301; DPR-24, -27 1st commercial operation 12/70, 10/72 Type - PWRs Capacity - 485, 485 MWe	1971	393.4			164						0.4
	1972	378.3			580						1.5
	1973	693.7		501	588	72	516			1.17	0.8
	1974	760.2	81.3	400	295	70	225	81	214	0.74	0.4
	1975	801.2	82.9	339	459					1.35	0.6
	1976	857.3	86.7	313	370	58	312	107	263	1.16	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	661	598	60	538	420	178	1.07	0.8
	1981	760.4	83.6	773	586	63	513	384	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	61	1,322	1,184	219	0.82	2.2
	1984	798.9	76.6	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	0.81	0.5
	1987	857.5	85.5	720	554	55	499	369	185	0.77	0.6
	1988	809.3	86.6	734	410	64	346	235	175	0.56	0.5
	1989	847.8	85.5	736	504	77	427	284	220	0.69	0.6
	1990	875.6	86.5	617	378	53	325	161	217	0.81	0.4
1991	874.8	87.1	724	265	42	223	134	131	0.37	0.3	
1992	865.7	85.8	617	256	39	217	118	138	0.41	0.3	
1993	911.0	90.0	559	186	28	160	63	123	0.33	0.2	
1994	914.5	91.2	548	170	34	136	75	95	0.31	0.2	
1995	858.4	86.1	548	190	29	161	92	98	0.35	0.2	
PRAIRIE ISLAND 1,2 Docket 50-282, 50-306; DPR-42, -60 1st commercial operation 12/73, 12/74 Type - PWRs Capacity - 513, 512 MWe	1974	181.9	43.9	150	18			5	13	0.12	0.1
	1975	836.0	83.3	477	123					0.26	0.1
	1976	725.2	76.6	818	447	68	379	235	212	0.55	0.6
	1977	922.9	87.2	718	300	73	227	60	240	0.42	0.3
	1978	841.1	92.2	546	221	43	176	48	173	0.40	0.2
	1979	865.0	88.0	694	180	29	151	49	131	0.30	0.2
	1980	800.7	79.9	983	353	40	313	141	212	0.38	0.4

**APPENDIX C (continued)
PERSONNEL, DOSE AND POWER GENERATION SUMMARY**

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)					Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type			
						Opera- tions	Maint & Others	Con- tractor	Station & Utility		
PRAIRIE ISLAND 1,2 (continued)	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	85.8	654	233	14	219	73	160	0.36	0.3
	1984	972.4	91.7	548	147	16	129	52	95	0.27	0.2
	1985	882.6	84.0	1,062	416	31	365	136	280	0.38	0.5
	1986	930.6	90.3	818	255	16	237	80	175	0.31	0.3
	1987	869.8	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	69	28	71	0.21	0.1
	1990	925.4	89.2	737	168	8	180	74	114	0.28	0.2
	1991	1,023.3	95.0	586	98	10	68	26	72	0.17	0.1
	1992	811.6	76.2	845	211	12	189	72	139	0.25	0.3
	1993	978.3	90.7	532	106	5	101	32	74	0.20	0.1
	1994	996.9	91.5	478	109	17	92	41	68	0.23	0.1
	1995	1,023.2	93.9	499	107	11	96	40	67	0.21	0.1
QUAD CITIES 1,2 Docket 50-254, 50-265; DPR-29, -30 1st commercial operation 2/73, 3/73 Type - BWRs Capacity - 769, 769 MWe	1974	958.1	72.3	678	482			36	446	0.71	0.5
	1975	833.8	68.4	1,083	1,618	114	1,504	692	928	1.49	1.9
	1976	951.2	73.1	1,225	1,651	289	1,362	648	1,003	1.35	1.7
	1977	970.1	84.0	907	1,031	108	923	373	658	1.14	1.1
	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	1,888	2,158	215	1,943	1,250	908	1.28	2.0
	1980	866.9	84.4	3,089	4,838	291	4,547	3,857	1,181	1.67	5.8
	1981	1,166.9	81.1	2,246	3,146	100	3,046	2,623	623	1.40	2.7
	1982	1,018.7	76.0	2,314	3,757	177	3,580	2,853	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	66.7	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	126	822	568	382	0.66	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	627	136	691	545	282	0.56	0.7
1989	1,186.3	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	
1993	974.9	67.0	2,150	849	131	718	491	358	0.39	0.9	
1994	681.5	48.7	2,163	1,128	144	984	789	339	0.52	1.7	
1995	1,002.5	70.4	2,041	736	101	635	441	295	0.36	0.7	

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

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)					Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type			
						Operations	Maint & Others	Con- tractor	Station & Utility		
RANCHO SECO¹¹	1976	266.1	30.4	297	56	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	60.6	506	323	76	247	176	147	0.64	0.5
Type - PWR	1979	687.0	91.1	267	126	27	99	64	62	0.44	0.2
Capacity - 673 MWe	1980	630.9	60.4	890	412	110	302	261	131	0.46	0.8
	1981	321.2	40.2	772	402	83	319	266	136	0.52	1.3
	1982	409.6	53.3	766	337	49	288	217	120	0.44	0.8
	1983	347.9	46.8	1,336	787	158	629	604	183	0.59	2.3
	1984	480.0	58.3	802	222	73	149	115	107	0.28	0.6
	1985	236.7	30.6	1,764	756	183	573	593	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	355.6	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	6	0.09	—
	1992	0.0	0.0	70	7	4	3	0	7	0.10	—
	1993	0.0	0.0	35	4	3	1	0	4	0.11	—
	1994	0.0	0.0	18	1	1	0	0	1	0.06	—
	1995	0.0	0.0	16	1	1	0	0	1	0.06	—
RIVER BEND 1	1987	605.2	68.4	1,258	378	70	308	249	129	0.30	0.6
Docket 50-458; NPF-47	1988	680.7	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	148	0.38	1.0
Type - BWR	1990	682.2	78.0	1,616	489	49	440	346	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	0.36	2.1
	1993	640.0	71.6	847	180	41	139	56	124	0.21	0.3
	1994	595.7	64.9	2,209	519	73	446	369	150	0.24	0.9
	1995	967.1	99.6	667	85	21	64	35	50	0.13	0.1
ROBINSON 2	1972	580.0		245	215	42	173	137	78	0.66	0.4
Docket 50-261; DPR-23	1973	455.1		831	695					0.84	1.5
1st commercial operation 3/71	1974	576.1	83.3	853	672	185	487			0.79	1.2
Type - PWR	1975	501.6	72.7	649	1,142					1.35	2.3
Capacity - 683 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

¹¹ Rancho Seco has been permanently shutdown.

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

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)						Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type		Station & Utility		
						Opera- tions	Maint & Others	Con- tractor	Station & Utility			
ROBINSON 2 (continued)	1978	480.6	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	408.8	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	677.1	80.3	1,571	639	46	493	340	189	0.34	0.9	
	1987	510.1	72.5	1,379	499	54	445	313	186	0.36	1.0	
	1988	385.0	65.9	1,351	564	44	520	370	194	0.42	1.5	
	1989	336.6	48.7	1,098	185	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	675.1	81.4	685	193	31	162	139	54	0.22	0.3	
	1992	487.2	66.8	1,267	362	61	301	260	92	0.28	0.7	
	1993	502.7	70.7	1,221	337	13	324	246	91	0.28	0.7	
	1994	580.3	79.5	420	63	9	54	17	46	0.16	0.1	
1995	618.7	84.7	1,058	215	12	203	111	104	0.20	0.3		
SALEM 1,2 Docket 50-272, -311; DPR-70, -75 1st commercial operation 6/77 Type - PWRs Capacity - 1106, 1106 MWs	1978	546.4	55.6	574	122	28	94	32	90	0.21	0.2	
	1979	250.0	25.5	1,488	584	100	484	359	225	0.39	2.3	
	1980	580.6	68.2	1,704	449	55	394	281	168	0.28	0.7	
	1981	743.0	78.1	1,652	254	4	250	152	102	0.15	0.3	
	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	1,385	681	10	671	469	212	0.49	1.0	
	1985	1,857.7	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	16	443	366	92	0.11	0.3	
	1992	1,200.9	61.1	4,376	431	16	415	340	91	0.10	0.4	
1993	1,366.3	65.4	3,559	406	11	397	318	90	0.11	0.3		
1994	1,367.4	73.6	950	188	2	186	122	66	0.20	0.1		
1995	558.1	29.3	1,195	219	4	214	147	71	0.18	0.4		

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

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)						Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type		Station & Utility		
						Opera- tions	Maint & Others	Con- tractor	Station & Utility			
SAN ONOFRE 1, ¹² 2,3	1969	314.1		123	42	10	32	5	37	0.34	0.1	
Docket 50-208, -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		328	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 - 435, 1070, 1080 MWe	1974	377.8	88.1	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	829	251	0.66	3.0	
	1977	281.2	63.7	985	847	77	770	451	398	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	3,056	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	68.3	7,514	986	105	881	831	155	0.27	1.5	
	1985	1,381.8	132.9	5,742	722	16	173	151	38	0.24	15.5	
	1986	1,698.2	61.1	3,594	824	86	738	574	260	0.24	1.1	
	1987	1,983.0	78.8	2,138	696	113	683	408	288	0.33	0.4	
	1988	1,982.3	68.4	2,324	781	99	682	518	263	0.34	0.4	
	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	886	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	6	319	229	95	0.20	0.1	
	1993	1,771.3	79.9	2,193	767	89	678	598	169	0.35	0.4	
	1994	2,220.7	100.0	528	32	7	25	10	22	0.08	0.0	
	1995	1,688.9	79.1	1,914	455	0	455	301	154	0.24	0.3	
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	1993	1,071.5	93.6	110	6	0	6	0	6	0.05	0.0	
Type - PWR	1994	736.4	63.5	852	113	28	85	87	26	0.13	0.2	
Capacity - 1150 Mwe	1995	995.5	87.5	800	102	2	100	76	26	0.13	0.1	
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, -78	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	59.0	2,373	1,117	152	965	111	1,005	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 - 1111, 1106 MWe	1986	0.0	0.0	1,735	526	101	425	70	456	0.30	—	

¹² San Onofre 1 was shut down 11/92 and is no longer included in the count of commercial reactors.

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

Person-cSv (-rems)

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Per Work Function			Per Personnel Type		Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Opera- tions	Maint & Others	Con- tractor	Station & Utility		
SEQUOYAH 1,2 (continued)	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	1,662.8	77.2	2,934	1,678	102	1,576	352	1,326	0.57	1.0
	1991	1,985.4	88.0	1,928	688	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
	1993	405.7	21.8	1,629	372	29	343	272	100	0.23	0.9
	1994	1,418.7	66.3	1,657	292	18	274	210	62	0.19	0.2
	1995	1,864.2	86.1	1,818	358	28	330	250	108	0.22	0.2
	C-31 SOUTH TEXAS 1, 2 Docket 50-498, 50-489; NPF -76,-80 1st commercial operation 8/88, 6/89 Type - PWRs Capacity - 1251, 1251 MWe	1989	769.3	65.6	989	181	10	181	114	47	0.16
1990		1,604.1	65.9	1,136	206	18	188	126	60	0.18	0.1
1991		1,741.8	72.4	1,144	267	38	219	172	85	0.22	0.1
1992		2,098.0	83.8	923	147	9	138	91	56	0.16	0.1
1993		183.1	8.3	1,138	261	12	239	197	54	0.22	1.5
1994		1,700.2	70.6	661	47	11	36	28	21	0.07	0.0
1995		2,294.2	89.9	1,485	291	15	276	208	83	0.20	0.1
NUREG-0713 ST. LUCIE 1,2 Docket 50-335, -389; DPR-67; NPF-16 1st commercial operation 12/76, 8/83 Type - PWRs Capacity - 839, 839 MWe	1977	848.1	84.7	445	152	26	126	92	80	0.34	0.2
	1978	606.4	78.5	797	337	15	322	140	197	0.42	0.6
	1979	592.0	74.0	907	438	26	413	209	229	0.48	0.7
	1980	627.9	77.5	1,074	532	62	450	195	337	0.50	0.8
	1981	599.7	72.7	1,473	929	20	909	556	373	0.63	1.8
	1982	816.8	94.0	1,045	272	17	256	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	1,838.7	93.0	1,446	611	64	557	371	240	0.42	0.4
	1989	1,493.1	85.1	1,414	466	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	1,692.8	90.8	1,282	479	39	441	303	178	0.37	0.3
	1992	1,511.9	87.3	1,251	264	29	235	153	111	0.21	0.2
1993	1,227.6	77.7	1,462	482	36	456	304	188	0.34	0.4	
1994	1,424.8	85.0	1,696	505	24	481	302	203	0.27	0.4	
1995	1,306.6	78.0	1,498	413	20	393	197	216	0.28	0.3	

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

Person-cSv (-rems)

Reporting Organization	Year	Megawatt Years Mw-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)					Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function	Per Personnel Type	Operations	Maint & Others		
SUMMER 1 Docket 50-395; NFF-12 1st commercial operation 1/84 Type - PWR Capacity - 885 MWe	1984	504.6	61.1	1,120	295	28	268	202	83	0.26	0.6
	1985	627.7	71.6	1,201	379	74	305	241	138	0.32	0.6
	1986	853.7	85.3	392	23	5	18	12	11	0.06	0.03
	1987	618.7	71.0	1,075	560	34	526	454	106	0.52	0.9
	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	378	28	347	322	54	0.34	0.5
	1991	642.6	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
	1993	728.3	84.0	1,121	297	11	286	253	44	0.26	0.4
	1994	636.7	69.5	1,549	374	27	347	334	40	0.24	0.7
	1995	899.6	97.2	257	13	3	10	4	9	0.05	0.0
	C-32 SURREY 1,2 Docket 50-280, 50-281; DPR-32, -37 1st commercial operation 12/72, 5/73 Type - PWRs Capacity - 761, 781 MWe	1973	420.6		936	152					0.16
1974		717.4	49.8	1,716	884	72	812			0.52	1.2
1975		1,079.0	70.8	1,948	1,649	27	1,622	1,065	584	0.85	1.5
1976		930.7	60.4	2,753	3,165	444	2,721	1,873	1,292	1.16	3.4
1977		1,139.0	72.2	1,880	2,307	346	1,959	1,380	927	1.24	2.0
1978		1,210.6	77.2	2,203	1,837	530	1,307	1,248	589	0.83	1.5
1979		343.0	42.3	5,065	3,584	173	3,411	2,975	609	0.71	10.4
1980		568.2	40.3	5,317	3,838	353	3,483	3,117	719	0.72	6.8
1981		907.6	59.3	3,753	4,244	426	3,816	3,040	1,204	1.13	4.7
1982		1,323.3	88.5	1,878	1,490	399	1,091	508	984	0.79	1.1
1983		916.2	61.3	2,754	3,220	571	2,649	1,788	1,434	1.17	3.6
1984		1,026.7	71.0	3,198	2,247	536	1,711	1,575	672	0.70	2.2
1985		1,166.4	78.2	3,208	1,815	509	1,306	1,232	583	0.57	1.6
1986		1,090.5	69.0	3,763	2,356	430	1,926	1,877	679	0.83	2.2
1987		1,132.7	72.7	2,675	712	192	520	325	387	0.27	0.6
1988		750.4	50.0	3,184	1,542	68	1,474	1,117	425	0.48	2.1
1989		489.3	33.0	3,100	836	27	809	530	306	0.27	1.7
1990	1,276.4	83.9	1,947	575	53	522	389	186	0.30	0.5	
1991	1,271.9	84.5	1,547	610	45	485	311	199	0.33	0.4	
1992	1,396.3	88.9	1,680	539	108	431	383	156	0.32	0.4	
1993	1,283.1	84.8	1,402	383	72	311	241	142	0.27	0.3	
1994	1,320.9	85.2	1,530	378	66	312	254	124	0.25	0.3	
1995	1,333.0	84.2	1,683	406	60	346	248	160	0.22	0.3	

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

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)					Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type			
						Opera- tions	Maint & Others	Con- tractor	Station & Utility		
SUSQUEHANNA 1,2 Docket 60-397, 60-398; NPF-14; NPF-22 1st commercial operation 6/83, 2/85 Type - BWR Capacity - 1040, 1094 MWe	1984	719.9	72.6	2,827	308	74	234	127	181	0.11	0.4
	1985	1,452.2	76.4	3,689	1,106	78	1,028	790	318	0.30	0.8
	1986	1,344.6	67.0	2,996	828	50	778	402	426	0.28	0.6
	1987	1,749.5	85.3	2,548	621	38	585	341	280	0.24	0.4
	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	1,685	724	29	695	356	366	0.38	0.5
	1993	1,602.1	77.3	1,488	335	19	316	172	163	0.23	0.2
	1994	1,814.4	85.4	1,560	442	20	422	246	188	0.26	0.2
1995	1,850.8	85.3	1,773	476	54	422	176	300	0.27	0.3	
C-33 THREE MILE ISLAND 1,2 Docket 50-289, -320; DPR-50, -73 1st commercial operation 9/74, 12/78 Type - PWRs Capacity - 786, 880 MWe	1975	675.9	82.2	131	73			18	55	0.56	0.1
	1976	530.0	65.4	819	266	23	263	69	217	0.35	0.5
	1977	864.5	80.9	1,122	360	15	344	128	231	0.32	0.5
	1978	690.0	85.1	1,929	504	32	472	235	269	0.26	0.7
	1979	286.0	21.9	3,975	1,392	197	1,195	907	485	0.35	5.2
	1980	0.0	0.0	2,328	394	28	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	65	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 ¹³ Docket 50-289; DPR-50 1st commercial operation 9/74 Type - PWR Capacity - 786 MWe	1986	585.2	70.9	1,360	213	44	169	89	124	0.16	0.4
	1987	610.7	73.6	1,259	149	40	109	50	99	0.12	0.2
	1988	661.0	77.8	1,012	210	40	170	88	122	0.21	0.3
	1989	671.3	100.0	670	54	22	32	3	51	0.08	0.1
	1990	645.5	84.6	1,319	264	53	211	121	143	0.20	0.4
	1991	688.7	86.4	1,642	198	47	151	99	99	0.13	0.3
	1992	836.8	100.0	558	34	15	19	5	28	0.06	0.0
	1993	722.0	88.5	1,835	206	53	153	110	96	0.11	0.3
	1994	798.7	95.5	434	40	19	21	1	39	0.09	0.1
	1995	772.9	90.6	1,220	213	31	182	126	87	0.17	0.3

¹³ Three Mile Island 1 resumed commercial power generation 10/86 after being under regulatory restraint since 1979.

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

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)						Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type		Station & Utility		
						Operations	Maint & Others	Con- tractor	Station & Utility			
THREE MILE ISLAND 2 ¹⁴ Docket 50-320; DPR-73 1st commercial operation 12/78 Type - PWR Capacity - 880 MW/e	1986	0.0	0.0	1,497	915	97	818	815	300	0.61	—	
	1987	0.0	0.0	1,378	977	90	887	687	290	0.71	—	
	1988	0.0	0.0	1,247	917	26	891	691	226	0.74	—	
	1989	0.0	0.0	1,014	639	88	551	382	257	0.63	—	
	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	—	
	1993	0.0	0.0	167	33	1	32	19	14	0.20	—	
	1994	0.0	0.0	259	7	0	7	2	5	0.03	—	
	1995	0.0	0.0	191	2	1	1	0	2	0.01	—	
TROJAN ¹⁵ Docket 50-344; NPF-1 1st commercial operation 5/76 Type - PWR Capacity - 1095 MW/e	1977	792.0	82.6	591	174	30	144	105	69	0.29	0.2	
	1978	205.5	20.6	711	319	83	236	125	194	0.46	1.6	
	1979	631.0	58.1	736	258	74	184	113	145	0.35	0.4	
	1980	727.5	72.5	1,159	421	77	344	305	116	0.36	0.6	
	1981	775.6	74.1	1,311	609	113	496	353	246	0.46	0.8	
	1982	578.5	60.8	977	419	76	343	188	251	0.43	0.7	
	1983	494.2	62.4	989	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	64.0	1,209	363	66	297	266	97	0.30	0.7	
	1988	758.6	67.5	1,408	401	108	293	311	90	0.26	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	0.36	3.1	
	1992	553.9	68.4	667	84	8	76	52	32	0.15	0.2	
	1993	0.0	68.4	54	21	3	18	12	9	0.39	—	
1994	0.0	0.0	61	9	2	7	6	3	0.16	—		
1995	0.0	0.0	141	44	—	—	—	—	0.31	—		

¹⁴ 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.

¹⁵ Trojan ended commercial operation as of 1/93, and will not be put in commercial operation again. It is no longer included in the count of commercial reactors.

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

Person-cSv (-rem)

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rem)					Average Measurable Dose (cSv or rem)	Person cSv (-rem) MW-yr
					Collective Dose	Per Work Function Operations	Maint & Others	Per Personnel Type Contractor	Station & Utility		
TURKEY POINT 3,4 Docket 50-250, 50-251; DPR-31, -41 1st commercial operation 12/72, 9/73 Type - PWRs Capacity - 686, 686 MWe	1973	401.9		444	78					0.16	0.2
	1974	953.6		794	454	88	366	202	252	0.57	0.5
	1975	1,003.7	74.9	1,176	676	270	606	559	317	0.74	0.9
	1976	974.2	71.2	1,647	1,184	89	1,095	858	316	0.72	1.2
	1977	979.5	72.1	1,319	1,036	94	942	522	514	0.79	1.1
	1978	1,000.2	78.8	1,336	1,032	90	942	546	486	0.77	1.0
	1979	811.0	62.4	2,002	1,680	299	1,381	997	683	0.84	2.1
	1980	990.6	73.6	1,803	1,651	232	1,419	1,218	433	0.92	1.7
	1981	854.0	48.8	2,932	2,251	274	1,977	1,854	397	0.77	3.4
	1982	915.7	65.2	2,956	2,119	197	1,922	1,656	463	0.72	2.3
	1983	878.4	62.8	2,930	2,691	272	2,409	2,119	562	0.92	3.1
	1984	946.7	68.5	2,010	1,255	217	1,038	876	379	0.62	1.3
	1985	1,034.9	74.7	1,905	1,253	91	1,162	817	438	0.66	1.2
	1986	754.1	54.9	1,808	946	71	875	718	230	0.62	1.3
	1987	431.3	36.6	1,960	1,371	79	1,292	987	384	0.69	3.2
	1988	809.8	59.5	1,841	738	18	720	523	215	0.40	0.9
	1989	689.9	56.8	1,625	493	25	408	261	152	0.27	0.6
	1990	933.1	69.0	2,099	730	140	590	475	255	0.35	0.8
	1991	258.2	21.0	2,087	939	105	634	685	264	0.45	3.6
	1992	968.9	75.5	1,374	325	32	293	173	162	0.24	0.3
1993	1,244.8	91.0	1,271	275	6	269	164	111	0.22	0.2	
1994	1,172.9	87.2	1,489	476	0	476	231	245	0.32	0.4	
1995	1,320.3	94.6	1,142	216	0	216	102	113	0.19	0.2	
VERMONT YANKEE Docket 50-271; DPR-28 1st commercial operation 11/72 Type - BWR Capacity - 504 MWe	1973	222.1		244	85					0.35	0.4
	1974	303.5		357	216	24	192	103	113	0.61	0.7
	1975	429.0	87.8	282	153	70	83	63	90	0.54	0.4
	1976	389.6	77.1	615	411	36	375	246	185	0.50	1.1
	1977	423.5	85.1	641	258	83	175	90	188	0.40	0.6
	1978	387.5	75.9	834	339	78	261	158	181	0.36	0.9
	1979	414.0	82.1	1,220	1,170	546	624	642	528	0.96	2.6
	1980	357.8	71.5	1,443	1,338	141	1,197	926	412	0.93	3.7
	1981	429.1	84.6	1,264	731	121	610	408	323	0.69	1.7
	1982	501.0	96.0	481	205	60	145	80	125	0.43	0.4
	1983	346.1	69.3	1,316	1,627	215	1,312	787	740	1.16	4.4
	1984	398.1	79.0	954	626	83	543	318	306	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	268	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	632	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	

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APPENDIX C (continued)

PERSONNEL, DOSE AND POWER GENERATION SUMMARY

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)							Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type					
						Operations	Maint & Others	Con- tractor	Station & Utility				
VERMONT YANKEE (continued)	1992	448.8	88.1	821	381	58	323	318	62	0.41	0.9		
	1993	402.3	80.1	833	217	41	178	188	51	0.26	0.5		
	1994	515.8	88.7	220	38	24	14	18	20	0.17	0.1		
	1995	462.1	87.0	737	182	47	135	151	31	0.25	0.4		
VOGTLE 1,2 Docket 50-424, 50-425; NPF-68, -81 1st commercial operation 8/87, 5/89 Type - PWRs Capacity - 1189, 1169 MWe	1988	820.4	77.7	1,108	138	13	125	107	31	0.12	0.2		
	1989	1,045.8	96.0	427	32	7	25	14	18	0.07	0.0		
	1990	1,710.9	82.7	1,602	466	89	377	323	143	0.29	0.3		
	1991	1,966.5	89.2	1,357	362	50	312	288	66	0.27	0.2		
	1992	2,047.9	90.0	1,262	426	51	375	310	116	0.34	0.2		
	1993	2,050.4	88.3	1,338	367	34	333	251	116	0.27	0.2		
	1994	2,170.1	91.3	1048	217	8	209	120	97	0.21	0.1		
1995	2,285.4	95.2	953	199	13	188	94	105	0.21	0.1			
WASHINGTON NUCLEAR 2 Docket 50-397; NPF-21 1st commercial operation 12/84 Type - BWR Capacity - 1086 MWe	1985	616.0	87.6	755	119	42	77	42	77	0.16	0.2		
	1986	616.0	74.4	1,013	222	58	166	70	152	0.22	0.4		
	1987	639.0	70.8	1,201	406	95	311	143	263	0.34	0.6		
	1988	707.7	71.8	1,050	353	81	272	93	260	0.34	0.5		
	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		
	1993	849.6	79.5	1,385	469	1	468	207	282	0.34	0.6		
	1994	803.8	75.2	1,670	666	108	758	468	396	0.48	1.1		
1995	824.7	83.8	1,694	456	91	365	219	237	0.27	0.6			
WATERFORD 3 Docket 50-382; NPF-33 1st commercial operation 9/85 Type - PWR Capacity - 1075 MWe	1986	875.7	79.1	1,244	223	62	161	178	45	0.18	0.3		
	1987	891.8	82.5	959	156	33	123	106	50	0.16	0.2		
	1988	784.3	75.4	1,246	259	79	180	207	52	0.21	0.3		
	1989	909.8	82.6	1,308	285	70	195	231	34	0.20	0.3		
	1990	1,027.9	92.8	432	47	0	47	24	23	0.11	0.0		
	1991	870.8	79.8	1,301	384	101	263	307	57	0.28	0.4		
	1992	909.6	83.2	1,213	226	52	174	177	49	0.19	0.2		
	1993	1,088.3	99.4	195	15	3	12	6	10	0.08	0.0		
	1994	949.1	87.0	1,167	191	47	144	143	48	0.16	0.2		
	1995	827.4	83.4	1,092	153	2	151	93	60	0.14	0.2		

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

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)					Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type			
						Operations	Maint & Others	Con- tractor	Station & Utility		
WOLF CREEK 1 Docket 50-482; NPF-42 1st commercial operation 9/85 Type - PWR Capacity - 1160 MWe	1986	832.8	73.3	692	143	27	116	78	65	0.21	0.2
	1987	778.8	71.1	675	138	26	112	82	56	0.20	0.2
	1988	794.7	70.7	1,010	297	62	235	177	120	0.29	0.4
	1989	1,108.4	99.5	186	18	4	14	8	10	0.10	0.0
	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	38	0.17	0.1
	1993	940.5	80.6	975	193	31	152	117	66	0.19	0.2
	1994	1,017.2	86.8	1,082	235	36	199	170	65	0.22	0.2
	1995	1,198.0	98.7	242	14	5	9	2	12	0.06	0.0
CS7 YANKEE ROWE ¹⁶ Docket 50-29; DPR-3 1st commercial operation 7/61 Type - PWR Capacity - 167 MWe	1969	138.3		193	215	83	132	78	133	1.11	1.6
	1970	146.1		355	255	90	165	158	97	0.72	1.7
	1971	173.5		155	90	46	44	19	71	0.58	0.5
	1972	78.7		282	255	63	192	146	109	0.90	3.2
	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	66	0.39	0.4
	1977	124.8	73.9	725	356	28	328	174	182	0.49	2.9
	1978	145.0	81.0	585	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	269	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	16	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	78	0.35	2.4	
1991	121.2	72.3	162	40	11	29	18	24	0.25	0.3	
1992	0.0	0.0	324	94	10	84	59	35	0.29	—	
1993	0.0	0.0	313	163	8	155	163	10	0.52	—	
1994	0.0	0.0	222	156	4	152	137	19	0.70	—	
1995	0.0	0.0	0	0	0	0	0	0	0.00	***	

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¹⁶ 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 C (continued)
PERSONNEL, DOSE AND POWER GENERATION SUMMARY

Reporting Organization	Year	Megawatt Years MW-YR	Unit Availability Factor	Total Personnel With Measurable Doses	Person-cSv (-rems)						Average Measurable Dose (cSv or rems)	Person cSv (-rems) MW-yr
					Collective Dose	Per Work Function		Per Personnel Type		Station & Utility		
						Opera- tions	Maint & Others	Con- tractor	Station & Utility			
ZION 1,2	1974	425.3	71.1	306	56			13	43	0.18	0.1	
Docket 50-296, 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	0.6	
Type - PWRs	1977	1,358.6	76.0	784	1,003	43	980	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	1,239.0	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	60	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	0.8	
	1985	1,187.9	62.9	1,498	1,168	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	1,280	36	1,222	1,045	215	0.65	0.8	
	1989	1,514.1	77.6	1,262	624	21	603	392	232	0.49	0.4	
	1990	860.4	46.9	1,385	896	19	877	492	204	0.50	0.6	
	1991	1,125.7	56.2	902	173	26	147	90	83	0.19	0.2	
	1992	1,126.8	59.0	1,732	1,043	19	1,024	783	260	0.60	0.9	
	1993	1,456.2	70.9	1,772	643	15	628	461	162	0.36	0.4	
	1994	1,224.9	59.9	1,176	306	14	292	176	130	0.26	0.2	
	1995	1,471.6	72.4	1,807	797	6	789	590	207	0.44	0.5	

APPENDIX D

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

1995

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**

1995

PLANT: ***ARKANSAS 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	1	1	32	34	0.220	0.375	14.677	15.272
OPERATIONS PERSONNEL	1	1	0	2	0.101	0.170	0.000	0.271
HEALTH PHYSICS PERSONNEL	30	1	11	42	6.664	0.169	2.132	9.165
SUPERVISORY PERSONNEL	0	0	1	1	0.000	0.000	0.129	0.129
ENGINEERING PERSONNEL	1	0	0	1	0.240	0.000	0.000	0.240
TOTAL	33	3	44	80	7.425	0.714	16.968	25.107
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	5	5	0.000	0.000	0.694	0.694
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	5	5	0.000	0.000	0.694	0.694
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	36	36	0.000	0.000	13.785	13.785
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	3	0	0	3	0.614	0.000	0.000	0.614
SUPERVISORY PERSONNEL	0	0	1	1	0.000	0.000	0.579	0.579
ENGINEERING PERSONNEL	2	0	9	11	0.300	0.000	1.821	2.221
TOTAL	5	0	46	53	0.914	0.000	16.285	17.189
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	75	2	219	296	15.015	0.284	49.128	64.427
OPERATIONS PERSONNEL	11	2	1	14	1.397	0.270	0.174	1.841
HEALTH PHYSICS PERSONNEL	38	1	68	103	7.485	0.234	12.649	20.368
SUPERVISORY PERSONNEL	3	0	0	3	0.511	0.000	0.000	0.511
ENGINEERING PERSONNEL	7	0	2	9	1.446	0.000	0.684	2.112
TOTAL	132	5	289	425	25.856	0.788	62.615	89.259
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	3	0	1	4	0.570	0.000	0.457	1.027
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	1	0	1	2	0.117	0.000	0.458	0.575
TOTAL	4	0	2	6	0.687	0.000	0.915	1.602
REFUELING								
MAINTENANCE PERSONNEL	67	9	215	311	21.822	1.219	77.432	100.573
OPERATIONS PERSONNEL	23	0	0	23	4.611	0.000	0.000	4.611
HEALTH PHYSICS PERSONNEL	46	0	35	81	13.432	0.000	8.145	21.607
SUPERVISORY PERSONNEL	5	1	4	10	1.976	0.153	3.138	5.267
ENGINEERING PERSONNEL	18	1	21	40	3.351	0.169	15.192	18.673
TOTAL	179	11	275	465	45.322	1.532	103.877	150.731
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	163	12	509	684	37.157	1.878	155.716	194.751
OPERATIONS PERSONNEL	35	3	1	39	6.109	0.440	0.174	6.723
HEALTH PHYSICS PERSONNEL	118	2	113	233	28.985	0.403	23.413	52.811
SUPERVISORY PERSONNEL	8	1	6	15	2.487	0.153	3.846	6.486
ENGINEERING PERSONNEL	29	1	33	63	5.456	0.160	16.205	23.821
GRAND TOTALS	363	19	662	1034	80.204	3.034	201.354	284.662

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1985

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	11	0	12	23	2.521	0.000	6.400	8.921
OPERATIONS PERSONNEL	63	0	8	69	18.110	0.000	0.845	18.955
HEALTH PHYSICS PERSONNEL	29	0	27	56	7.030	0.000	10.548	17.578
SUPERVISORY PERSONNEL	15	0	4	19	3.784	0.000	0.806	4.590
ENGINEERING PERSONNEL	3	0	0	3	0.545	0.000	0.150	0.695
TOTAL	121	0	49	170	29.990	0.000	18.749	48.739
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	165	0	282	427	67.009	0.000	110.498	177.507
OPERATIONS PERSONNEL	2	0	0	2	0.685	0.000	0.000	0.685
HEALTH PHYSICS PERSONNEL	13	0	75	88	2.765	0.000	32.547	35.312
SUPERVISORY PERSONNEL	15	0	11	26	3.879	0.000	5.950	9.829
ENGINEERING PERSONNEL	5	0	10	15	1.065	0.000	2.690	4.055
TOTAL	200	0	358	558	75.203	0.000	151.685	227.188
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	4	0	168	170	2.140	0.000	101.839	104.079
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	36	36	0.065	0.000	15.287	15.352
SUPERVISORY PERSONNEL	8	0	11	19	4.930	0.000	8.500	13.430
ENGINEERING PERSONNEL	1	0	2	3	0.180	0.000	0.387	0.567
TOTAL	13	0	217	230	7.375	0.000	128.113	133.488
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	6	6	0.113	0.000	2.088	2.201
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.005	0.000	0.149	0.154
SUPERVISORY PERSONNEL	0	0	0	0	0.075	0.000	0.010	0.085
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	6	6	0.193	0.000	2.247	2.440
WASTE PROCESSING								
MAINTENANCE PERSONNEL	1	0	3	4	0.397	0.000	0.570	0.967
OPERATIONS PERSONNEL	4	0	0	4	0.980	0.000	0.000	0.980
HEALTH PHYSICS PERSONNEL	2	0	9	11	0.410	0.000	3.480	3.890
SUPERVISORY PERSONNEL	1	0	0	1	0.335	0.000	0.000	0.335
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	8	0	12	20	2.102	0.000	4.030	6.122
REFUELING								
MAINTENANCE PERSONNEL	7	0	59	66	2.284	0.000	37.894	40.178
OPERATIONS PERSONNEL	2	0	0	2	1.110	0.000	0.000	1.110
HEALTH PHYSICS PERSONNEL	0	0	20	20	0.010	0.000	9.081	9.091
SUPERVISORY PERSONNEL	6	0	3	9	3.817	0.000	1.240	5.057
ENGINEERING PERSONNEL	2	0	8	10	0.530	0.000	2.530	3.160
TOTAL	17	0	90	107	7.751	0.000	50.845	58.596
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	186	0	508	696	74.464	0.000	259.369	333.853
OPERATIONS PERSONNEL	71	0	6	77	19.825	0.000	0.845	19.770
HEALTH PHYSICS PERSONNEL	44	0	169	213	10.285	0.000	71.082	81.347
SUPERVISORY PERSONNEL	45	0	29	74	18.620	0.000	18.506	33.125
ENGINEERING PERSONNEL	11	0	20	31	2.320	0.000	6.157	8.477
GRAND TOTALS	359	0	732	1091	122.814	0.000	353.959	476.573

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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	0	0	0	0	0.180	0.000	0.001	0.181
OPERATIONS PERSONNEL	33	0	0	33	13.960	0.008	0.003	13.971
HEALTH PHYSICS PERSONNEL	10	0	2	12	3.870	0.002	0.770	4.642
SUPERVISORY PERSONNEL	0	0	0	0	0.387	0.018	0.225	0.630
ENGINEERING PERSONNEL	2	0	0	2	0.850	0.010	0.027	0.887
TOTAL	45	0	2	47	19.247	0.038	1.026	20.311
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	19	1	4	24	5.640	0.340	1.158	7.438
OPERATIONS PERSONNEL	1	0	0	1	0.340	0.000	0.000	0.340
HEALTH PHYSICS PERSONNEL	7	0	2	9	1.895	0.008	0.408	2.311
SUPERVISORY PERSONNEL	0	0	1	1	0.051	0.028	0.294	0.371
ENGINEERING PERSONNEL	3	0	0	3	0.880	0.022	0.008	0.910
TOTAL	30	1	7	38	8.886	0.396	1.868	11.148
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	0	0	0.036	0.000	0.000	0.036
OPERATIONS PERSONNEL	0	0	0	0	0.031	0.000	0.000	0.031
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.006	0.006
SUPERVISORY PERSONNEL	0	0	0	0	0.012	0.000	0.000	0.012
ENGINEERING PERSONNEL	0	0	0	0	0.007	0.000	0.000	0.007
TOTAL	0	0	0	0	0.086	0.000	0.006	0.092
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	5	5	0.267	0.008	8.128	8.401
OPERATIONS PERSONNEL	1	0	0	1	0.398	0.000	0.000	0.398
HEALTH PHYSICS PERSONNEL	11	0	0	11	6.121	0.000	0.165	6.286
SUPERVISORY PERSONNEL	0	0	1	1	0.021	0.050	0.910	0.981
ENGINEERING PERSONNEL	2	0	0	2	0.516	0.000	0.016	0.534
TOTAL	14	0	6	20	7.323	0.058	9.219	16.598
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	1	1	0.068	0.000	0.435	0.503
OPERATIONS PERSONNEL	0	0	0	0	0.169	0.000	0.000	0.169
HEALTH PHYSICS PERSONNEL	8	0	1	9	5.151	0.000	0.253	5.404
SUPERVISORY PERSONNEL	0	0	0	0	0.054	0.000	0.007	0.061
ENGINEERING PERSONNEL	1	0	0	1	0.128	0.000	0.002	0.131
TOTAL	9	0	2	11	5.585	0.000	0.697	6.282
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	19	1	10	30	8.491	0.348	9.722	18.559
OPERATIONS PERSONNEL	35	0	0	35	14.920	0.008	0.003	14.931
HEALTH PHYSICS PERSONNEL	30	0	5	41	17.037	0.010	1.602	18.649
SUPERVISORY PERSONNEL	0	0	2	2	0.525	0.094	1.438	2.055
ENGINEERING PERSONNEL	8	0	0	8	2.164	0.032	0.051	2.247
GRAND TOTALS	98	1	17	116	41.137	0.480	12.814	54.441

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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	12	0	0	12	2.499	0.040	0.002	2.541
OPERATIONS PERSONNEL	36	27	1	64	3.737	0.153	0.004	3.894
HEALTH PHYSICS PERSONNEL	15	4	9	28	3.370	0.766	0.033	4.169
SUPERVISORY PERSONNEL	44	6	1	51	1.361	0.106	0.000	1.467
ENGINEERING PERSONNEL	31	0	0	31	0.593	0.001	0.000	0.594
TOTAL	138	37	11	186	11.560	1.066	0.039	12.665
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	110	445	9	564	22.465	70.952	0.568	94.005
OPERATIONS PERSONNEL	140	1	20	161	14.339	0.005	0.119	14.463
HEALTH PHYSICS PERSONNEL	41	33	85	159	8.671	5.883	0.328	15.180
SUPERVISORY PERSONNEL	160	66	1	269	5.680	1.664	0.000	7.344
ENGINEERING PERSONNEL	70	4	10	84	1.349	0.048	0.057	1.452
TOTAL	541	571	125	1237	52.624	78.550	1.070	132.444
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	112	0	112	0.000	17.875	0.000	17.875
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.001	0.001
HEALTH PHYSICS PERSONNEL	0	1	5	6	0.000	0.165	0.019	0.184
SUPERVISORY PERSONNEL	0	1	1	2	0.011	0.020	0.000	0.031
ENGINEERING PERSONNEL	16	1	1	18	0.265	0.015	0.009	0.319
TOTAL	16	115	7	138	0.306	18.075	0.029	18.410
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	36	261	10	327	7.360	44.914	0.613	52.887
OPERATIONS PERSONNEL	2	0	23	25	0.150	0.000	0.143	0.293
HEALTH PHYSICS PERSONNEL	6	24	26	56	1.315	4.117	0.109	5.541
SUPERVISORY PERSONNEL	43	6	9	58	1.346	0.110	0.000	1.456
ENGINEERING PERSONNEL	23	21	2	46	0.452	0.264	0.011	0.727
TOTAL	110	332	72	514	10.643	49.405	0.876	60.924
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	29	0	29	0.005	4.543	0.000	4.548
OPERATIONS PERSONNEL	4	145	1	150	0.417	0.637	0.004	1.258
HEALTH PHYSICS PERSONNEL	2	0	10	12	0.001	0.001	0.038	0.040
SUPERVISORY PERSONNEL	2	0	0	2	0.074	0.000	0.000	0.074
ENGINEERING PERSONNEL	0	0	0	0	0.001	0.000	0.000	0.001
TOTAL	6	174	11	191	0.498	5.381	0.042	5.921
REFUELING								
MAINTENANCE PERSONNEL	12	11	6	29	2.369	1.765	0.354	4.528
OPERATIONS PERSONNEL	10	0	0	10	1.057	0.000	0.002	1.059
HEALTH PHYSICS PERSONNEL	1	0	23	24	0.165	0.032	0.068	0.265
SUPERVISORY PERSONNEL	17	0	1	18	0.542	0.000	0.000	0.542
ENGINEERING PERSONNEL	9	0	0	9	0.179	0.000	0.000	0.179
TOTAL	49	11	30	90	4.332	1.817	0.444	6.593
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	170	876	25	1073	34.758	140.109	1.537	176.404
OPERATIONS PERSONNEL	182	173	45	410	19.700	0.965	0.273	20.938
HEALTH PHYSICS PERSONNEL	65	62	160	287	13.822	10.994	0.613	25.399
SUPERVISORY PERSONNEL	266	101	13	400	6.014	1.800	0.000	10.914
ENGINEERING PERSONNEL	149	26	13	188	2.669	0.326	0.077	3.272
GRAND TOTALS	802	1240	256	2358	60.163	154.294	2.500	236.957

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1985

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	133	21	304	458	11.843	2.532	6.528	20.903
OPERATIONS PERSONNEL	108	3	2	113	21.349	0.480	0.000	21.829
HEALTH PHYSICS PERSONNEL	54	6	1	61	10.849	0.579	0.000	11.228
SUPERVISORY PERSONNEL	30	0	51	81	4.277	0.000	2.037	6.314
ENGINEERING PERSONNEL	23	1	40	64	1.899	0.008	1.443	3.440
TOTAL	348	31	398	777	50.107	3.599	10.008	63.714
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	150	25	680	854	27.693	2.502	111.579	141.784
OPERATIONS PERSONNEL	96	3	9	106	6.999	0.028	2.633	9.660
HEALTH PHYSICS PERSONNEL	58	6	1	63	5.318	0.648	0.201	7.163
SUPERVISORY PERSONNEL	22	2	69	93	1.285	0.219	8.723	10.227
ENGINEERING PERSONNEL	24	4	44	72	1.494	0.294	2.945	4.733
TOTAL	357	40	803	1200	43.777	3.689	128.081	173.547
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	3	3	0.000	0.000	0.041	0.041
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	3	3	0.000	0.000	0.041	0.041
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	136	24	738	898	11.494	3.311	127.239	142.014
OPERATIONS PERSONNEL	58	2	3	61	1.255	0.104	0.668	2.027
HEALTH PHYSICS PERSONNEL	53	6	1	60	5.390	1.043	0.021	8.424
SUPERVISORY PERSONNEL	9	2	71	82	0.242	0.058	8.092	8.392
ENGINEERING PERSONNEL	15	1	48	62	0.850	0.000	5.568	6.518
TOTAL	299	35	699	1163	19.271	4.518	141.588	165.375
WASTE PROCESSING								
MAINTENANCE PERSONNEL	18	1	13	32	0.279	0.026	0.057	0.362
OPERATIONS PERSONNEL	10	0	1	11	0.754	0.000	0.292	1.038
HEALTH PHYSICS PERSONNEL	10	0	0	10	0.135	0.000	0.000	0.136
SUPERVISORY PERSONNEL	3	0	0	3	0.060	0.000	0.000	0.060
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	41	1	14	56	1.229	0.026	0.339	1.594
REFUELING								
MAINTENANCE PERSONNEL	0	0	7	7	0.000	0.000	0.011	0.011
OPERATIONS PERSONNEL	13	0	0	13	0.074	0.000	0.000	0.074
HEALTH PHYSICS PERSONNEL	1	0	0	1	0.002	0.000	0.000	0.002
SUPERVISORY PERSONNEL	1	0	1	2	0.001	0.000	0.015	0.016
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	15	0	8	23	0.077	0.000	0.026	0.103
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	446	71	1745	2262	51.299	8.371	245.455	305.095
OPERATIONS PERSONNEL	283	8	15	306	30.431	0.612	3.593	34.628
HEALTH PHYSICS PERSONNEL	174	18	3	195	22.493	2.268	0.222	24.953
SUPERVISORY PERSONNEL	65	4	182	261	5.895	0.277	18.897	25.069
ENGINEERING PERSONNEL	62	6	130	198	4.433	0.302	9.658	14.691
GRAND TOTALS	1030	107	2055	3222	114.481	11.830	278.083	404.374

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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	11	2	6	19	3.688	0.340	3.538	7.542
OPERATIONS PERSONNEL	79	0	41	120	33.638	0.000	10.069	44.037
HEALTH PHYSICS PERSONNEL	64	0	29	93	28.006	0.008	12.232	36.244
SUPERVISORY PERSONNEL	14	1	2	17	5.791	0.140	0.615	6.548
ENGINEERING PERSONNEL	5	0	2	7	3.628	0.165	1.312	5.125
TOTAL	173	3	80	256	73.029	0.671	27.794	101.494
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	171	1	413	585	72.745	2.483	199.957	272.165
OPERATIONS PERSONNEL	0	0	1	1	0.632	0.165	0.282	1.079
HEALTH PHYSICS PERSONNEL	22	0	15	37	6.577	0.000	6.097	12.674
SUPERVISORY PERSONNEL	11	0	7	18	5.057	0.065	2.871	7.993
ENGINEERING PERSONNEL	39	1	128	168	18.327	0.761	72.429	89.517
TOTAL	243	2	564	809	101.338	3.454	278.636	383.426
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	3	0	18	21	0.912	0.000	5.320	6.232
OPERATIONS PERSONNEL	4	0	0	4	1.877	0.000	0.000	1.877
HEALTH PHYSICS PERSONNEL	1	0	0	1	0.223	0.000	0.039	0.262
SUPERVISORY PERSONNEL	1	0	0	1	0.289	0.000	0.013	0.302
ENGINEERING PERSONNEL	7	0	14	21	1.631	0.044	4.592	6.567
TOTAL	16	0	32	48	5.232	0.044	9.964	15.240
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	7	283	290	1.240	1.273	110.477	112.960
OPERATIONS PERSONNEL	0	0	2	2	0.044	0.000	0.830	0.874
HEALTH PHYSICS PERSONNEL	10	0	17	27	2.197	0.000	3.882	6.079
SUPERVISORY PERSONNEL	3	0	5	8	1.053	0.003	1.039	2.055
ENGINEERING PERSONNEL	5	1	17	23	1.590	0.362	4.753	6.715
TOTAL	18	8	324	350	6.124	1.638	120.991	128.753
WASTE PROCESSING								
MAINTENANCE PERSONNEL	10	0	23	33	4.472	0.012	6.627	11.111
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	3	0	1	4	0.698	0.000	0.483	1.181
SUPERVISORY PERSONNEL	0	0	1	1	0.150	0.000	0.330	0.480
ENGINEERING PERSONNEL	1	0	4	5	0.339	0.001	1.647	1.984
TOTAL	14	0	29	43	5.659	0.013	9.087	14.738
REFUELING								
MAINTENANCE PERSONNEL	6	2	30	38	1.784	0.338	13.134	15.234
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	1	1	0.007	0.000	0.269	0.300
SUPERVISORY PERSONNEL	1	0	2	3	0.339	0.001	1.367	1.707
ENGINEERING PERSONNEL	5	0	44	49	1.554	0.087	20.966	22.607
TOTAL	12	2	77	91	3.684	0.424	35.780	38.848
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	201	12	773	986	84.799	4.424	338.051	425.274
OPERATIONS PERSONNEL	83	0	44	127	36.491	0.165	11.211	47.867
HEALTH PHYSICS PERSONNEL	100	0	63	163	35.706	0.008	23.008	58.720
SUPERVISORY PERSONNEL	30	1	17	48	12.879	0.209	6.235	19.123
ENGINEERING PERSONNEL	62	2	209	273	25.399	1.440	105.709	132.515
GRAND TOTALS	476	15	1108	1597	185.043	6.244	482.212	583.499

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

PLANT: *BYRON 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	0.000	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	0.088	0.088
SUPERVISORY PERSONNEL	0	0	3	3	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	1.074	1.074
TOTAL	0	0	4	4	0.000	0.000	1.162	1.162
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	182	0	531	713	2.862	4.199	0.228	7.289
OPERATIONS PERSONNEL	233	0	171	404	21.352	0.000	4.836	28.188
HEALTH PHYSICS PERSONNEL	82	0	33	118	83.522	0.000	77.020	140.542
SUPERVISORY PERSONNEL	241	54	227	522	15.893	0.000	1.718	17.409
ENGINEERING PERSONNEL	58	351	25	434	14.182	0.172	70.868	85.340
TOTAL	798	405	890	2191	117.611	4.371	154.785	278.768
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	187	187	0.028	0.401	0.072	0.501
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.118	0.000	27.130	27.248
SUPERVISORY PERSONNEL	0	8	0	8	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	1	34	2	43	0.000	0.018	0.000	0.018
TOTAL	1	40	189	236	0.146	0.420	27.202	27.768
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	0	0	0.013	0.005	0.000	0.018
OPERATIONS PERSONNEL	0	0	0	0	0.011	0.000	0.000	0.011
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.057	0.000	0.014	0.071
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.007	0.000	0.000	0.007
TOTAL	0	0	0	0	0.088	0.005	0.014	0.107
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.001	0.001	0.000	0.002
OPERATIONS PERSONNEL	1	0	11	12	0.005	0.000	0.000	0.005
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.004	0.000	0.000	0.004
SUPERVISORY PERSONNEL	0	0	0	0	0.051	0.000	0.107	0.158
ENGINEERING PERSONNEL	0	0	0	0	0.021	0.000	0.000	0.021
TOTAL	1	0	11	12	0.082	0.001	0.107	0.190
REFUELING								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.040	0.000	0.000	0.040
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.114	0.000	0.000	0.114
SUPERVISORY PERSONNEL	4	0	0	4	0.007	0.000	0.000	0.007
ENGINEERING PERSONNEL	0	0	0	0	0.183	0.000	0.000	0.183
TOTAL	4	0	0	4	0.344	0.000	0.000	0.344
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	182	0	719	901	2.904	4.608	0.300	7.812
OPERATIONS PERSONNEL	234	0	182	416	21.408	0.000	4.836	28.244
HEALTH PHYSICS PERSONNEL	82	0	36	118	83.815	0.000	104.252	168.067
SUPERVISORY PERSONNEL	245	60	230	535	15.751	0.000	1.823	17.574
ENGINEERING PERSONNEL	58	365	33	477	14.363	0.191	72.060	85.644
GRAND TOTALS	802	445	1200	2447	118.271	4.797	183.271	308.339

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

PLANT: *CALLAWAY 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	1	1	0.144	0.000	0.688	0.832
OPERATIONS PERSONNEL	24	0	0	24	5.088	0.000	0.000	5.088
HEALTH PHYSICS PERSONNEL	39	0	35	74	9.470	0.067	10.054	19.591
SUPERVISORY PERSONNEL	4	0	1	5	2.248	0.038	0.284	2.568
ENGINEERING PERSONNEL	2	1	0	3	1.254	0.341	0.051	1.646
TOTAL	69	1	37	107	18.212	0.448	11.077	29.735
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	97	1	96	194	25.571	0.121	31.387	57.079
OPERATIONS PERSONNEL	2	0	0	2	0.817	0.000	0.000	0.817
HEALTH PHYSICS PERSONNEL	1	1	0	2	1.400	0.194	0.841	2.435
SUPERVISORY PERSONNEL	2	0	0	2	1.009	0.001	0.148	1.152
ENGINEERING PERSONNEL	8	0	1	10	2.778	0.039	0.297	3.112
TOTAL	111	2	97	210	31.587	0.355	32.673	64.965
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	1	0	36	37	0.178	0.000	17.863	18.161
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	4	0	5	9	1.029	0.000	1.870	2.899
SUPERVISORY PERSONNEL	0	0	0	0	0.102	0.012	0.000	0.114
ENGINEERING PERSONNEL	1	0	2	3	0.487	0.000	0.854	1.421
TOTAL	6	0	43	49	1.778	0.012	20.607	22.595
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	18	0	84	102	5.829	0.000	38.094	43.923
OPERATIONS PERSONNEL	0	0	0	0	0.038	0.000	0.000	0.038
HEALTH PHYSICS PERSONNEL	1	0	2	3	0.687	0.055	1.044	1.786
SUPERVISORY PERSONNEL	2	0	0	2	0.537	0.000	0.000	0.537
ENGINEERING PERSONNEL	14	0	2	16	3.142	0.000	0.615	3.757
TOTAL	35	0	88	123	10.233	0.055	39.753	50.041
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	0	0	0	0	0.062	0.000	0.000	0.062
HEALTH PHYSICS PERSONNEL	12	0	0	12	3.398	0.000	0.319	3.717
SUPERVISORY PERSONNEL	0	0	0	0	0.039	0.000	0.000	0.039
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.010	0.010
TOTAL	12	0	0	12	3.499	0.000	0.329	3.828
REFUELING								
MAINTENANCE PERSONNEL	0	0	27	27	0.441	0.027	10.966	11.434
OPERATIONS PERSONNEL	0	0	10	10	0.181	0.000	0.000	0.181
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.245	0.000	2.345	2.590
SUPERVISORY PERSONNEL	1	0	0	1	0.224	0.000	0.009	0.227
ENGINEERING PERSONNEL	3	1	0	4	0.999	0.425	0.074	1.498
TOTAL	4	1	37	42	2.090	0.452	13.388	15.930
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	118	1	244	363	32.163	0.148	69.118	131.429
OPERATIONS PERSONNEL	28	0	10	38	8.188	0.000	0.000	8.188
HEALTH PHYSICS PERSONNEL	57	1	42	100	18.229	0.318	18.473	33.018
SUPERVISORY PERSONNEL	8	0	1	10	4.151	0.051	0.435	4.637
ENGINEERING PERSONNEL	29	2	5	36	8.638	0.805	2.001	11.444
GRAND TOTALS	237	4	302	543	67.377	1.320	118.027	186.724

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

PLANT: *CALVERT CLIFFS 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	28	0	9	35	3,590	0.000	1,233	4,823				
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000				
HEALTH PHYSICS PERSONNEL	19	0	62	81	3,912	0.000	12,019	15,931				
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	45	0	71	116	7,502	0.000	13,252	20,754				
ROUTINE MAINTENANCE												
MAINTENANCE PERSONNEL	0	1	5	6	0.000	0.114	0.654	0.768				
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	1	5	6	0.000	0.114	0.654	0.768				
IN-SERVICE INSPECTION												
MAINTENANCE PERSONNEL	2	0	66	68	0.404	0.000	15,727	16,131				
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000				
HEALTH PHYSICS PERSONNEL	2	0	9	11	0.350	0.000	1,400	1,750				
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000				
ENGINEERING PERSONNEL	1	0	0	1	0.154	0.000	0.000	0.154				
TOTAL	5	0	75	80	0.908	0.000	17,127	18,035				
SPECIAL MAINTENANCE												
MAINTENANCE PERSONNEL	74	24	150	248	20,302	6,538	39,499	66,337				
OPERATIONS PERSONNEL	3	0	2	5	0.493	0.000	0.400	0.893				
HEALTH PHYSICS PERSONNEL	7	0	48	55	0.963	0.000	8,344	9,307				
SUPERVISORY PERSONNEL	1	0	1	2	0.113	0.000	0.103	0.216				
ENGINEERING PERSONNEL	4	0	4	8	0.661	0.000	0.758	1,419				
TOTAL	89	24	205	318	22,532	6,538	49,104	78,172				
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	9	0	1	10	1,450	0.000	0.112	1,562				
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	1	10	1,450	0.000	0.112	1,562				
REFUELING												
MAINTENANCE PERSONNEL	7	0	80	87	2,316	0.000	33,627	35,943				
OPERATIONS PERSONNEL	3	0	1	4	0,350	0.000	0,384	0,734				
HEALTH PHYSICS PERSONNEL	5	0	20	25	1,319	0.000	5,074	6,393				
SUPERVISORY PERSONNEL	0	0	1	1	0.000	0.000	0,850	0,850				
ENGINEERING PERSONNEL	0	0	5	5	0.000	0.000	2,888	2,888				
TOTAL	15	0	107	122	3,985	0.000	42,623	46,608				
TOTAL BY JOB FUNCTION												
MAINTENANCE PERSONNEL	109	(89)	25	(25)	310	(257)	444	(371)	28,612	6,650	90,740	124,002
OPERATIONS PERSONNEL	6	(39)	0	(0)	3	(3)	9	(38)	0,843	0.000	0,784	1,627
HEALTH PHYSICS PERSONNEL	42	(36)	0	(0)	140	(110)	182	(145)	7,994	0.000	28,949	34,943
SUPERVISORY PERSONNEL	1	(2)	0	(0)	2	(3)	3	(5)	0.113	0.000	0,653	1,066
ENGINEERING PERSONNEL	6	(9)	0	(1)	9	(6)	14	(19)	0,815	0.000	3,849	4,461
GRAND TOTALS	163	(171)	25	(25)	484	(382)	652	(579)	38,377	6,650	123,072	166,099

*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**

1985

PLANT: *CATAWBA 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	171	591	110	872	5.099	11.705	1.195	17.999
OPERATIONS PERSONNEL	93	0	34	127	28.091	0.000	3.841	29.872
HEALTH PHYSICS PERSONNEL	29	1	89	119	3.194	0.018	9.861	13.073
SUPERVISORY PERSONNEL	4	3	2	9	0.274	0.018	0.009	0.298
ENGINEERING PERSONNEL	9	2	6	17	0.041	0.064	0.000	0.105
TOTAL	306	597	241	1144	34.699	11.805	14.903	61.347
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	170	532	72	774	38.763	87.255	11.967	137.985
OPERATIONS PERSONNEL	53	0	35	88	0.856	0.000	6.172	7.028
HEALTH PHYSICS PERSONNEL	28	1	80	109	2.949	0.033	7.192	10.188
SUPERVISORY PERSONNEL	3	2	1	6	0.404	0.107	0.058	0.569
ENGINEERING PERSONNEL	7	1	1	9	0.284	0.078	0.001	0.363
TOTAL	261	536	189	986	43.250	87.473	25.390	156.113
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	115	408	77	600	8.788	107.569	11.068	127.405
OPERATIONS PERSONNEL	14	0	1	15	1.487	0.000	0.005	1.472
HEALTH PHYSICS PERSONNEL	10	0	49	59	0.234	0.000	7.131	7.365
SUPERVISORY PERSONNEL	1	2	0	3	0.034	0.269	0.000	0.303
ENGINEERING PERSONNEL	1	1	3	5	0.000	0.001	0.594	0.595
TOTAL	141	411	130	682	10.503	107.839	18.788	137.130
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	124	472	64	660	5.954	37.747	4.772	48.473
OPERATIONS PERSONNEL	75	0	25	100	0.417	0.000	2.354	2.771
HEALTH PHYSICS PERSONNEL	18	1	73	92	0.358	0.187	1.586	2.129
SUPERVISORY PERSONNEL	2	2	1	5	0.064	0.003	0.080	0.177
ENGINEERING PERSONNEL	8	1	2	11	1.216	0.009	0.315	1.534
TOTAL	227	476	165	868	8.037	37.940	8.107	55.084
WASTE PROCESSING								
MAINTENANCE PERSONNEL	12	28	2	42	0.019	0.031	0.000	0.050
OPERATIONS PERSONNEL	6	0	31	37	0.308	0.000	0.366	0.688
HEALTH PHYSICS PERSONNEL	14	0	22	36	1.133	0.000	3.916	5.049
SUPERVISORY PERSONNEL	0	0	1	1	0.000	0.000	0.002	0.002
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	32	28	56	116	1.455	0.031	4.313	5.789
REFUELING								
MAINTENANCE PERSONNEL	108	328	50	484	3.497	24.809	3.220	31.526
OPERATIONS PERSONNEL	62	0	30	92	0.197	0.000	3.848	4.043
HEALTH PHYSICS PERSONNEL	8	0	37	45	0.522	0.000	2.271	2.793
SUPERVISORY PERSONNEL	1	3	0	4	0.021	0.026	0.000	0.047
ENGINEERING PERSONNEL	1	0	0	1	0.015	0.000	0.000	0.015
TOTAL	180	329	117	626	4.252	24.835	9.337	38.424
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	700	(173)257 (598)	375 (113)	3432 (882)	62.100	259.118	32.222	363.438
OPERATIONS PERSONNEL	303	(93) 0 (0)	156 (35)	459 (128)	29.271	0.000	18.613	45.884
HEALTH PHYSICS PERSONNEL	107	(29) 3 (1)	350 (89)	480 (119)	8.362	0.238	31.857	40.577
SUPERVISORY PERSONNEL	11	(4) 12 (3)	5 (2)	28 (9)	0.827	0.423	0.148	1.398
ENGINEERING PERSONNEL	28	(6) 5 (2)	12 (6)	43 (17)	1.556	0.148	0.900	2.602
GRAND TOTALS	1147	(308)377 (902)	886 (245)	4422 (1155)	102.136	259.923	61.836	453.897

*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**

1995

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	125	1	197	323	4.318	0.044	3.503	7.867
OPERATIONS PERSONNEL	87	0	10	77	5.901	0.000	0.275	6.176
HEALTH PHYSICS PERSONNEL	40	0	44	84	2.857	0.000	5.680	8.517
SUPERVISORY PERSONNEL	18	0	1	19	0.628	0.000	0.089	0.697
ENGINEERING PERSONNEL	15	0	7	22	0.418	0.000	0.231	0.647
TOTAL	265	1	268	525	14.220	0.044	9.740	24.004
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	30	0	23	53	0.548	0.000	0.713	1.259
OPERATIONS PERSONNEL	3	0	0	3	0.008	0.000	0.000	0.008
HEALTH PHYSICS PERSONNEL	15	0	2	17	0.179	0.000	0.020	0.199
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	2	0	0	2	0.014	0.000	0.000	0.014
TOTAL	50	0	25	75	0.747	0.000	0.733	1.480
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	7	0	33	40	0.199	0.000	4.621	4.820
OPERATIONS PERSONNEL	2	0	0	2	0.010	0.000	0.000	0.010
HEALTH PHYSICS PERSONNEL	1	0	11	12	0.002	0.000	0.092	0.094
SUPERVISORY PERSONNEL	1	0	0	1	0.188	0.000	0.000	0.188
ENGINEERING PERSONNEL	4	0	8	13	0.291	0.000	2.195	2.476
TOTAL	15	0	53	68	0.678	0.000	6.908	7.589
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	153	3	374	530	41.245	0.623	108.781	150.629
OPERATIONS PERSONNEL	72	1	11	84	12.258	0.018	0.512	12.786
HEALTH PHYSICS PERSONNEL	50	0	46	96	11.320	0.000	4.788	16.109
SUPERVISORY PERSONNEL	25	0	4	29	2.104	0.000	0.196	2.300
ENGINEERING PERSONNEL	19	0	4	23	2.538	0.000	0.392	2.917
TOTAL	319	4	439	762	69.475	0.639	114.627	184.741
WASTE PROCESSING								
MAINTENANCE PERSONNEL	7	0	1	8	0.098	0.000	0.282	0.320
OPERATIONS PERSONNEL	0	0	3	3	0.000	0.000	0.545	0.545
HEALTH PHYSICS PERSONNEL	13	0	0	13	0.287	0.000	0.000	0.287
SUPERVISORY PERSONNEL	1	0	0	1	0.001	0.000	0.000	0.001
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	21	0	4	25	0.326	0.000	0.827	1.153
REFUELING								
MAINTENANCE PERSONNEL	122	3	352	477	12.390	0.215	53.887	66.282
OPERATIONS PERSONNEL	80	0	8	88	4.152	0.000	1.381	5.513
HEALTH PHYSICS PERSONNEL	32	0	44	76	1.660	0.000	3.758	5.418
SUPERVISORY PERSONNEL	18	0	3	21	1.948	0.000	0.327	2.275
ENGINEERING PERSONNEL	11	0	2	13	1.475	0.000	0.324	1.799
TOTAL	243	3	409	655	21.615	0.215	59.455	81.285
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	444	7	980	1431	58.726	0.882	171.569	231.177
OPERATIONS PERSONNEL	204	1	32	237	22.329	0.018	2.693	25.038
HEALTH PHYSICS PERSONNEL	151	0	147	298	18.405	0.000	14.317	30.722
SUPERVISORY PERSONNEL	63	0	8	71	4.887	0.000	0.592	5.459
ENGINEERING PERSONNEL	51	0	22	73	4.734	0.000	3.119	7.853
GRAND TOTALS	913	8	1189	2110	107.081	0.898	192.290	300.249

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1985

PLANT: ***COMANCHE PEAK 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	8	8	0.023	0.000	2.077	2.100
OPERATIONS PERSONNEL	13	0	2	15	5.922	0.073	1.036	7.033
HEALTH PHYSICS PERSONNEL	11	0	29	40	2.700	0.071	7.468	10.259
SUPERVISORY PERSONNEL	0	0	0	0	0.031	0.000	0.153	0.184
ENGINEERING PERSONNEL	2	0	1	3	1.088	0.000	0.321	1.409
TOTAL	26	0	40	66	9.784	0.144	11.077	20.965
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	23	0	172	195	6.780	0.000	54.220	61.010
OPERATIONS PERSONNEL	3	0	6	9	1.245	0.000	1.553	2.796
HEALTH PHYSICS PERSONNEL	2	0	5	7	0.601	0.000	2.019	2.620
SUPERVISORY PERSONNEL	0	0	0	0	0.001	0.000	0.001	0.002
ENGINEERING PERSONNEL	1	0	6	7	0.949	0.045	1.818	2.810
TOTAL	29	0	189	218	9.784	0.045	60.809	69.438
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	1	0	125	126	0.482	0.000	45.824	46.286
OPERATIONS PERSONNEL	0	0	7	7	0.148	0.000	2.679	2.825
HEALTH PHYSICS PERSONNEL	4	0	8	12	1.031	0.000	2.543	3.574
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	3	3	0.251	0.000	1.514	1.765
TOTAL	5	0	143	148	1.880	0.000	52.560	54.450
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	2	0	15	17	0.638	0.000	7.678	8.276
OPERATIONS PERSONNEL	0	0	0	0	0.034	0.000	0.171	0.205
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.001	0.000	0.043	0.044
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.177	0.177
TOTAL	2	0	15	17	0.733	0.000	7.999	8.702
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.013	0.000	0.327	0.340
OPERATIONS PERSONNEL	1	0	1	2	0.676	0.000	0.774	1.450
HEALTH PHYSICS PERSONNEL	4	0	1	5	0.773	0.065	0.748	1.614
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.071	0.000	0.000	0.071
TOTAL	5	0	2	7	1.533	0.065	1.847	3.475
REFUELING								
MAINTENANCE PERSONNEL	1	0	42	43	0.349	0.000	18.388	18.737
OPERATIONS PERSONNEL	4	0	0	4	0.720	0.000	0.006	0.725
HEALTH PHYSICS PERSONNEL	0	0	6	6	0.238	0.000	2.262	2.520
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	1	1	0.145	0.000	0.178	0.322
TOTAL	5	0	49	54	1.455	0.000	20.853	22.308
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	27	0	362	389	8.335	0.000	128.414	136.749
OPERATIONS PERSONNEL	21	0	16	37	8.741	0.073	6.220	15.034
HEALTH PHYSICS PERSONNEL	21	0	49	70	5.544	0.166	15.121	20.831
SUPERVISORY PERSONNEL	0	0	0	0	0.032	0.000	0.154	0.186
ENGINEERING PERSONNEL	3	0	11	14	2.807	0.045	4.006	6.558
GRAND TOTALS	72	0	438	510	25.159	0.284	153.915	179.358

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

PLANT: ***COOK 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	8	0	7	13	4.868	0.004	4.844	9.514
OPERATIONS PERSONNEL	18	1	3	22	6.930	0.134	1.989	9.063
HEALTH PHYSICS PERSONNEL	25	0	15	40	8.342	0.002	5.214	11.558
SUPERVISORY PERSONNEL	1	0	0	1	0.296	0.000	0.018	0.314
ENGINEERING PERSONNEL	0	0	0	0	1.181	0.091	0.243	1.515
TOTAL	50	1	25	76	19.615	0.231	12.115	31.964
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	72	0	235	307	17.280	0.169	89.048	106.497
OPERATIONS PERSONNEL	19	1	31	51	7.492	0.277	13.885	21.654
HEALTH PHYSICS PERSONNEL	23	0	40	63	7.691	0.013	12.908	20.602
SUPERVISORY PERSONNEL	1	0	2	3	0.325	0.000	0.399	0.684
ENGINEERING PERSONNEL	11	0	2	13	3.715	0.298	1.423	5.426
TOTAL	126	1	310	437	36.493	0.747	117.623	154.863
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	7	0	16	23	1.725	0.000	6.168	7.893
OPERATIONS PERSONNEL	3	0	2	5	0.601	0.020	0.545	1.166
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.138	0.016	0.117	0.271
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.025	0.025
ENGINEERING PERSONNEL	0	0	1	1	0.287	0.132	0.243	0.649
TOTAL	10	0	21	31	2.731	0.175	7.068	10.004
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	1	0	24	25	0.429	0.000	8.669	9.068
OPERATIONS PERSONNEL	0	1	0	1	0.105	0.141	0.027	0.273
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.015	0.016	0.000	0.031
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.018	0.018
ENGINEERING PERSONNEL	0	4	0	4	0.445	1.232	0.040	1.717
TOTAL	1	5	24	30	0.994	1.389	8.742	11.125
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	1	1	0.016	0.000	0.388	0.404
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.014	0.014
HEALTH PHYSICS PERSONNEL	1	0	1	2	0.139	0.000	0.202	0.335
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.027	0.000	0.021	0.046
TOTAL	1	0	2	3	0.179	0.000	0.625	0.801
REFUELING								
MAINTENANCE PERSONNEL	4	0	27	31	1.226	0.000	7.194	8.420
OPERATIONS PERSONNEL	8	0	8	14	2.140	0.000	2.133	4.273
HEALTH PHYSICS PERSONNEL	1	0	0	1	0.747	0.000	0.065	0.842
SUPERVISORY PERSONNEL	0	0	0	0	0.005	0.000	0.010	0.015
ENGINEERING PERSONNEL	0	0	0	0	0.069	0.001	0.060	0.180
TOTAL	11	0	35	46	4.207	0.001	9.522	13.730
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	80	0	312	402	25.542	0.173	118.101	141.816
OPERATIONS PERSONNEL	46	3	44	93	17.268	0.572	18.603	36.443
HEALTH PHYSICS PERSONNEL	50	0	53	103	15.056	0.047	18.536	33.639
SUPERVISORY PERSONNEL	2	0	2	4	0.628	0.000	0.428	1.054
ENGINEERING PERSONNEL	11	4	3	18	5.724	1.791	2.060	9.535
GRAND TOTALS	189	7	417	623	84.216	2.543	155.728	222.487

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

PLANT: *COOPER STATION

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	54	2	65	121	1.286	0.056	0.897	2.219	
OPERATIONS PERSONNEL	41	0	0	41	8.407	0.000	0.000	8.407	
HEALTH PHYSICS PERSONNEL	30	0	33	63	7.385	0.000	7.422	14.807	
SUPERVISORY PERSONNEL	6	0	2	8	0.305	0.000	0.379	0.684	
ENGINEERING PERSONNEL	19	2	17	38	1.380	0.063	0.545	1.988	
TOTAL	150	4	117	271	16.743	0.119	9.243	26.105	
ROUTINE MAINTENANCE									
MAINTENANCE PERSONNEL	78	2	323	401	34.618	0.581	63.922	99.119	
OPERATIONS PERSONNEL	42	0	0	42	7.701	0.000	0.000	7.701	
HEALTH PHYSICS PERSONNEL	33	0	33	66	11.834	0.000	6.788	18.622	
SUPERVISORY PERSONNEL	7	0	4	11	1.278	0.000	0.358	1.636	
ENGINEERING PERSONNEL	20	3	19	42	2.852	0.706	2.819	6.379	
TOTAL	178	5	379	562	58.281	1.289	73.887	133.457	
IN-SERVICE INSPECTION									
MAINTENANCE PERSONNEL	8	0	137	145	0.216	0.000	36.160	36.376	
OPERATIONS PERSONNEL	8	0	0	8	0.038	0.000	0.000	0.038	
HEALTH PHYSICS PERSONNEL	12	0	6	18	0.254	0.000	0.519	0.773	
SUPERVISORY PERSONNEL	1	0	1	2	0.148	0.000	0.001	0.149	
ENGINEERING PERSONNEL	5	1	1	7	0.328	0.008	0.032	0.367	
TOTAL	32	1	145	178	0.987	0.008	36.712	37.705	
SPECIAL MAINTENANCE									
MAINTENANCE PERSONNEL	18	1	80	99	0.660	0.021	3.568	4.249	
OPERATIONS PERSONNEL	2	0	0	2	0.134	0.000	0.000	0.134	
HEALTH PHYSICS PERSONNEL	9	0	10	19	0.117	0.000	0.094	0.211	
SUPERVISORY PERSONNEL	1	0	0	1	0.005	0.000	0.000	0.005	
ENGINEERING PERSONNEL	1	2	3	6	0.081	0.069	0.019	0.169	
TOTAL	31	3	93	127	0.977	0.110	3.681	4.768	
WASTE PROCESSING									
MAINTENANCE PERSONNEL	17	0	5	22	0.044	0.000	0.007	0.051	
OPERATIONS PERSONNEL	28	0	0	28	0.774	0.000	0.000	0.774	
HEALTH PHYSICS PERSONNEL	14	0	6	20	0.540	0.000	0.062	0.602	
SUPERVISORY PERSONNEL	1	0	0	1	0.001	0.000	0.000	0.001	
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000	
TOTAL	59	0	11	69	1.359	0.000	0.069	1.428	
REFUELING									
MAINTENANCE PERSONNEL	1	0	16	17	0.001	0.000	0.880	0.881	
OPERATIONS PERSONNEL	5	0	0	5	0.253	0.000	0.000	0.253	
HEALTH PHYSICS PERSONNEL	2	0	0	2	0.004	0.000	0.000	0.004	
SUPERVISORY PERSONNEL	1	0	0	1	0.001	0.000	0.000	0.001	
ENGINEERING PERSONNEL	1	0	1	2	0.087	0.000	0.002	0.089	
TOTAL	10	0	17	27	0.326	0.000	0.882	1.208	
TOTAL BY JOB FUNCTION									
MAINTENANCE PERSONNEL	174	(75)	5 (2)	628 (351)	805 (429)	36.805	0.668	105.434	142.897
OPERATIONS PERSONNEL	122	(42)	0 (0)	0 (0)	122 (42)	17.307	0.000	0.000	17.307
HEALTH PHYSICS PERSONNEL	100	(33)	0 (0)	88 (41)	188 (74)	20.134	0.000	14.885	35.019
SUPERVISORY PERSONNEL	17	(7)	0 (0)	7 (4)	24 (11)	1.738	0.000	0.738	2.476
ENGINEERING PERSONNEL	46	(20)	8 (3)	41 (20)	85 (43)	4.688	0.888	3.417	8.972
GRAND TOTALS	459	(178)	13 (5)	762 (416)	1234 (599)	80.673	1.524	124.474	206.671

*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**

1995

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	0.010	0.000	0.000	0.010
OPERATIONS PERSONNEL	1	0	0	1	0.876	0.000	0.000	0.876
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	0.017	0.000	0.000	0.017
TOTAL	1	0	0	1	0.903	0.000	0.000	0.903
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	1	0	0	1	1.797	0.262	0.384	2.463
OPERATIONS PERSONNEL	1	0	0	1	0.664	0.000	0.000	0.664
HEALTH PHYSICS PERSONNEL	7	0	0	7	2.135	0.000	0.000	2.135
SUPERVISORY PERSONNEL	0	0	0	0	0.299	0.132	0.378	0.749
ENGINEERING PERSONNEL	0	0	0	0	0.172	0.267	0.000	0.439
TOTAL	9	0	0	9	5.007	0.661	0.762	6.450
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	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	0.003	0.000	0.000	0.003
OPERATIONS PERSONNEL	2	0	0	2	0.624	0.000	0.000	0.624
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.016	0.000	0.000	0.016
SUPERVISORY PERSONNEL	1	0	0	1	0.148	0.000	0.000	0.148
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	3	0	0	3	0.791	0.000	0.000	0.791
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	1	0	0	1	1.810	0.262	0.384	2.476
OPERATIONS PERSONNEL	4	0	0	4	2.164	0.000	0.000	2.164
HEALTH PHYSICS PERSONNEL	7	0	0	7	2.151	0.000	0.000	2.151
SUPERVISORY PERSONNEL	1	0	0	1	0.297	0.132	0.378	0.697
ENGINEERING PERSONNEL	0	0	0	0	0.189	0.267	0.000	0.456
GRAND TOTALS	13	0	0	13	6.701	0.661	0.762	6.144

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1996

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	0	0	0	0	0.001	0.000	0.010	0.011
OPERATIONS PERSONNEL	0	0	0	0	1.110	0.000	0.003	1.113
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.620	0.000	0.000	0.620
SUPERVISORY PERSONNEL	0	0	0	0	0.007	0.000	0.001	0.008
ENGINEERING PERSONNEL	0	0	0	0	0.059	0.000	0.000	0.059
TOTAL	0	0	0	0	1.797	0.000	0.014	1.811
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	0	0	1.220	0.000	0.016	1.236
OPERATIONS PERSONNEL	0	0	0	0	0.005	0.000	0.000	0.005
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.031	0.000	0.000	0.031
SUPERVISORY PERSONNEL	0	0	0	0	0.003	0.000	0.000	0.003
ENGINEERING PERSONNEL	0	0	0	0	0.143	0.000	0.000	0.143
TOTAL	0	0	0	0	1.402	0.000	0.016	1.416
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	0	0	0.001	0.000	0.000	0.001
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	0.001	0.000	0.000	0.001
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	2	0	0	2	0.935	0.000	0.000	0.935
OPERATIONS PERSONNEL	1	0	0	1	0.911	0.000	0.000	0.911
HEALTH PHYSICS PERSONNEL	2	0	0	2	0.784	0.000	0.000	0.784
SUPERVISORY PERSONNEL	0	0	0	0	0.011	0.000	0.000	0.011
ENGINEERING PERSONNEL	0	0	0	0	0.026	0.000	0.000	0.026
TOTAL	5	0	0	5	2.367	0.000	0.000	2.367
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.027	0.000	0.059	0.086
OPERATIONS PERSONNEL	0	0	0	0	0.022	0.000	0.000	0.022
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.558	0.000	0.000	0.558
SUPERVISORY PERSONNEL	0	0	0	0	0.003	0.000	0.000	0.003
ENGINEERING PERSONNEL	0	0	0	0	0.006	0.000	0.000	0.006
TOTAL	0	0	0	0	0.616	0.000	0.059	0.675
REFUELING								
MAINTENANCE PERSONNEL	0	0	0	0	0.004	0.000	0.070	0.074
OPERATIONS PERSONNEL	0	0	0	0	0.004	0.000	0.000	0.004
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.033	0.000	0.000	0.033
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.012	0.000	0.007	0.019
TOTAL	0	0	0	0	0.053	0.000	0.077	0.130
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	2	0	0	2	2.188	0.000	0.155	2.343
OPERATIONS PERSONNEL	1	0	0	1	1.752	0.000	0.003	1.755
HEALTH PHYSICS PERSONNEL	2	0	0	2	2.028	0.000	0.000	2.028
SUPERVISORY PERSONNEL	0	0	0	0	0.024	0.000	0.001	0.025
ENGINEERING PERSONNEL	0	0	0	0	0.246	0.000	0.007	0.253
GRAND TOTALS	5	0	0	5	6.236	0.000	0.168	6.402

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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			1	4	0.065	0.010	0.025	0.100
OPERATIONS PERSONNEL	33	1	0	34	1.523	0.061	0.000	1.584
HEALTH PHYSICS PERSONNEL	23	3	0	26	0.288	0.048	0.000	0.334
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	1	1	0.000	0.000	0.081	0.081
TOTAL	57	6	2	65	1.876	0.117	0.086	2.079
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	68	30	168	264	4.575	1.434	5.683	11.592
OPERATIONS PERSONNEL	17	0	5	22	0.388	0.000	0.047	0.433
HEALTH PHYSICS PERSONNEL	38	14	17	69	3.074	0.708	0.500	4.282
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	7	4	10	21	0.268	0.027	1.024	1.319
TOTAL	130	48	198	376	8.303	2.169	7.154	17.626
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	4	11	32	47	0.982	2.981	7.568	11.531
OPERATIONS PERSONNEL	5	0	3	8	2.770	0.000	0.768	3.536
HEALTH PHYSICS PERSONNEL	6	5	3	14	0.117	0.091	0.428	0.634
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	3	3	0.000	0.000	1.028	1.028
TOTAL	15	16	41	72	3.869	3.072	9.788	16.729
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	61	26	251	337	10.712	1.788	92.236	94.734
OPERATIONS PERSONNEL	14	0	7	21	0.862	0.000	0.884	1.526
HEALTH PHYSICS PERSONNEL	30	21	24	75	4.838	3.081	5.232	13.151
SUPERVISORY PERSONNEL	0	0	1	1	0.000	0.000	1.277	1.277
ENGINEERING PERSONNEL	4	2	2	15	0.071	0.114	0.824	1.009
TOTAL	109	48	292	449	16.263	4.981	99.433	111.697
WASTE PROCESSING								
MAINTENANCE PERSONNEL	25	6	13	44	0.800	0.071	0.057	0.728
OPERATIONS PERSONNEL	15	1	1	17	0.082	0.002	0.002	0.086
HEALTH PHYSICS PERSONNEL	24	5	5	34	4.148	0.055	1.580	5.783
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	64	12	19	95	4.830	0.128	1.639	6.597
REFUELING								
MAINTENANCE PERSONNEL	77	39	314	430	21.305	6.643	64.837	92.585
OPERATIONS PERSONNEL	53	1	8	62	6.894	0.043	2.108	9.045
HEALTH PHYSICS PERSONNEL	40	30	31	101	8.419	5.288	7.032	18.749
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	8	4	12	24	1.309	0.443	1.450	3.202
TOTAL	178	74	365	617	35.927	12.427	75.227	123.581
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	238	113	777	1126	38.239	12.925	180.106	211.270
OPERATIONS PERSONNEL	137	3	24	164	12.317	0.108	3.787	16.210
HEALTH PHYSICS PERSONNEL	161	78	80	319	18.684	9.279	14.770	42.633
SUPERVISORY PERSONNEL	0	0	1	1	0.000	0.000	1.277	1.277
ENGINEERING PERSONNEL	19	10	35	64	1.648	0.584	4.387	6.619
GRAND TOTALS	653	204	917	1674	71.068	22.894	184.327	278.309

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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	10	34	4	48	3.398	10.391	0.044	13.833
OPERATIONS PERSONNEL	148	44	0	190	23.325	2.672	0.000	25.997
HEALTH PHYSICS PERSONNEL	30	4	147	181	8.904	1.326	0.482	10.714
SUPERVISORY PERSONNEL	127	133	0	260	7.325	0.787	0.000	8.112
ENGINEERING PERSONNEL	88	80	0	168	5.748	4.217	0.000	9.965
TOTAL	401	285	151	847	48.698	19.365	0.526	68.619
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	334	960	35	1329	109.234	293.085	0.425	402.744
OPERATIONS PERSONNEL	162	62	0	224	25.906	3.764	0.000	29.670
HEALTH PHYSICS PERSONNEL	48	100	107	253	13.488	31.905	0.348	45.741
SUPERVISORY PERSONNEL	182	12	0	204	11.058	0.075	0.000	11.133
ENGINEERING PERSONNEL	116	283	0	409	7.662	15.357	0.000	22.999
TOTAL	850	1427	142	2419	167.348	344.168	0.773	512.287
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	228	0	228	0.000	69.149	0.000	69.149
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	1	133	134	0.019	0.294	0.431	0.744
SUPERVISORY PERSONNEL	0	18	0	18	0.036	0.082	0.000	0.128
ENGINEERING PERSONNEL	15	22	0	37	0.681	1.179	0.000	2.140
TOTAL	15	265	133	413	1.016	70.714	0.431	72.161
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	7	617	0	624	2.275	188.307	0.004	190.586
OPERATIONS PERSONNEL	2	7	0	9	0.288	0.428	0.000	0.714
HEALTH PHYSICS PERSONNEL	1	28	8	37	0.372	9.065	0.025	9.462
SUPERVISORY PERSONNEL	8	0	0	8	0.447	0.000	0.000	0.447
ENGINEERING PERSONNEL	10	84	0	94	0.678	3.378	0.000	4.054
TOTAL	28	718	8	752	4.056	201.178	0.029	205.263
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	4	0	4	0.083	1.271	0.000	1.354
OPERATIONS PERSONNEL	11	68	0	79	1.734	4.063	0.000	5.817
HEALTH PHYSICS PERSONNEL	5	0	0	5	1.610	0.009	0.000	1.619
SUPERVISORY PERSONNEL	5	0	0	5	0.281	0.000	0.000	0.281
ENGINEERING PERSONNEL	0	0	0	0	0.001	0.003	0.000	0.004
TOTAL	21	72	0	93	3.709	5.368	0.000	9.075
REFUELING								
MAINTENANCE PERSONNEL	7	9	0	16	2.208	2.615	0.001	5.024
OPERATIONS PERSONNEL	2	1	0	3	0.349	0.075	0.000	0.424
HEALTH PHYSICS PERSONNEL	1	0	1	2	0.203	0.044	0.002	0.249
SUPERVISORY PERSONNEL	8	0	0	8	0.444	0.001	0.000	0.445
ENGINEERING PERSONNEL	3	32	0	35	0.224	1.705	0.000	1.929
TOTAL	21	43	1	65	3.428	4.640	0.003	8.071
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	358	1650	39	2247	117.198	565.018	0.474	682.690
OPERATIONS PERSONNEL	323	162	0	505	51.600	11.022	0.000	62.622
HEALTH PHYSICS PERSONNEL	83	133	398	612	24.598	42.645	1.288	68.529
SUPERVISORY PERSONNEL	340	161	0	501	18.691	0.865	0.000	20.546
ENGINEERING PERSONNEL	232	492	0	724	15.270	25.819	0.000	41.089
GRAND TOTALS	1336	2818	435	4589	228.255	645.459	1.782	875.476

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1985

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	15	0	6	21	3.669	0.000	1.309	4.978
OPERATIONS PERSONNEL	25	0	0	25	6.279	0.000	0.000	6.279
HEALTH PHYSICS PERSONNEL	10	0	36	46	4.284	0.000	13.326	17.610
SUPERVISORY PERSONNEL	6	0	4	13	2.740	0.000	0.608	3.348
ENGINEERING PERSONNEL	7	0	2	9	1.445	0.000	0.365	1.810
TOTAL	66	0	48	114	18.417	0.000	15.608	34.325
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	132	0	202	334	62.362	0.000	79.136	141.498
OPERATIONS PERSONNEL	39	0	2	35	13.603	0.000	0.358	14.259
HEALTH PHYSICS PERSONNEL	9	0	15	24	1.452	0.000	2.732	4.184
SUPERVISORY PERSONNEL	8	1	18	27	1.670	0.185	3.635	5.490
ENGINEERING PERSONNEL	20	0	12	32	4.012	0.000	3.354	7.366
TOTAL	202	1	249	452	83.699	0.185	89.513	173.407
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	3	0	28	31	0.519	0.000	6.368	6.887
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	1	1	0.000	0.000	0.102	0.102
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	3	0	20	23	0.460	0.000	12.948	13.408
TOTAL	6	0	49	55	0.979	0.000	19.448	20.425
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	33	0	129	162	10.941	0.000	35.616	46.557
OPERATIONS PERSONNEL	1	0	0	1	0.219	0.000	0.000	0.219
HEALTH PHYSICS PERSONNEL	3	0	4	7	0.816	0.000	0.660	1.476
SUPERVISORY PERSONNEL	1	0	3	4	0.274	0.000	0.662	0.936
ENGINEERING PERSONNEL	6	0	17	23	0.528	0.000	5.584	6.112
TOTAL	44	0	153	197	13.078	0.000	42.742	55.820
WASTE PROCESSING								
MAINTENANCE PERSONNEL	6	0	1	7	1.399	0.000	0.458	1.857
OPERATIONS PERSONNEL	6	0	1	10	2.757	0.000	0.690	3.447
HEALTH PHYSICS PERSONNEL	2	0	1	3	0.844	0.000	0.112	0.956
SUPERVISORY PERSONNEL	0	0	2	2	0.000	0.000	0.448	0.448
ENGINEERING PERSONNEL	0	0	5	5	0.000	0.000	1.474	1.474
TOTAL	17	0	10	27	5.000	0.000	3.160	8.160
REFUELING								
MAINTENANCE PERSONNEL	2	0	36	38	0.466	0.000	12.779	13.267
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	2	0	11	13	0.466	0.000	1.777	2.245
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	2	0	12	14	0.239	0.000	5.144	5.443
TOTAL	6	0	59	65	1.255	0.000	19.700	20.955
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	191	0	402	593	79.378	0.000	135.896	215.274
OPERATIONS PERSONNEL	66	0	3	71	23.158	0.000	1.048	24.204
HEALTH PHYSICS PERSONNEL	26	0	68	94	7.864	0.000	16.709	24.573
SUPERVISORY PERSONNEL	16	1	27	43	4.984	0.185	5.971	11.160
ENGINEERING PERSONNEL	38	0	68	106	7.044	0.000	28.667	35.911
GRAND TOTALS	341	1	568	910	122.428	0.185	180.469	313.112

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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	1	0	0	1	0.317	0.007	0.170	0.494
OPERATIONS PERSONNEL	74	0	0	74	21.207	0.000	0.000	21.207
HEALTH PHYSICS PERSONNEL	33	0	77	110	10.688	0.000	24.206	34.871
SUPERVISORY PERSONNEL	0	0	2	2	0.484	0.113	0.336	0.943
ENGINEERING PERSONNEL	0	0	3	3	0.785	0.184	1.004	1.963
TOTAL	108	0	82	190	33.479	0.304	25.715	59.498
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	13	0	0	13	7.454	0.000	0.874	8.428
OPERATIONS PERSONNEL	0	0	0	0	0.229	0.000	0.000	0.229
HEALTH PHYSICS PERSONNEL	2	0	0	2	0.515	0.000	0.000	0.515
SUPERVISORY PERSONNEL	0	0	0	0	0.027	0.000	0.000	0.027
ENGINEERING PERSONNEL	0	0	0	0	0.052	0.001	0.026	0.079
TOTAL	15	0	0	15	8.277	0.001	1.000	9.278
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	81	81	0.222	0.019	39.800	40.141
OPERATIONS PERSONNEL	0	0	0	0	0.033	0.000	0.000	0.033
HEALTH PHYSICS PERSONNEL	0	0	1	1	0.231	0.000	0.654	1.185
SUPERVISORY PERSONNEL	0	0	1	1	0.002	0.021	1.627	1.650
ENGINEERING PERSONNEL	0	0	57	57	1.269	0.121	31.251	32.641
TOTAL	0	0	120	123	1.757	0.161	73.735	75.653
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	155	1	371	527	68.591	0.106	167.859	234.556
OPERATIONS PERSONNEL	8	0	9	17	4.683	0.000	2.605	7.888
HEALTH PHYSICS PERSONNEL	49	0	23	72	17.752	0.000	6.652	24.604
SUPERVISORY PERSONNEL	2	0	3	5	0.418	0.080	0.982	1.477
ENGINEERING PERSONNEL	8	0	51	59	3.300	0.024	19.663	22.987
TOTAL	222	1	457	680	93.051	0.210	198.251	291.522
WASTE PROCESSING								
MAINTENANCE PERSONNEL	5	0	4	9	1.420	0.000	1.037	2.457
OPERATIONS PERSONNEL	5	0	1	6	1.482	0.000	0.241	1.733
HEALTH PHYSICS PERSONNEL	28	0	4	32	10.328	0.001	2.255	12.583
SUPERVISORY PERSONNEL	0	0	0	0	0.108	0.000	0.013	0.121
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.013	0.013
TOTAL	38	0	9	47	13.348	0.000	3.559	16.907
REFUELING								
MAINTENANCE PERSONNEL	0	0	0	0	0.007	0.000	0.078	0.085
OPERATIONS PERSONNEL	5	0	11	16	1.758	0.021	3.328	5.103
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.116	0.000	0.689	0.805
SUPERVISORY PERSONNEL	2	0	0	2	0.388	0.021	0.015	0.402
ENGINEERING PERSONNEL	0	0	0	0	0.158	0.048	0.284	0.486
TOTAL	7	0	11	18	2.403	0.068	4.392	6.883
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	174	1	438	611	78.011	0.132	210.018	288.161
OPERATIONS PERSONNEL	92	0	21	113	29.710	0.021	6.475	36.206
HEALTH PHYSICS PERSONNEL	112	0	105	217	39.808	0.000	34.955	74.583
SUPERVISORY PERSONNEL	4	0	6	10	1.412	0.235	2.973	4.620
ENGINEERING PERSONNEL	14	0	111	125	5.574	0.378	52.241	58.161
GRAND TOTALS	398	1	679	1078	152.315	0.784	308.632	459.741

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

PLANT: ***FERMI 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	143	2	65	210	4.624	0.005	2.198	6.825
OPERATIONS PERSONNEL	109	1	24	134	5.631	0.000	3.912	9.743
HEALTH PHYSICS PERSONNEL	31	0	2	33	2.446	0.000	0.201	2.647
SUPERVISORY PERSONNEL	110	15	128	253	1.759	0.010	0.977	2.748
ENGINEERING PERSONNEL	121	2	6	129	1.294	0.000	0.007	1.301
TOTAL	514	20	225	759	15.854	0.015	7.293	23.262
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	5	0	1	6	0.359	0.000	0.132	0.491
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	2	2	2	6	0.000	0.000	0.000	0.000
TOTAL	5	2	1	8	0.359	0.000	0.132	0.491
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	0	0	0.171	0.000	0.000	0.171
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	3	0	0	3	0.475	0.000	0.000	0.475
SUPERVISORY PERSONNEL	0	0	1	1	0.000	0.000	0.026	0.026
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	3	0	1	4	0.646	0.000	0.026	0.672
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	20	0	66	86	1.725	0.000	1.427	3.152
OPERATIONS PERSONNEL	5	0	4	9	0.050	0.000	0.109	0.189
HEALTH PHYSICS PERSONNEL	6	0	0	6	0.735	0.000	0.000	0.735
SUPERVISORY PERSONNEL	9	0	58	65	0.516	0.000	1.815	2.331
ENGINEERING PERSONNEL	2	0	1	3	0.004	0.000	0.013	0.017
TOTAL	42	0	129	171	3.060	0.000	3.364	6.424
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	1	1	0.000	0.000	0.017	0.017
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.150	0.150
HEALTH PHYSICS PERSONNEL	1	0	0	1	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	3	3	0.285	0.000	0.045	0.340
ENGINEERING PERSONNEL	2	0	0	2	0.000	0.000	0.000	0.000
TOTAL	1	0	4	5	0.285	0.000	0.212	0.507
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	168	2	135	305	8.879	0.005	3.772	10.658
OPERATIONS PERSONNEL	114	1	28	143	5.911	0.000	4.171	10.082
HEALTH PHYSICS PERSONNEL	41	0	2	43	3.656	0.000	0.201	3.857
SUPERVISORY PERSONNEL	119	15	188	322	2.570	0.010	2.863	5.443
ENGINEERING PERSONNEL	123	4	7	134	1.288	0.000	0.020	1.318
GRAND TOTALS	565	22	360	947	20.314	0.015	11.027	31.358

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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	108	0	317	426	61.800	0.000	110.600	172.400
OPERATIONS PERSONNEL	74	0	15	89	40.730	0.720	4.780	46.230
HEALTH PHYSICS PERSONNEL	52	0	25	77	21.250	0.000	6.770	28.020
SUPERVISORY PERSONNEL	14	0	23	37	3.500	0.000	5.780	9.280
ENGINEERING PERSONNEL	12	0	8	20	3.270	0.000	2.760	6.030
TOTAL	261	0	388	650	130.550	0.720	130.700	261.970
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	4	0	2	6	3.410	0.000	0.650	4.060
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	4	0	2	6	3.410	0.000	0.650	4.060
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	1	0	0	1	0.270	0.000	0.000	0.270
OPERATIONS PERSONNEL	1	0	0	1	0.720	0.000	0.000	0.720
HEALTH PHYSICS PERSONNEL	2	0	0	2	0.730	0.000	0.000	0.730
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	4	0	0	4	1.720	0.000	0.000	1.720
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	11	11	0.000	0.000	2.040	2.040
OPERATIONS PERSONNEL	0	1	0	1	0.000	0.020	0.000	0.020
HEALTH PHYSICS PERSONNEL	1	0	1	2	0.050	0.000	0.090	0.140
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	1	12	14	0.050	0.020	2.130	2.200
WASTE PROCESSING								
MAINTENANCE PERSONNEL	13	0	36	49	11.850	0.000	1.200	13.150
OPERATIONS PERSONNEL	2	0	6	8	1.440	0.000	0.170	1.610
HEALTH PHYSICS PERSONNEL	7	0	3	10	3.890	0.000	0.670	4.260
SUPERVISORY PERSONNEL	0	0	1	1	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	22	0	46	68	16.980	0.000	2.040	19.020
REFUELING								
MAINTENANCE PERSONNEL	1	0	0	1	0.690	0.000	0.000	0.690
OPERATIONS PERSONNEL	5	0	1	6	2.730	0.000	0.000	2.730
HEALTH PHYSICS PERSONNEL	3	0	2	5	0.960	0.000	0.310	1.300
SUPERVISORY PERSONNEL	1	0	0	1	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	3	13	4.410	0.000	0.310	4.720
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	128	0	388	494	78.120	0.000	114.490	192.610
OPERATIONS PERSONNEL	82	7	22	111	45.620	0.740	4.960	51.320
HEALTH PHYSICS PERSONNEL	65	0	31	96	26.610	0.000	7.640	34.450
SUPERVISORY PERSONNEL	15	0	24	39	3.500	0.000	5.780	9.280
ENGINEERING PERSONNEL	12	0	8	20	3.270	0.000	2.760	6.030
GRAND TOTALS	302	7	451	760	157.120	0.740	136.830	293.690

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

PLANT: ***FORT CALHOUN**

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	0.388	0.004	0.001	0.393
OPERATIONS PERSONNEL	32	0	0	32	8.434	0.000	0.000	8.434
HEALTH PHYSICS PERSONNEL	17	0	14	31	8.085	0.000	3.817	9.702
SUPERVISORY PERSONNEL	2	0	0	2	0.757	0.000	0.000	0.757
ENGINEERING PERSONNEL	2	0	0	2	0.759	0.000	0.001	0.800
TOTAL	54	0	14	68	16.463	0.004	3.818	20.685
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	54	18	45	117	17.199	5.426	16.362	39.017
OPERATIONS PERSONNEL	0	0	0	0	0.389	0.000	0.005	0.404
HEALTH PHYSICS PERSONNEL	20	0	27	47	8.050	0.000	7.721	13.771
SUPERVISORY PERSONNEL	7	0	0	7	2.201	0.014	1.163	3.378
ENGINEERING PERSONNEL	11	1	1	13	3.421	0.485	0.750	4.656
TOTAL	92	19	73	184	29.270	5.935	26.031	61.236
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	15	14	7	36	4.040	4.072	2.127	10.239
OPERATIONS PERSONNEL	0	0	0	0	0.063	0.000	0.017	0.100
HEALTH PHYSICS PERSONNEL	3	0	17	20	0.849	0.000	4.330	5.179
SUPERVISORY PERSONNEL	0	0	0	0	0.059	0.000	0.200	0.259
ENGINEERING PERSONNEL	8	0	35	41	1.564	0.014	17.892	19.470
TOTAL	24	14	59	97	6.666	4.086	24.566	35.247
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	1	1	14	16	0.659	0.344	5.007	5.910
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.189	0.000	1.122	1.311
SUPERVISORY PERSONNEL	0	0	0	0	0.084	0.000	0.039	0.123
ENGINEERING PERSONNEL	3	0	8	11	0.742	0.000	4.098	4.840
TOTAL	4	1	20	25	1.574	0.344	10.266	12.184
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.014	0.005	0.006	0.027
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	8	0	3	11	1.814	0.000	1.800	3.314
SUPERVISORY PERSONNEL	0	0	0	0	0.003	0.000	0.000	0.003
ENGINEERING PERSONNEL	0	0	0	0	0.001	0.000	0.002	0.003
TOTAL	8	0	3	11	1.832	0.005	1.510	3.347
REFUELING								
MAINTENANCE PERSONNEL	35	21	8	64	12.471	9.680	4.866	27.049
OPERATIONS PERSONNEL	0	0	0	0	1.749	0.000	0.000	1.749
HEALTH PHYSICS PERSONNEL	6	0	24	29	1.372	0.000	5.442	6.814
SUPERVISORY PERSONNEL	2	0	0	2	1.290	0.000	0.288	1.558
ENGINEERING PERSONNEL	8	0	5	13	3.314	0.100	1.790	5.204
TOTAL	50	21	37	108	20.196	9.880	12.186	42.374
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	106	54	74	234	34.671	19.731	28.233	82.635
OPERATIONS PERSONNEL	32	0	0	32	10.665	0.000	0.022	10.687
HEALTH PHYSICS PERSONNEL	53	0	65	138	16.359	0.000	23.732	40.091
SUPERVISORY PERSONNEL	11	0	0	11	4.364	0.014	1.670	6.078
ENGINEERING PERSONNEL	30	1	47	78	9.841	0.609	24.533	34.983
GRAND TOTALS	232	55	208	493	75.930	20.354	78.190	174.474

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

PLANT: *FORT ST. VRAIN

TYPE: HTGR

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	163	163	0.000	0.000	187.880	187.880
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	36	36	0.000	0.000	13.348	13.348
SUPERVISORY PERSONNEL	0	0	9	9	0.000	0.000	4.767	4.767
ENGINEERING PERSONNEL	2	0	5	7	0.258	0.000	1.426	1.684
TOTAL	2	0	213	215	0.258	0.000	207.419	207.677
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	163	163	0.000	0.000	187.880	187.880
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	36	36	0.000	0.000	13.348	13.348
SUPERVISORY PERSONNEL	0	0	9	9	0.000	0.000	4.767	4.767
ENGINEERING PERSONNEL	2	0	5	7	0.258	0.000	1.426	1.684
GRAND TOTALS	2	0	213	215	0.258	0.000	207.419	207.677

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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	489	174	214	857	0.365	0.057	0.040	0.462
OPERATIONS PERSONNEL	3166	1	28	3195	3.751	0.000	0.000	3.751
HEALTH PHYSICS PERSONNEL	878	0	1860	2738	1.772	0.000	2.694	4.466
SUPERVISORY PERSONNEL	8	0	0	8	0.001	0.000	0.000	0.001
ENGINEERING PERSONNEL	123	188	304	615	0.055	0.288	0.086	0.429
TOTAL	4944	363	2408	7415	5.974	0.345	2.820	9.139
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	3080	811	1545	5236	2.068	0.684	1.127	3.879
OPERATIONS PERSONNEL	818	4	95	918	1.149	0.000	0.008	1.157
HEALTH PHYSICS PERSONNEL	6	0	0	6	0.103	0.000	0.000	0.103
SUPERVISORY PERSONNEL	1060	0	3749	4809	1.275	0.000	10.684	11.959
ENGINEERING PERSONNEL	58	488	718	1254	0.138	0.458	0.424	1.019
TOTAL	5033	1083	6107	12223	4.734	1.140	12.241	18.115
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	1	20	50	71	0.000	0.172	0.451	0.623
OPERATIONS PERSONNEL	70	0	0	70	0.434	0.000	0.000	0.434
HEALTH PHYSICS PERSONNEL	13	0	2	15	0.006	0.000	0.000	0.006
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	8	227	189	418	0.000	1.287	1.588	2.875
TOTAL	84	247	241	572	0.440	1.459	1.987	3.886
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	657	801	2652	4110	5.080	20.998	25.849	51.927
OPERATIONS PERSONNEL	60	0	0	60	0.283	0.000	0.000	0.283
HEALTH PHYSICS PERSONNEL	103	0	988	1092	1.838	0.000	8.399	8.239
SUPERVISORY PERSONNEL	11	0	1	12	0.138	0.000	0.000	0.138
ENGINEERING PERSONNEL	25	92	2057	2184	0.148	1.718	44.588	46.454
TOTAL	856	893	5709	7458	7.483	22.716	76.836	107.029
WASTE PROCESSING								
MAINTENANCE PERSONNEL	29	5	6	40	0.010	0.000	0.000	0.010
OPERATIONS PERSONNEL	6	0	0	6	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	35	0	198	231	0.017	0.000	0.619	0.636
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	18	2	20	0.000	0.005	0.000	0.005
TOTAL	70	23	204	297	0.027	0.005	0.619	0.651
REFUELING								
MAINTENANCE PERSONNEL	58	45	35	138	1.684	0.818	0.384	2.886
OPERATIONS PERSONNEL	113	25	888	1024	0.954	0.545	15.283	16.782
HEALTH PHYSICS PERSONNEL	5	0	122	127	0.078	0.000	0.688	0.776
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	21	25	46	0.000	0.510	0.174	0.684
TOTAL	174	91	1088	1333	2.666	1.873	16.519	20.658
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	4282	1658	4502	10450	8.217	22.528	27.831	59.577
OPERATIONS PERSONNEL	4234	30	1008	5273	6.571	0.545	15.283	22.405
HEALTH PHYSICS PERSONNEL	1040	0	3189	4209	3.612	0.000	10.304	14.116
SUPERVISORY PERSONNEL	1079	0	3750	4829	1.414	0.000	10.684	12.098
ENGINEERING PERSONNEL	218	1014	3305	4535	0.340	4.284	46.808	51.412
GRAND TOTALS	10861	2700	15735	29296	21.354	27.338	110.946	159.606

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

PLANT: ***GRAND GULF**

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	2	6	1.060	0.003	0.377	1.470
OPERATIONS PERSONNEL	1	0	0	1	1.183	0.000	0.009	1.188
HEALTH PHYSICS PERSONNEL	28	7	27	62	13.315	2.209	10.278	25.802
SUPERVISORY PERSONNEL	1	0	0	1	0.275	0.000	0.015	0.290
ENGINEERING PERSONNEL	0	0	0	0	0.172	0.000	0.000	0.172
TOTAL	34	7	29	70	16.035	2.212	10.673	28.920
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	157	25	417	599	70.723	8.098	153.983	232.799
OPERATIONS PERSONNEL	58	0	11	69	25.689	0.002	7.547	33.232
HEALTH PHYSICS PERSONNEL	29	1	8	37	9.686	0.428	2.793	12.887
SUPERVISORY PERSONNEL	11	1	17	29	3.338	0.386	4.177	7.901
ENGINEERING PERSONNEL	13	0	2	15	6.192	0.011	0.988	7.181
TOTAL	270	27	455	752	115.602	8.920	169.468	294.010
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	64	64	0.084	0.000	24.246	24.330
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.026	0.026
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.018	0.003	0.004	0.025
SUPERVISORY PERSONNEL	3	0	31	34	1.094	0.026	9.393	10.513
ENGINEERING PERSONNEL	2	0	0	2	0.371	0.001	0.055	0.427
TOTAL	5	0	95	100	1.567	0.030	33.724	35.321
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	38	38	0.118	0.000	11.142	11.260
OPERATIONS PERSONNEL	1	0	2	3	0.453	0.000	0.534	0.987
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.022	0.000	0.070	0.092
SUPERVISORY PERSONNEL	0	0	2	2	0.347	0.007	0.401	0.755
ENGINEERING PERSONNEL	0	0	0	0	0.416	0.000	0.000	0.416
TOTAL	1	0	42	43	1.356	0.007	12.147	13.510
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	161	25	521	707	72.015	8.098	169.748	269.859
OPERATIONS PERSONNEL	60	0	13	73	27.319	0.002	8.110	35.431
HEALTH PHYSICS PERSONNEL	56	8	35	99	23.021	2.640	13.145	38.806
SUPERVISORY PERSONNEL	15	1	30	46	5.054	0.419	13.998	19.459
ENGINEERING PERSONNEL	18	0	2	20	7.151	0.012	1.043	8.206
GRAND TOTALS	310	34	621	965	134.560	11.169	228.032	371.761

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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	51	15	205	271	8.142	0.961	25.812	34.915
OPERATIONS PERSONNEL	44	0	0	44	25.250	0.000	0.000	25.250
HEALTH PHYSICS PERSONNEL	19	0	45	64	4.308	0.000	0.887	14.175
SUPERVISORY PERSONNEL	2	1	1	4	0.310	0.090	0.008	0.348
ENGINEERING PERSONNEL	15	4	30	49	1.308	0.370	0.840	2.318
TOTAL	131	20	281	432	39.318	1.381	38.325	77.005
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	53	37	325	415	17.897	4.759	37.410	59.666
OPERATIONS PERSONNEL	21	0	0	21	0.893	0.000	0.000	0.893
HEALTH PHYSICS PERSONNEL	18	0	44	62	2.443	0.000	0.811	3.254
SUPERVISORY PERSONNEL	2	1	1	4	0.065	0.040	0.075	0.180
ENGINEERING PERSONNEL	15	5	174	194	1.385	0.307	11.193	12.685
TOTAL	109	43	544	696	22.483	5.106	49.489	77.078
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	18	8	231	257	7.494	0.836	63.548	81.878
OPERATIONS PERSONNEL	4	0	0	4	0.015	0.000	0.000	0.015
HEALTH PHYSICS PERSONNEL	5	0	30	35	0.485	0.000	6.483	6.968
SUPERVISORY PERSONNEL	0	1	1	2	0.000	0.040	0.037	0.077
ENGINEERING PERSONNEL	9	4	159	172	0.788	0.405	122.283	123.454
TOTAL	36	13	421	470	8.760	1.081	212.352	222.193
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	33	21	143	197	6.171	4.557	21.639	32.367
OPERATIONS PERSONNEL	3	0	0	3	0.280	0.000	0.000	0.280
HEALTH PHYSICS PERSONNEL	5	0	9	14	0.185	0.000	0.365	0.550
SUPERVISORY PERSONNEL	1	1	1	3	0.010	0.065	0.021	0.128
ENGINEERING PERSONNEL	12	2	17	31	0.805	0.380	1.434	2.599
TOTAL	64	24	170	248	7.431	5.012	23.459	35.902
WASTE PROCESSING								
MAINTENANCE PERSONNEL	3	4	14	21	0.005	0.303	0.088	0.396
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	17	0	34	51	4.321	0.000	12.211	16.532
SUPERVISORY PERSONNEL	1	0	0	1	0.145	0.000	0.000	0.145
ENGINEERING PERSONNEL	1	0	3	4	0.020	0.000	0.028	0.048
TOTAL	22	4	51	77	4.491	0.303	12.327	17.121
REFUELING								
MAINTENANCE PERSONNEL	16	3	69	88	2.250	0.100	30.078	32.428
OPERATIONS PERSONNEL	2	0	0	2	0.065	0.000	0.000	0.065
HEALTH PHYSICS PERSONNEL	4	0	9	13	0.035	0.000	0.390	0.425
SUPERVISORY PERSONNEL	0	0	1	1	0.000	0.000	0.142	0.142
ENGINEERING PERSONNEL	4	0	2	6	0.200	0.000	0.280	0.480
TOTAL	26	3	81	110	2.550	0.100	30.888	33.538
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	174	86	987	1247	41.799	11.318	198.574	251.689
OPERATIONS PERSONNEL	74	0	0	74	28.483	0.000	0.000	28.483
HEALTH PHYSICS PERSONNEL	68	0	171	239	11.777	0.000	30.127	41.904
SUPERVISORY PERSONNEL	6	4	5	15	0.530	0.205	0.281	1.016
ENGINEERING PERSONNEL	58	15	385	458	4.485	1.442	135.838	141.765
GRAND TOTALS	376	107	1548	2033	85.074	12.963	384.820	462.857

W counted in more than one category.

APPENDIX D (Continued)

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

1985

PLANT: *HARRIS

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	2	0	2	4	0.432	0.000	0.508	0.941
OPERATIONS PERSONNEL	1	0	0	1	2.319	0.000	0.247	2.566
HEALTH PHYSICS PERSONNEL	19	0	6	25	4.979	0.032	2.064	7.075
SUPERVISORY PERSONNEL	0	0	0	0	0.108	0.003	0.012	0.121
ENGINEERING PERSONNEL	0	0	0	0	0.322	0.021	0.027	0.370
TOTAL	22	0	8	30	8.158	0.056	2.859	11.073
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	3	3	1.775	0.028	2.044	3.845
OPERATIONS PERSONNEL	0	0	0	0	0.182	0.000	0.005	0.187
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.880	0.000	0.018	0.898
SUPERVISORY PERSONNEL	0	0	0	0	0.013	0.000	0.015	0.028
ENGINEERING PERSONNEL	0	0	0	0	0.287	0.007	0.122	0.423
TOTAL	0	0	3	3	2.847	0.033	2.211	5.091
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	2	0	0	2	0.284	0.035	0.012	0.341
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.001	0.001
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.032	0.000	0.000	0.032
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.084	0.001	0.000	0.085
TOTAL	2	0	0	2	0.410	0.036	0.013	0.459
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	13	0	37	50	5.728	0.000	10.778	16.504
OPERATIONS PERSONNEL	1	0	0	1	0.391	0.000	0.030	0.421
HEALTH PHYSICS PERSONNEL	10	0	0	10	2.851	0.000	0.065	2.946
SUPERVISORY PERSONNEL	0	0	0	0	0.018	0.000	0.000	0.018
ENGINEERING PERSONNEL	1	0	2	3	0.431	0.001	0.488	0.900
TOTAL	25	0	39	64	9.417	0.001	11.371	20.789
WASTE PROCESSING								
MAINTENANCE PERSONNEL	1	0	0	1	0.460	0.000	0.239	0.729
OPERATIONS PERSONNEL	0	0	0	0	0.098	0.000	0.000	0.098
HEALTH PHYSICS PERSONNEL	2	0	0	2	1.420	0.000	0.072	1.492
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	1	1	0.018	0.000	0.189	0.208
TOTAL	3	0	1	4	2.027	0.000	0.500	2.527
REFUELING								
MAINTENANCE PERSONNEL	47	4	102	153	14.489	0.941	36.007	51.497
OPERATIONS PERSONNEL	12	0	1	13	4.671	0.000	0.641	5.312
HEALTH PHYSICS PERSONNEL	17	0	20	37	5.813	0.002	5.188	10.783
SUPERVISORY PERSONNEL	0	0	4	4	0.408	0.062	1.357	1.827
ENGINEERING PERSONNEL	15	0	133	148	5.645	0.388	65.844	71.877
TOTAL	91	4	260	355	30.829	1.391	109.177	141.397
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	65	4	144	213	23.208	1.002	49.649	73.857
OPERATIONS PERSONNEL	14	0	1	15	7.671	0.000	0.824	8.586
HEALTH PHYSICS PERSONNEL	48	0	26	74	15.475	0.034	7.417	22.829
SUPERVISORY PERSONNEL	0	0	4	4	0.545	0.065	1.364	1.964
ENGINEERING PERSONNEL	16	0	136	152	8.791	0.416	68.757	73.864
GRAND TOTALS	143	4	311	458	53.688	1.517	128.131	181.336

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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	32	0	0	32	12.622	0.042	3.088	15.752
OPERATIONS PERSONNEL	67	0	0	67	34.843	0.000	0.000	34.843
HEALTH PHYSICS PERSONNEL	62	4	21	87	20.785	1.173	6.688	28.606
SUPERVISORY PERSONNEL	10	0	0	10	4.044	0.008	0.638	4.690
ENGINEERING PERSONNEL	2	0	0	2	1.169	0.016	0.232	1.417
TOTAL	173	4	21	198	73.443	1.239	10.624	85.206
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	178	13	325	514	112.209	3.371	143.388	258.968
OPERATIONS PERSONNEL	10	0	0	10	3.719	0.000	0.000	3.719
HEALTH PHYSICS PERSONNEL	14	1	3	18	4.221	0.139	1.888	6.248
SUPERVISORY PERSONNEL	25	0	9	34	12.481	0.058	3.050	15.587
ENGINEERING PERSONNEL	11	0	8	19	3.902	0.078	2.388	6.378
TOTAL	238	14	345	597	136.532	3.644	150.716	290.894
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	4	0	20	24	0.777	0.112	15.391	16.280
OPERATIONS PERSONNEL	17	0	0	17	4.326	0.000	0.000	4.326
HEALTH PHYSICS PERSONNEL	7	3	15	25	3.658	1.983	6.733	11.954
SUPERVISORY PERSONNEL	0	0	0	0	0.030	0.038	0.010	0.078
ENGINEERING PERSONNEL	0	0	1	1	0.143	0.050	0.429	0.622
TOTAL	28	3	36	67	8.834	1.863	22.563	33.260
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	29	0	53	82	14.597	0.006	31.485	46.088
OPERATIONS PERSONNEL	0	0	0	0	0.248	0.000	0.000	0.248
HEALTH PHYSICS PERSONNEL	1	0	0	1	0.616	0.028	0.465	1.111
SUPERVISORY PERSONNEL	3	0	0	3	2.097	0.000	0.019	2.116
ENGINEERING PERSONNEL	0	0	3	3	0.048	0.000	1.649	1.695
TOTAL	33	0	56	89	17.606	0.034	33.568	51.238
WASTE PROCESSING								
MAINTENANCE PERSONNEL	4	0	0	4	1.552	0.000	0.230	1.782
OPERATIONS PERSONNEL	1	0	0	1	0.397	0.000	0.000	0.397
HEALTH PHYSICS PERSONNEL	2	2	3	7	1.378	0.325	1.848	3.549
SUPERVISORY PERSONNEL	1	0	0	1	0.330	0.000	0.032	0.362
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.051	0.050
TOTAL	8	2	3	13	3.658	0.325	1.859	5.850
REFUELING								
MAINTENANCE PERSONNEL	0	0	59	59	0.025	0.097	16.537	16.599
OPERATIONS PERSONNEL	0	0	0	0	0.555	0.000	0.000	0.555
HEALTH PHYSICS PERSONNEL	0	0	9	9	0.096	0.013	2.302	2.411
SUPERVISORY PERSONNEL	1	0	0	1	0.252	0.000	0.071	0.323
ENGINEERING PERSONNEL	0	0	4	4	0.100	0.000	1.443	1.543
TOTAL	1	0	72	73	1.028	0.050	20.353	21.431
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	245	13	457	715	141.782	3.568	210.097	355.447
OPERATIONS PERSONNEL	95	0	0	95	44.088	0.000	0.000	44.088
HEALTH PHYSICS PERSONNEL	88	10	51	147	30.638	3.341	19.700	53.677
SUPERVISORY PERSONNEL	40	0	9	49	19.234	0.102	3.716	23.054
ENGINEERING PERSONNEL	13	0	16	29	5.389	0.144	6.200	11.713
GRAND TOTALS	479	23	533	1035	241.109	7.155	239.715	487.879

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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	17	1	5	23	5.324	0.607	1.962	7.913
OPERATIONS PERSONNEL	41	0	0	41	12.724	0.463	1.536	14.725
HEALTH PHYSICS PERSONNEL	18	0	1	19	3.604	0.017	0.663	4.214
SUPERVISORY PERSONNEL	0	0	0	0	0.023	0.006	0.142	0.173
ENGINEERING PERSONNEL	0	0	0	0	0.117	0.068	0.009	0.208
TOTAL	76	1	6	83	21.792	1.163	4.258	27.233
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	11	0	1	12	3.470	0.129	0.359	3.958
OPERATIONS PERSONNEL	3	0	0	3	0.866	0.036	0.116	1.170
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.494	0.000	0.028	0.522
SUPERVISORY PERSONNEL	0	0	0	0	0.001	0.002	0.000	0.003
ENGINEERING PERSONNEL	0	0	0	0	0.102	0.220	0.001	0.323
TOTAL	14	0	1	15	5.053	0.419	0.504	5.978
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	2	38	40	0.055	0.544	13.987	14.586
OPERATIONS PERSONNEL	0	2	21	23	0.103	0.569	10.666	11.537
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.125	0.000	0.066	0.191
SUPERVISORY PERSONNEL	0	0	2	2	0.000	0.000	0.296	0.296
ENGINEERING PERSONNEL	0	1	0	1	0.040	0.355	0.116	0.511
TOTAL	0	5	61	66	0.323	1.467	25.331	27.121
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	89	7	87	160	30.468	2.160	23.103	55.759
OPERATIONS PERSONNEL	19	3	33	55	7.632	1.285	9.006	17.625
HEALTH PHYSICS PERSONNEL	27	0	4	31	5.698	0.070	1.370	7.438
SUPERVISORY PERSONNEL	0	0	1	1	0.046	0.017	0.235	0.298
ENGINEERING PERSONNEL	2	2	1	5	0.388	0.667	0.183	1.238
TOTAL	134	12	128	272	44.528	4.229	33.869	82.656
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.289	0.144	0.000	0.433
OPERATIONS PERSONNEL	7	0	1	8	1.503	0.036	0.362	1.901
HEALTH PHYSICS PERSONNEL	9	1	1	11	3.046	0.252	0.233	3.530
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.139	0.000	0.139
TOTAL	16	1	2	19	4.837	0.571	0.625	6.033
REFUELING								
MAINTENANCE PERSONNEL	2	4	62	68	1.208	1.415	17.981	20.504
OPERATIONS PERSONNEL	6	1	51	58	2.438	0.611	14.033	16.982
HEALTH PHYSICS PERSONNEL	13	0	9	22	4.451	0.000	3.647	8.098
SUPERVISORY PERSONNEL	0	0	0	0	0.031	0.008	0.137	0.174
ENGINEERING PERSONNEL	0	0	1	1	0.087	0.089	0.155	0.331
TOTAL	21	5	123	149	8.219	2.021	35.853	46.093
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	116	14	189	323	40.812	5.029	67.312	103.153
OPERATIONS PERSONNEL	76	6	108	188	25.396	2.631	35.963	64.270
HEALTH PHYSICS PERSONNEL	67	1	15	83	17.715	0.339	5.937	23.991
SUPERVISORY PERSONNEL	0	0	3	3	0.101	0.033	0.510	0.644
ENGINEERING PERSONNEL	2	3	2	7	0.738	1.558	0.458	2.754
GRAND TOTALS	261	24	319	604	84.752	9.660	100.470	195.112

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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	48	41	100	187	1,965	2,152	3,042	7,159
OPERATIONS PERSONNEL	73	0	3	76	28,190	0,000	0,271	28,461
HEALTH PHYSICS PERSONNEL	25	3	94	122	8,428	1,398	50,584	60,378
SUPERVISORY PERSONNEL	12	11	11	34	1,540	1,842	1,189	4,651
ENGINEERING PERSONNEL	17	7	21	45	1,867	0,468	0,930	3,365
TOTAL	173	62	229	464	42,088	5,848	55,978	104,012
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	74	110	136	322	5,733	1,963	1,517	9,233
OPERATIONS PERSONNEL	7	0	2	9	0,094	0,000	0,012	0,108
HEALTH PHYSICS PERSONNEL	3	0	5	8	0,107	0,000	0,040	0,147
SUPERVISORY PERSONNEL	3	2	7	12	0,009	0,004	0,094	0,107
ENGINEERING PERSONNEL	9	4	12	25	0,438	0,124	0,168	0,728
TOTAL	96	116	164	376	6,379	2,111	1,831	10,321
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	10	27	48	83	0,502	0,238	1,879	2,617
OPERATIONS PERSONNEL	4	0	1	5	0,130	0,000	0,141	0,271
HEALTH PHYSICS PERSONNEL	4	0	16	20	0,057	0,000	0,283	0,340
SUPERVISORY PERSONNEL	2	3	0	5	0,162	0,028	0,000	0,190
ENGINEERING PERSONNEL	9	1	5	15	0,708	0,002	0,385	1,073
TOTAL	29	31	68	128	1,557	0,266	2,688	4,491
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	63	181	304	568	15,141	74,432	102,250	191,823
OPERATIONS PERSONNEL	28	0	3	31	0,819	0,000	1,275	2,091
HEALTH PHYSICS PERSONNEL	25	0	53	78	1,743	0,000	8,845	10,588
SUPERVISORY PERSONNEL	6	11	12	29	0,498	4,011	1,873	6,380
ENGINEERING PERSONNEL	19	10	30	59	4,164	4,473	6,867	16,504
TOTAL	181	202	402	785	22,365	82,916	121,110	228,386
WASTE PROCESSING								
MAINTENANCE PERSONNEL	28	29	155	210	2,470	3,632	44,015	50,117
OPERATIONS PERSONNEL	3	0	0	3	0,014	0,000	0,000	0,014
HEALTH PHYSICS PERSONNEL	18	0	25	43	1,040	0,000	5,533	6,573
SUPERVISORY PERSONNEL	4	0	3	7	0,348	0,000	0,388	0,734
ENGINEERING PERSONNEL	1	3	7	11	0,001	0,007	0,617	0,825
TOTAL	52	32	190	274	3,873	3,639	50,751	58,263
REFUELING								
MAINTENANCE PERSONNEL	63	80	338	479	2,094	7,816	149,122	159,032
OPERATIONS PERSONNEL	10	0	3	13	1,919	0,000	0,592	2,511
HEALTH PHYSICS PERSONNEL	7	0	30	37	0,348	0,000	1,800	2,148
SUPERVISORY PERSONNEL	11	7	14	32	3,580	1,302	3,285	8,167
ENGINEERING PERSONNEL	17	7	28	53	4,318	0,854	3,806	11,878
TOTAL	108	94	412	614	12,057	10,072	161,605	183,734
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	302	(91) 468	(188) 1079	(508) 1849	(785) 27,905	60,251	301,825	418,981
OPERATIONS PERSONNEL	125	(74) 0	(0) 12	(4) 137	(78) 31,183	0,000	2,291	33,454
HEALTH PHYSICS PERSONNEL	82	(27) 3	(3) 223	(102) 308	(132) 11,721	1,398	67,065	80,172
SUPERVISORY PERSONNEL	38	(15) 34	(12) 47	(17) 119	(44) 6,135	7,287	6,807	20,229
ENGINEERING PERSONNEL	72	(26) 32	(13) 104	(43) 208	(82) 11,360	6,028	15,853	33,371
GRAND TOTALS	619	(233) 537	(214) 1465	(874) 2621	(1121) 58,314	104,952	393,841	587,207

*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**

1995

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	17	0	30	47	2.570	0.000	5.170	7.740
OPERATIONS PERSONNEL	37	0	5	42	8.430	0.000	0.860	7.290
HEALTH PHYSICS PERSONNEL	19	0	7	26	5.450	0.000	0.860	6.430
SUPERVISORY PERSONNEL	5	0	0	5	0.770	0.000	0.000	0.770
ENGINEERING PERSONNEL	4	1	1	6	0.800	0.110	0.100	1.010
TOTAL	82	1	43	126	16.020	0.110	7.110	23.240
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	23	0	68	91	5.110	0.000	12.370	17.480
OPERATIONS PERSONNEL	0	0	4	4	0.000	0.000	0.800	0.800
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	4	0	0	4	0.610	0.000	0.000	0.610
ENGINEERING PERSONNEL	1	0	0	1	0.100	0.000	0.000	0.100
TOTAL	28	0	72	100	5.820	0.000	13.170	18.990
WASTE PROCESSING								
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
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	68	108	7.690	0.000	17.540	25.230
OPERATIONS PERSONNEL	38	0	9	47	8.540	0.000	1.660	8.200
HEALTH PHYSICS PERSONNEL	19	0	7	26	5.450	0.000	0.860	6.430
SUPERVISORY PERSONNEL	9	0	0	9	1.380	0.000	0.000	1.380
ENGINEERING PERSONNEL	5	1	1	7	0.900	0.110	0.100	1.110
GRAND TOTALS	111	1	115	227	21.960	0.110	20.260	42.340

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

PLANT: *KEWAUNEE

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	0	0	2	2	0.000	0.000	0.315	0.315
OPERATIONS PERSONNEL	4	0	0	4	2.162	0.000	0.000	2.162
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.002	0.000	0.000	0.002
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	4	0	2	6	2.164	0.000	0.315	2.479
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	8	0	16	24	4.415	0.063	5.170	9.648
OPERATIONS PERSONNEL	1	0	1	2	1.010	0.000	0.190	1.200
HEALTH PHYSICS PERSONNEL	13	0	19	32	5.521	0.000	6.580	12.101
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	1	0	0	1	0.312	0.000	0.000	0.312
TOTAL	23	0	36	59	11.258	0.063	11.840	23.281
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	4	0	14	18	0.768	0.214	6.873	7.873
OPERATIONS PERSONNEL	1	0	10	11	0.178	0.000	2.710	2.888
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.045	0.000	0.000	0.045
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	2	0	0	2	0.639	0.000	0.000	0.639
TOTAL	7	0	24	31	1.648	0.214	9.583	11.445
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	12	1	76	89	6.254	0.390	44.465	51.109
OPERATIONS PERSONNEL	2	0	2	4	0.907	0.000	0.360	1.267
HEALTH PHYSICS PERSONNEL	2	0	0	2	0.447	0.000	0.000	0.447
SUPERVISORY PERSONNEL	1	0	0	1	0.368	0.000	0.000	0.368
ENGINEERING PERSONNEL	10	0	0	10	5.181	0.000	0.000	5.181
TOTAL	27	1	78	106	13.167	0.390	44.845	58.402
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.106	0.000	0.000	0.106
OPERATIONS PERSONNEL	0	0	0	0	0.250	0.000	0.000	0.250
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.151	0.000	0.000	0.151
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	0.507	0.000	0.000	0.510
REFUELING								
MAINTENANCE PERSONNEL	11	1	0	12	3.939	0.563	0.158	4.660
OPERATIONS PERSONNEL	5	0	0	5	1.756	0.000	0.000	1.756
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	2	0	0	2	0.604	0.000	0.000	0.604
TOTAL	18	1	0	19	6.299	0.563	0.158	7.020
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	36	2	108	146	15.500	1.250	58.884	73.734
OPERATIONS PERSONNEL	13	0	13	26	6.263	0.000	3.260	9.543
HEALTH PHYSICS PERSONNEL	15	0	19	34	6.164	0.000	6.580	12.744
SUPERVISORY PERSONNEL	1	0	0	1	0.370	0.000	0.000	0.370
ENGINEERING PERSONNEL	15	0	0	15	6.746	0.000	0.000	6.746
GRAND TOTALS	79	2	140	221	35.043	1.250	68.844	103.137

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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	34	1	18	53	16.992	0.057	3.384	19.423
OPERATIONS PERSONNEL	132	0	115	247	34.419	0.000	5.730	40.149
HEALTH PHYSICS PERSONNEL	43	123	7	173	17.060	1.100	1.677	19.667
SUPERVISORY PERSONNEL	100	0	64	164	6.816	0.000	1.648	8.466
ENGINEERING PERSONNEL	26	0	5	31	8.276	0.000	1.438	9.713
TOTAL	365	124	209	718	62.594	1.157	13.877	97.618
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	229	22	649	897	108.542	1.089	123.030	232.661
OPERATIONS PERSONNEL	19	0	0	19	4.716	0.000	0.001	4.719
HEALTH PHYSICS PERSONNEL	36	148	29	211	14.154	1.313	7.041	22.506
SUPERVISORY PERSONNEL	147	0	69	216	10.153	0.000	1.774	11.927
ENGINEERING PERSONNEL	57	0	91	148	8.093	0.000	25.475	31.558
TOTAL	488	168	838	1491	143.650	2.402	157.321	303.373
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	242	242	0.064	0.000	48.015	48.109
OPERATIONS PERSONNEL	0	0	0	0	0.042	0.000	0.000	0.042
HEALTH PHYSICS PERSONNEL	1	3	21	25	0.238	0.028	5.224	5.490
SUPERVISORY PERSONNEL	6	0	24	30	0.388	0.000	0.615	1.003
ENGINEERING PERSONNEL	8	0	39	47	0.858	0.000	11.022	11.880
TOTAL	15	3	328	344	1.620	0.028	62.876	64.524
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	2	2	39	43	1.023	0.124	7.262	8.409
OPERATIONS PERSONNEL	0	0	0	0	0.121	0.000	0.000	0.121
HEALTH PHYSICS PERSONNEL	1	1	0	2	0.453	0.006	0.017	0.476
SUPERVISORY PERSONNEL	4	0	6	10	0.257	0.000	0.163	0.420
ENGINEERING PERSONNEL	4	0	0	4	0.475	0.000	0.003	0.478
TOTAL	11	3	45	59	2.329	0.130	7.445	9.604
WASTE PROCESSING								
MAINTENANCE PERSONNEL	3	0	10	13	1.267	0.000	1.917	3.184
OPERATIONS PERSONNEL	1	0	31	32	0.360	0.000	1.546	1.926
HEALTH PHYSICS PERSONNEL	1	4	0	5	0.360	0.034	0.000	0.394
SUPERVISORY PERSONNEL	2	0	4	6	0.113	0.000	0.114	0.227
ENGINEERING PERSONNEL	0	0	0	0	0.026	0.000	0.000	0.026
TOTAL	7	4	45	56	2.146	0.034	3.577	5.757
REFUELING								
MAINTENANCE PERSONNEL	3	0	42	45	1.241	0.000	8.078	9.319
OPERATIONS PERSONNEL	7	0	0	7	1.872	0.000	0.000	1.872
HEALTH PHYSICS PERSONNEL	4	13	2	19	1.591	0.114	0.369	2.094
SUPERVISORY PERSONNEL	18	0	3	21	1.214	0.000	0.090	1.294
ENGINEERING PERSONNEL	1	0	57	58	0.110	0.000	15.934	16.044
TOTAL	33	13	104	150	6.028	0.114	24.481	30.623
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	271	25	997	1293	128.149	1.270	189.696	319.105
OPERATIONS PERSONNEL	159	0	146	305	41.552	0.000	7.277	48.829
HEALTH PHYSICS PERSONNEL	86	260	59	405	33.836	2.565	14.348	50.629
SUPERVISORY PERSONNEL	277	0	170	447	18.943	0.000	4.394	23.337
ENGINEERING PERSONNEL	148	0	192	338	15.827	0.000	53.872	66.699
GRAND TOTALS	939	315	1564	2818	238.357	3.855	289.577	511.789

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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	335	268	978	1581	28.968	11.579	47.037	87.584
OPERATIONS PERSONNEL	224	33	172	429	15.482	1.812	9.918	26.990
HEALTH PHYSICS PERSONNEL	43	4	41	88	7.998	0.744	4.374	13.116
SUPERVISORY PERSONNEL	10	3	17	30	0.279	0.018	0.243	0.540
ENGINEERING PERSONNEL	101	78	28	208	5.598	1.815	0.832	8.133
TOTAL	713	386	1237	2336	58.265	15.968	62.202	136.383
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	139	81	287	507	7.537	3.812	47.482	58.611
OPERATIONS PERSONNEL	101	15	31	147	3.878	0.211	0.973	5.062
HEALTH PHYSICS PERSONNEL	30	2	17	49	1.581	0.088	0.779	2.428
SUPERVISORY PERSONNEL	2	0	6	8	0.026	0.000	0.055	0.081
ENGINEERING PERSONNEL	38	18	5	61	0.945	0.782	0.052	1.779
TOTAL	310	116	346	772	13.947	4.693	49.321	67.961
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	2	62	64	0.000	0.177	13.836	14.013
OPERATIONS PERSONNEL	1	0	0	1	0.035	0.000	0.000	0.035
HEALTH PHYSICS PERSONNEL	1	0	1	2	0.010	0.000	0.110	0.120
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	1	1	0.000	0.000	0.028	0.028
TOTAL	2	2	64	68	0.045	0.177	13.974	14.196
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	59	76	70	205	4.529	5.839	3.464	13.832
OPERATIONS PERSONNEL	12	2	28	42	0.690	0.088	0.810	1.558
HEALTH PHYSICS PERSONNEL	19	1	15	35	0.914	0.027	0.628	1.569
SUPERVISORY PERSONNEL	1	0	0	1	0.001	0.000	0.000	0.001
ENGINEERING PERSONNEL	9	4	0	13	0.308	0.100	0.000	0.408
TOTAL	100	83	113	296	6.310	6.054	5.002	17.366
WASTE PROCESSING								
MAINTENANCE PERSONNEL	49	78	38	165	6.202	1.258	0.192	7.650
OPERATIONS PERSONNEL	29	4	31	64	1.735	0.103	0.836	2.668
HEALTH PHYSICS PERSONNEL	18	1	14	33	0.938	0.033	0.337	1.308
SUPERVISORY PERSONNEL	1	0	0	1	0.001	0.000	0.000	0.001
ENGINEERING PERSONNEL	10	1	0	11	0.519	0.837	0.000	1.356
TOTAL	107	84	83	274	8.415	2.229	1.367	13.011
REFUELING								
MAINTENANCE PERSONNEL	18	68	67	179	0.250	6.381	1.376	8.007
OPERATIONS PERSONNEL	11	6	42	59	0.155	0.024	1.779	1.959
HEALTH PHYSICS PERSONNEL	14	1	10	25	0.336	0.080	0.532	0.948
SUPERVISORY PERSONNEL	2	0	1	3	0.027	0.000	0.001	0.028
ENGINEERING PERSONNEL	8	1	6	13	0.040	0.025	0.077	0.142
TOTAL	49	104	128	279	0.808	6.510	3.785	11.083
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	598	(502) 601	(418) 1502	(1433) 2701	(2353) 47.488	28.844	113.337	189.697
OPERATIONS PERSONNEL	378	(294) 60	(112) 304	(212) 742	(818) 21.845	2.036	14.416	38.299
HEALTH PHYSICS PERSONNEL	125	(48) 9	(8) 98	(45) 232	(101) 11.757	0.972	6.730	19.489
SUPERVISORY PERSONNEL	16	(16) 3	(17) 24	(75) 43	(110) 0.334	0.018	0.289	0.651
ENGINEERING PERSONNEL	184	(158) 102	(195) 41	(119) 307	(470) 7.358	3.659	0.789	11.844
GRAND TOTALS	1281	(1018) 775	(750) 1969	(1884) 4025	(3652) 88.818	35.531	135.631	259.960

*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**

1996

PLANT: ***MAINE YANKEE**

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	8	13	1.960	0.000	4.077	5.737
OPERATIONS PERSONNEL	43	0	18	61	18.057	0.000	18.884	37.741
HEALTH PHYSICS PERSONNEL	22	0	120	142	13.376	0.000	68.780	83.156
SUPERVISORY PERSONNEL	1	0	2	3	0.452	0.000	0.800	1.252
ENGINEERING PERSONNEL	4	0	1	5	2.258	0.000	4.332	6.591
TOTAL	75	0	149	224	35.804	0.000	96.673	134.477
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	48	0	202	248	31.602	0.000	82.377	113.979
OPERATIONS PERSONNEL	22	0	17	39	10.066	0.000	6.838	17.004
HEALTH PHYSICS PERSONNEL	14	0	48	60	6.322	0.000	28.578	32.898
SUPERVISORY PERSONNEL	14	0	30	44	4.710	0.000	18.840	21.350
ENGINEERING PERSONNEL	18	0	187	205	8.047	0.000	174.922	182.969
TOTAL	112	0	482	594	60.747	0.000	307.453	388.200
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	21	21	0.025	0.000	11.085	11.120
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.035	0.035
HEALTH PHYSICS PERSONNEL	0	0	6	6	0.020	0.000	3.760	3.780
SUPERVISORY PERSONNEL	0	0	10	10	0.065	0.000	6.830	7.015
ENGINEERING PERSONNEL	2	0	28	30	0.585	0.000	12.137	12.732
TOTAL	2	0	65	67	0.725	0.000	33.657	34.682
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	8	0	24	30	2.606	0.000	8.170	10.778
OPERATIONS PERSONNEL	0	0	4	4	0.660	0.000	0.702	1.382
HEALTH PHYSICS PERSONNEL	1	0	3	4	0.235	0.000	1.438	1.673
SUPERVISORY PERSONNEL	0	0	3	3	0.555	0.000	1.815	2.370
ENGINEERING PERSONNEL	3	0	89	102	1.828	0.000	82.427	83.755
TOTAL	10	0	133	143	5.404	0.000	74.552	79.958
WASTE PROCESSING								
MAINTENANCE PERSONNEL	2	0	0	2	0.480	0.000	0.000	0.480
OPERATIONS PERSONNEL	2	0	0	2	0.885	0.000	0.000	0.885
HEALTH PHYSICS PERSONNEL	3	0	0	3	0.815	0.000	0.165	0.980
SUPERVISORY PERSONNEL	2	0	0	2	0.520	0.000	0.030	0.550
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.030	0.030
TOTAL	9	0	0	9	2.670	0.000	0.225	2.895
REFUELING								
MAINTENANCE PERSONNEL	30	0	114	144	17.368	0.000	52.377	69.773
OPERATIONS PERSONNEL	23	0	4	27	8.884	0.000	1.312	10.186
HEALTH PHYSICS PERSONNEL	6	0	38	42	1.440	0.000	17.175	18.615
SUPERVISORY PERSONNEL	5	0	17	22	3.022	0.000	9.881	13.013
ENGINEERING PERSONNEL	7	0	40	47	2.209	0.000	20.483	22.692
TOTAL	71	0	211	282	32.951	0.000	101.335	134.289
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	88	0	389	468	53.768	0.000	158.098	211.865
OPERATIONS PERSONNEL	90	0	43	133	38.542	0.000	28.871	87.213
HEALTH PHYSICS PERSONNEL	48	0	211	257	22.208	0.000	118.894	141.102
SUPERVISORY PERSONNEL	22	0	82	84	9.344	0.000	38.208	45.550
ENGINEERING PERSONNEL	32	0	355	387	14.438	0.000	274.331	288.769
GRAND TOTALS	278	0	1040	1319	138.301	0.000	618.166	754.499

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

PLANT: ***MCGUIRE 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	106	165	48	339	0.821	1.069	0.085	1.965				
OPERATIONS PERSONNEL	23	0	12	35	0.918	0.000	0.353	1.271				
HEALTH PHYSICS PERSONNEL	18	0	19	37	1.377	0.000	0.453	1.830				
SUPERVISORY PERSONNEL	1	0	0	1	0.020	0.000	0.000	0.020				
ENGINEERING PERSONNEL	5	3	0	8	0.153	0.057	0.000	0.210				
TOTAL	153	168	79	420	3.289	1.148	0.882	5.327				
ROUTINE MAINTENANCE												
MAINTENANCE PERSONNEL	106	203	62	371	23.688	44.226	14.312	82.226				
OPERATIONS PERSONNEL	26	0	16	42	3.399	0.000	2.887	6.286				
HEALTH PHYSICS PERSONNEL	18	0	19	37	2.544	0.000	2.423	4.967				
SUPERVISORY PERSONNEL	1	0	0	1	0.096	0.000	0.000	0.096				
ENGINEERING PERSONNEL	5	3	0	8	0.718	0.370	0.000	1.088				
TOTAL	156	206	97	459	30.445	44.596	19.622	94.663				
IN-SERVICE INSPECTION												
MAINTENANCE PERSONNEL	45	17	8	70	0.817	0.765	0.360	1.942				
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000				
HEALTH PHYSICS PERSONNEL	3	0	4	7	0.014	0.000	0.029	0.043				
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	48	17	12	77	0.831	0.765	0.369	1.965				
SPECIAL MAINTENANCE												
MAINTENANCE PERSONNEL	44	23	9	76	1.010	0.336	1.178	2.524				
OPERATIONS PERSONNEL	2	0	4	6	0.044	0.000	0.069	0.113				
HEALTH PHYSICS PERSONNEL	9	0	4	13	0.316	0.000	0.044	0.360				
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000				
ENGINEERING PERSONNEL	1	0	0	1	0.003	0.000	0.000	0.003				
TOTAL	56	23	17	96	1.373	0.336	1.291	3.000				
WASTE PROCESSING												
MAINTENANCE PERSONNEL	1	0	1	2	0.000	0.000	0.000	0.000				
OPERATIONS PERSONNEL	0	0	13	13	0.000	0.000	0.174	0.174				
HEALTH PHYSICS PERSONNEL	1	0	0	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	2	0	14	16	0.000	0.000	0.174	0.174				
REFUELING												
MAINTENANCE PERSONNEL	1	10	0	11	0.000	0.010	0.000	0.010				
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	1	10	0	11	0.000	0.010	0.000	0.010				
TOTAL BY JOB FUNCTION												
MAINTENANCE PERSONNEL	309	(107) 439	(203)	128	(62)	869	(372)	26.336	46.426	15.936	68.701	
OPERATIONS PERSONNEL	51	(26)	0	(0)	45	(18)	96	(42)	4.381	0.000	3.483	7.844
HEALTH PHYSICS PERSONNEL	49	(18)	0	(0)	48	(18)	65	(37)	4.251	0.000	2.949	7.200
SUPERVISORY PERSONNEL	2	(1)	0	(0)	0	(0)	2	(1)	0.116	0.000	0.000	0.116
ENGINEERING PERSONNEL	11	(5)	8	(3)	0	(0)	17	(8)	0.874	0.427	0.000	1.301
GRAND TOTALS	418	(157) 444	(206)	219	(97)	1079	(460)	35.636	49.856	22.368	105.162	

*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**

1995

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	60	24	186	272	2.143	0.565	1.521	4.229
OPERATIONS PERSONNEL	60	1	26	87	11.016	0.001	1.361	12.410
HEALTH PHYSICS PERSONNEL	47	5	39	91	4.173	0.316	6.069	10.558
SUPERVISORY PERSONNEL	1	0	0	1	0.121	0.000	0.000	0.121
ENGINEERING PERSONNEL	13	10	15	38	0.282	0.058	0.018	0.377
TOTAL	171	40	276	489	17.717	0.978	9.000	27.695
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	106	66	522	694	7.828	1.614	10.323	19.766
OPERATIONS PERSONNEL	18	1	8	23	0.072	0.002	0.000	0.074
HEALTH PHYSICS PERSONNEL	23	3	20	46	0.771	0.002	1.344	2.117
SUPERVISORY PERSONNEL	3	0	6	9	0.011	0.000	0.216	0.227
ENGINEERING PERSONNEL	19	20	49	88	0.823	0.521	1.073	2.417
TOTAL	167	90	605	860	9.506	2.139	12.956	24.601
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	5	5	0.000	0.000	0.015	0.015
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	2	0	0	2	0.007	0.000	0.000	0.007
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	1	1	4	6	0.000	0.004	0.024	0.028
TOTAL	3	1	9	13	0.007	0.004	0.039	0.050
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	88	66	689	841	11.852	10.328	407.606	429.786
OPERATIONS PERSONNEL	37	1	25	63	3.714	0.160	7.685	11.559
HEALTH PHYSICS PERSONNEL	42	3	38	83	6.416	0.073	9.598	16.057
SUPERVISORY PERSONNEL	2	0	6	8	0.024	0.000	1.678	1.702
ENGINEERING PERSONNEL	19	18	58	95	2.375	2.863	30.401	35.639
TOTAL	166	88	816	1090	24.381	13.454	458.939	494.773
WASTE PROCESSING								
MAINTENANCE PERSONNEL	45	37	235	317	1.431	0.034	3.378	4.841
OPERATIONS PERSONNEL	5	0	11	16	0.007	0.000	0.361	0.368
HEALTH PHYSICS PERSONNEL	24	1	18	43	0.829	0.000	1.040	1.669
SUPERVISORY PERSONNEL	2	0	0	2	0.223	0.000	0.000	0.223
ENGINEERING PERSONNEL	2	0	7	9	0.000	0.000	0.000	0.000
TOTAL	78	38	271	367	2.260	0.034	4.810	7.134
REFUELING								
MAINTENANCE PERSONNEL	34	13	163	210	1.122	0.885	22.285	24.302
OPERATIONS PERSONNEL	11	0	3	14	1.284	0.000	0.001	1.255
HEALTH PHYSICS PERSONNEL	23	1	8	32	1.432	0.010	0.664	2.108
SUPERVISORY PERSONNEL	0	0	2	2	0.000	0.000	0.006	0.006
ENGINEERING PERSONNEL	8	7	11	26	0.823	1.079	2.468	4.100
TOTAL	74	21	187	262	4.331	1.984	25.454	31.769
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	321	208	1812	2339	24.377	13.436	445.126	462.939
OPERATIONS PERSONNEL	128	3	71	203	16.065	0.163	9.488	25.726
HEALTH PHYSICS PERSONNEL	161	13	123	297	13.426	0.401	18.685	32.514
SUPERVISORY PERSONNEL	8	0	14	22	0.379	0.000	1.800	2.279
ENGINEERING PERSONNEL	60	56	144	260	3.983	4.583	34.018	42.564
GRAND TOTALS	678	278	2164	3121	58.232	18.583	509.197	586.022

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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	208	111	1158	1478	16.079	5.282	75.971	97.332
OPERATIONS PERSONNEL	77	8	51	136	17.780	0.441	0.539	18.740
HEALTH PHYSICS PERSONNEL	94	7	83	184	10.735	0.525	11.188	22.428
SUPERVISORY PERSONNEL	4	0	9	13	0.032	0.000	0.181	0.213
ENGINEERING PERSONNEL	27	28	55	108	1.231	0.257	1.859	3.347
TOTAL	411	162	1358	1919	45.837	8.505	89.718	142.060
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	185	75	738	978	27.628	3.065	58.329	89.022
OPERATIONS PERSONNEL	52	3	29	84	1.395	0.012	0.300	1.697
HEALTH PHYSICS PERSONNEL	43	2	41	88	3.609	0.039	2.547	6.185
SUPERVISORY PERSONNEL	4	0	6	10	0.145	0.000	0.216	0.361
ENGINEERING PERSONNEL	23	19	35	77	0.745	0.471	0.658	1.872
TOTAL	287	99	849	1235	33.512	3.587	62.048	99.147
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	40	57	384	481	1.089	0.727	53.702	55.518
OPERATIONS PERSONNEL	11	1	3	15	0.480	0.267	0.000	0.737
HEALTH PHYSICS PERSONNEL	25	2	34	61	0.134	0.073	0.951	1.158
SUPERVISORY PERSONNEL	1	0	2	3	0.080	0.000	0.014	0.074
ENGINEERING PERSONNEL	18	21	42	79	0.781	0.568	15.365	16.714
TOTAL	93	81	485	639	2.544	1.625	70.032	74.201
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	19	7	52	78	0.269	0.044	0.170	0.483
OPERATIONS PERSONNEL	2	0	2	4	0.002	0.000	0.000	0.002
HEALTH PHYSICS PERSONNEL	8	1	4	13	0.077	0.017	0.116	0.210
SUPERVISORY PERSONNEL	0	0	1	1	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	10	6	2	18	0.539	0.155	0.033	0.747
TOTAL	39	14	61	114	0.897	0.218	0.318	1.442
WASTE PROCESSING								
MAINTENANCE PERSONNEL	119	74	378	572	4.101	0.068	4.740	8.927
OPERATIONS PERSONNEL	24	3	31	58	0.292	0.000	0.040	0.332
HEALTH PHYSICS PERSONNEL	88	1	59	128	1.708	0.000	1.173	2.881
SUPERVISORY PERSONNEL	4	0	0	4	0.001	0.000	0.000	0.001
ENGINEERING PERSONNEL	15	3	15	33	0.003	0.198	0.013	0.214
TOTAL	230	81	484	785	6.105	0.264	5.966	12.355
REFUELING								
MAINTENANCE PERSONNEL	120	73	685	858	14.387	1.828	34.673	50.888
OPERATIONS PERSONNEL	34	5	24	63	2.399	1.078	0.033	3.500
HEALTH PHYSICS PERSONNEL	48	5	48	99	3.232	0.258	4.288	7.748
SUPERVISORY PERSONNEL	3	0	3	6	0.097	0.000	0.002	0.099
ENGINEERING PERSONNEL	13	11	32	56	0.523	0.102	0.743	1.368
TOTAL	218	94	772	1062	20.628	3.262	39.709	63.599
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	672	397	3378	4445	63.553	11.030	227.585	302.168
OPERATIONS PERSONNEL	200	20	140	390	22.308	1.788	0.912	25.008
HEALTH PHYSICS PERSONNEL	284	18	269	571	19.495	0.910	20.213	40.618
SUPERVISORY PERSONNEL	18	0	21	37	0.335	0.000	0.419	0.748
ENGINEERING PERSONNEL	104	89	181	371	3.842	1.751	18.899	24.282
GRAND TOTALS	1278	521	3987	5784	109.533	15.478	287.792	392.804

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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	24	4	2	30	4.081	1.486	0.861	6.438
OPERATIONS PERSONNEL	31	0	0	31	9.299	0.000	0.068	9.305
HEALTH PHYSICS PERSONNEL	18	3	2	21	4.698	0.505	0.348	5.849
SUPERVISORY PERSONNEL	7	0	1	8	2.810	0.151	0.445	3.406
ENGINEERING PERSONNEL	8	0	0	8	2.690	0.000	0.000	2.690
TOTAL	66	7	5	98	23.708	2.152	1.720	27.578
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	18	7	2	27	3.750	1.439	0.342	5.531
OPERATIONS PERSONNEL	0	0	0	0	0.070	0.000	0.000	0.070
HEALTH PHYSICS PERSONNEL	3	5	1	9	0.808	1.616	0.254	2.673
SUPERVISORY PERSONNEL	1	0	0	1	0.384	0.047	0.006	0.437
ENGINEERING PERSONNEL	0	0	0	0	0.188	0.000	0.000	0.188
TOTAL	22	12	3	37	5.199	3.102	0.602	8.897
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	2	2	4	0.000	0.425	0.321	0.748
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	1	0	1	0.016	0.324	0.000	0.340
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	3	2	5	0.016	0.749	0.321	1.086
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	6	1	7	0.003	2.005	0.351	2.359
OPERATIONS PERSONNEL	0	0	0	0	0.008	0.000	0.000	0.008
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.032	0.000	0.164	0.196
SUPERVISORY PERSONNEL	0	0	0	0	0.010	0.000	0.000	0.010
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	6	1	7	0.053	2.005	0.516	2.573
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	4	0	4	0.354	2.512	0.017	2.883
OPERATIONS PERSONNEL	1	0	0	1	0.182	0.000	0.000	0.182
HEALTH PHYSICS PERSONNEL	1	0	1	2	0.579	0.081	0.340	1.010
SUPERVISORY PERSONNEL	0	0	0	0	0.109	0.000	0.000	0.109
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	2	4	1	7	1.204	2.603	0.357	4.164
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	42	23	7	72	8.188	7.677	1.892	17.957
OPERATIONS PERSONNEL	32	0	0	32	9.479	0.000	0.068	9.545
HEALTH PHYSICS PERSONNEL	20	8	4	32	6.410	2.212	1.108	9.728
SUPERVISORY PERSONNEL	8	1	1	10	3.329	0.522	0.451	4.302
ENGINEERING PERSONNEL	8	0	0	8	2.788	0.000	0.000	2.788
GRAND TOTALS	110	32	12	154	90.172	10.611	3.515	44.298

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

PLANT: ***NINE MILE POINT 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	2041	0	3098	5137	10.609	0.000	12.074	22.583
OPERATIONS PERSONNEL	6957	0	739	7693	39.295	0.000	1.757	39.042
HEALTH PHYSICS PERSONNEL	2965	0	919	3904	10.415	0.000	3.734	14.149
SUPERVISORY PERSONNEL	360	4	251	605	1.510	0.008	0.742	2.260
ENGINEERING PERSONNEL	1694	22	480	2196	4.323	0.314	1.721	6.358
TOTAL	13727	28	5482	19235	63.042	0.322	20.028	83.392
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	3830	0	15649	19473	57.481	0.000	199.184	256.645
OPERATIONS PERSONNEL	328	0	808	1134	3.054	0.000	2.175	5.229
HEALTH PHYSICS PERSONNEL	1789	0	1749	3538	15.298	0.000	19.798	35.092
SUPERVISORY PERSONNEL	257	29	396	669	4.275	0.129	2.616	7.020
ENGINEERING PERSONNEL	1501	32	1479	3012	9.724	0.125	19.314	29.163
TOTAL	7705	59	20083	27828	89.830	0.254	240.095	330.149
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	32	0	4112	4144	0.879	0.000	128.183	129.062
OPERATIONS PERSONNEL	2	0	1	3	0.003	0.000	0.002	0.005
HEALTH PHYSICS PERSONNEL	9	0	25	34	0.059	0.000	0.129	0.188
SUPERVISORY PERSONNEL	16	1	159	176	0.483	0.001	4.075	4.559
ENGINEERING PERSONNEL	53	1	1323	1377	0.578	0.000	51.397	51.975
TOTAL	112	2	5620	5734	1.802	0.001	184.786	186.589
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	118	0	3541	3657	2.013	0.000	73.413	75.426
OPERATIONS PERSONNEL	12	0	74	86	0.070	0.000	0.200	0.270
HEALTH PHYSICS PERSONNEL	67	0	17	84	0.291	0.000	0.074	0.365
SUPERVISORY PERSONNEL	15	1	174	190	0.081	0.010	2.095	2.186
ENGINEERING PERSONNEL	62	11	903	976	1.113	0.161	5.498	6.789
TOTAL	272	12	4709	4993	3.548	0.181	81.291	85.020
WASTE PROCESSING								
MAINTENANCE PERSONNEL	136	0	134	270	1.302	0.000	0.967	2.269
OPERATIONS PERSONNEL	1459	0	296	1755	5.322	0.000	2.262	7.584
HEALTH PHYSICS PERSONNEL	108	0	22	130	0.454	0.000	0.125	0.579
SUPERVISORY PERSONNEL	31	0	0	31	0.087	0.000	0.000	0.087
ENGINEERING PERSONNEL	8	0	112	121	0.028	0.000	0.895	0.923
TOTAL	1743	0	564	2307	7.193	0.000	4.219	11.412
REFUELING								
MAINTENANCE PERSONNEL	97	0	1600	1697	1.739	0.000	23.901	25.640
OPERATIONS PERSONNEL	162	0	47	209	1.185	0.000	0.362	1.547
HEALTH PHYSICS PERSONNEL	216	0	165	381	1.296	0.000	1.102	2.398
SUPERVISORY PERSONNEL	27	0	3	30	0.822	0.000	0.007	0.829
ENGINEERING PERSONNEL	175	0	133	308	1.439	0.000	1.782	3.201
TOTAL	677	0	1948	2625	6.551	0.000	27.134	33.685
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	6252	0	28126	34378	73.723	0.000	435.702	509.425
OPERATIONS PERSONNEL	8620	0	1980	10580	48.919	0.000	6.758	52.677
HEALTH PHYSICS PERSONNEL	5174	0	2897	8071	27.781	0.000	24.990	52.741
SUPERVISORY PERSONNEL	698	32	973	1701	7.338	0.148	9.535	17.021
ENGINEERING PERSONNEL	3494	68	4430	7990	17.205	0.620	77.558	95.383
GRAND TOTALS	24236	98	36386	62720	171.966	0.768	654.513	727.247

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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	41	0	0	41	0.480	0.000	0.000	0.480
OPERATIONS PERSONNEL	91	0	0	91	4.668	0.000	0.000	4.668
HEALTH PHYSICS PERSONNEL	19	0	12	31	0.243	0.000	0.034	0.277
SUPERVISORY PERSONNEL	33	0	0	33	0.121	0.000	0.000	0.121
ENGINEERING PERSONNEL	10	0	2	12	0.103	0.000	0.023	0.128
TOTAL	194	0	14	208	5.583	0.000	0.057	5.650
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	238	0	489	727	52.797	0.000	62.604	115.401
OPERATIONS PERSONNEL	210	84	48	340	1.438	0.283	0.102	1.821
HEALTH PHYSICS PERSONNEL	65	4	241	340	11.703	0.035	27.820	39.658
SUPERVISORY PERSONNEL	79	1	8	89	0.629	0.000	0.022	0.648
ENGINEERING PERSONNEL	111	10	48	169	2.595	0.000	0.715	3.301
TOTAL	731	99	833	1663	68.148	0.318	91.363	160.829
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	15	0	44	59	1.497	0.000	7.790	9.257
OPERATIONS PERSONNEL	17	0	0	17	1.504	0.000	0.185	1.689
HEALTH PHYSICS PERSONNEL	10	0	11	21	0.088	0.000	0.195	0.261
SUPERVISORY PERSONNEL	1	0	1	2	0.000	0.000	0.048	0.048
ENGINEERING PERSONNEL	9	0	28	35	1.508	0.000	5.428	6.938
TOTAL	52	0	82	134	4.545	0.000	13.644	18.189
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	88	0	88	176	0.832	0.000	0.386	1.220
OPERATIONS PERSONNEL	131	30	24	185	8.685	0.318	0.279	7.282
HEALTH PHYSICS PERSONNEL	30	0	58	88	0.408	0.000	6.694	7.102
SUPERVISORY PERSONNEL	37	0	3	40	0.833	0.000	0.002	0.835
ENGINEERING PERSONNEL	64	1	8	73	1.707	0.006	0.084	1.807
TOTAL	350	31	179	560	10.265	0.324	7.457	18.046
WASTE PROCESSING								
MAINTENANCE PERSONNEL	58	0	32	88	0.201	0.000	0.079	0.280
OPERATIONS PERSONNEL	14	1	0	15	0.098	0.000	0.000	0.098
HEALTH PHYSICS PERSONNEL	38	0	8	46	0.747	0.000	0.131	0.878
SUPERVISORY PERSONNEL	8	0	0	8	0.028	0.000	0.000	0.029
ENGINEERING PERSONNEL	1	0	0	1	0.003	0.000	0.000	0.003
TOTAL	117	1	40	158	1.076	0.000	0.210	1.286
REFUELING								
MAINTENANCE PERSONNEL	101	0	61	162	10.912	0.000	2.940	13.861
OPERATIONS PERSONNEL	61	7	1	69	2.180	0.229	0.005	2.384
HEALTH PHYSICS PERSONNEL	28	0	51	77	0.531	0.000	1.471	2.002
SUPERVISORY PERSONNEL	18	0	0	18	0.491	0.000	0.000	0.491
ENGINEERING PERSONNEL	8	0	11	17	0.141	0.000	0.058	0.200
TOTAL	212	7	124	343	14.225	0.229	4.484	18.938
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	537	0	714	1251	66.669	0.000	73.810	140.479
OPERATIONS PERSONNEL	524	122	71	717	18.937	0.830	0.571	17.938
HEALTH PHYSICS PERSONNEL	218	4	379	601	13.658	0.035	38.445	50.178
SUPERVISORY PERSONNEL	179	1	13	190	1.800	0.000	0.070	1.970
ENGINEERING PERSONNEL	201	11	95	307	6.046	0.006	6.319	12.373
GRAND TOTALS	1658	138	1272	3068	104.652	0.871	117.215	222.938

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

PLANT: ***OCONEE 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	180	375	89	654	4.692	1.762	0.217	6.671	
OPERATIONS PERSONNEL	78	0	27	105	15.550	0.000	0.833	16.383	
HEALTH PHYSICS PERSONNEL	39	0	74	113	1.720	0.000	3.257	4.967	
SUPERVISORY PERSONNEL	5	1	0	6	1.063	0.000	0.000	1.063	
ENGINEERING PERSONNEL	1	1	4	6	0.080	0.001	0.004	0.085	
TOTAL	313	377	164	854	23.405	1.763	4.321	29.489	
ROUTINE MAINTENANCE									
MAINTENANCE PERSONNEL	180	378	84	650	45.069	90.418	8.200	143.685	
OPERATIONS PERSONNEL	59	0	43	102	2.220	0.000	16.287	18.507	
HEALTH PHYSICS PERSONNEL	37	0	75	112	4.258	0.000	11.288	15.524	
SUPERVISORY PERSONNEL	4	1	0	5	0.729	0.252	0.000	0.961	
ENGINEERING PERSONNEL	1	0	2	3	0.278	0.000	0.038	0.314	
TOTAL	291	377	204	872	52.554	90.668	35.789	179.011	
IN-SERVICE INSPECTION									
MAINTENANCE PERSONNEL	48	119	35	202	2.037	15.565	0.217	17.819	
OPERATIONS PERSONNEL	1	0	0	1	0.000	0.000	0.833	0.833	
HEALTH PHYSICS PERSONNEL	5	0	39	44	0.033	0.000	3.257	3.300	
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000	
ENGINEERING PERSONNEL	1	0	2	3	0.000	0.000	0.004	0.004	
TOTAL	55	119	76	250	2.070	15.565	4.321	21.956	
SPECIAL MAINTENANCE									
MAINTENANCE PERSONNEL	84	204	45	349	5.408	20.730	9.813	35.949	
OPERATIONS PERSONNEL	11	0	13	24	0.050	0.000	0.611	0.661	
HEALTH PHYSICS PERSONNEL	20	0	44	64	0.387	0.000	2.041	2.428	
SUPERVISORY PERSONNEL	2	1	0	3	0.023	0.159	0.000	0.182	
ENGINEERING PERSONNEL	1	1	1	3	0.000	0.185	0.118	0.303	
TOTAL	128	208	103	437	5.866	21.074	12.583	39.523	
WASTE PROCESSING									
MAINTENANCE PERSONNEL	35	10	1	46	0.879	0.023	0.000	0.902	
OPERATIONS PERSONNEL	27	0	34	61	2.832	0.000	1.089	3.921	
HEALTH PHYSICS PERSONNEL	30	0	1	31	1.870	0.000	0.019	1.889	
SUPERVISORY PERSONNEL	3	0	0	3	0.210	0.000	0.000	0.210	
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000	
TOTAL	95	10	36	141	5.791	0.023	1.102	6.916	
REFUELING									
MAINTENANCE PERSONNEL	23	68	13	104	1.037	8.825	0.561	10.223	
OPERATIONS PERSONNEL	0	0	15	15	0.000	0.000	0.181	0.181	
HEALTH PHYSICS PERSONNEL	12	0	24	38	0.021	0.000	0.454	0.475	
SUPERVISORY PERSONNEL	1	0	0	1	0.014	0.000	0.000	0.014	
ENGINEERING PERSONNEL	1	0	0	1	0.041	0.000	0.000	0.041	
TOTAL	37	68	52	157	1.113	8.825	1.196	10.834	
TOTAL BY JOB FUNCTION									
MAINTENANCE PERSONNEL	580	(160)152 (378)	287	(98) 1969	(861)	59.420	137.121	19.008	215.549
OPERATIONS PERSONNEL	178	(80) 0 (0)	132	(49) 308	(123)	20.652	0.000	19.834	40.486
HEALTH PHYSICS PERSONNEL	143	(39) 0 (0)	257	(75) 400	(114)	8.289	0.000	20.308	28.597
SUPERVISORY PERSONNEL	15	(5) 3 (1)	0	(0) 18	(6)	2.039	0.411	0.000	2.450
ENGINEERING PERSONNEL	5	(1) 2 (1)	9	(4) 16	(6)	0.369	0.186	0.182	0.747
GRAND TOTALS	919	(315)157 (380)	665	(215) 2741	(910)	90.769	137.718	59.312	297.829

*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**

1995

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	103	0	14	117	5.188	0.000	2.773	7.961				
OPERATIONS PERSONNEL	106	0	0	106	11.413	0.000	0.000	11.413				
HEALTH PHYSICS PERSONNEL	38	0	0	38	2.329	0.000	0.000	2.329				
SUPERVISORY PERSONNEL	7	0	0	7	0.209	0.000	0.000	0.209				
ENGINEERING PERSONNEL	9	0	1	10	0.114	0.000	0.200	0.314				
TOTAL	263	0	15	278	19.253	0.000	2.973	22.226				
ROUTINE MAINTENANCE												
MAINTENANCE PERSONNEL	272	6	136	414	20.360	0.166	1.562	22.081				
OPERATIONS PERSONNEL	185	0	9	194	5.041	0.000	0.024	5.065				
HEALTH PHYSICS PERSONNEL	58	1	0	59	1.981	0.000	0.000	1.981				
SUPERVISORY PERSONNEL	68	3	13	84	0.930	0.003	0.036	0.971				
ENGINEERING PERSONNEL	119	2	17	138	2.503	0.004	0.259	2.766				
TOTAL	702	12	175	889	30.815	0.176	1.883	32.874				
IN-SERVICE INSPECTION												
MAINTENANCE PERSONNEL	38	0	8	44	2.818	0.000	1.182	3.980				
OPERATIONS PERSONNEL	8	0	0	8	0.256	0.000	0.000	0.256				
HEALTH PHYSICS PERSONNEL	17	0	0	17	0.358	0.000	0.000	0.358				
SUPERVISORY PERSONNEL	2	0	0	2	0.545	0.000	0.000	0.545				
ENGINEERING PERSONNEL	8	1	0	9	0.201	0.001	0.000	0.202				
TOTAL	67	1	8	78	4.215	0.001	1.182	5.378				
SPECIAL MAINTENANCE												
MAINTENANCE PERSONNEL	146	8	103	255	12.583	0.347	6.951	19.881				
OPERATIONS PERSONNEL	51	0	2	53	1.848	0.000	0.187	2.035				
HEALTH PHYSICS PERSONNEL	60	0	1	61	6.334	0.000	0.053	6.387				
SUPERVISORY PERSONNEL	9	0	1	10	0.063	0.000	0.012	0.065				
ENGINEERING PERSONNEL	27	0	3	30	0.415	0.000	0.724	1.139				
TOTAL	263	8	110	409	21.283	0.347	7.927	29.537				
WASTE PROCESSING												
MAINTENANCE PERSONNEL	59	0	14	73	0.637	0.000	1.961	2.648				
OPERATIONS PERSONNEL	48	0	1	49	0.449	0.000	1.583	2.012				
HEALTH PHYSICS PERSONNEL	34	0	0	34	0.634	0.000	0.000	0.634				
SUPERVISORY PERSONNEL	3	0	0	3	0.103	0.000	0.000	0.103				
ENGINEERING PERSONNEL	1	1	1	3	0.091	0.000	0.135	0.226				
TOTAL	145	1	16	162	1.894	0.000	3.679	5.673				
REFUELING												
MAINTENANCE PERSONNEL	11	0	2	13	0.041	0.000	0.001	0.042				
OPERATIONS PERSONNEL	21	0	0	21	0.256	0.000	0.000	0.256				
HEALTH PHYSICS PERSONNEL	7	0	0	7	0.019	0.000	0.000	0.019				
SUPERVISORY PERSONNEL	9	0	0	9	0.052	0.000	0.000	0.052				
ENGINEERING PERSONNEL	1	0	0	1	0.001	0.000	0.000	0.001				
TOTAL	49	0	2	51	0.369	0.000	0.001	0.370				
TOTAL BY JOB FUNCTION												
MAINTENANCE PERSONNEL	627	(284)	12	(8)	277	(170)	916	(462)	41.857	0.516	14.430	56.603
OPERATIONS PERSONNEL	417	(243)	0	(0)	12	(12)	429	(235)	19.302	0.000	1.774	21.076
HEALTH PHYSICS PERSONNEL	214	(81)	1	(1)	1	(1)	216	(83)	11.703	0.000	0.053	11.756
SUPERVISORY PERSONNEL	68	(74)	3	(3)	14	(14)	115	(91)	1.822	0.003	0.050	1.975
ENGINEERING PERSONNEL	163	(128)	4	(2)	22	(17)	189	(145)	3.325	0.005	1.318	4.648
GRAND TOTALS	1519	(808)	20	(14)	326	(214)	1865	(1038)	77.909	0.524	17.625	96.058

*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**

1985

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	1	0	4	5	2.085	0.405	2.434	4.924
OPERATIONS PERSONNEL	38	0	0	38	13.831	0.040	0.802	14.673
HEALTH PHYSICS PERSONNEL	31	0	52	83	9.489	0.000	23.269	32.758
SUPERVISORY PERSONNEL	6	0	0	6	2.382	0.031	0.168	2.579
ENGINEERING PERSONNEL	8	0	11	19	3.134	0.149	5.393	8.670
TOTAL	82	0	67	149	30.911	0.619	32.084	63.614
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	75	21	171	267	36.210	6.078	91.979	134.267
OPERATIONS PERSONNEL	12	0	5	17	2.781	0.005	2.340	5.128
HEALTH PHYSICS PERSONNEL	47	0	27	74	12.700	0.000	8.780	19.480
SUPERVISORY PERSONNEL	5	0	2	7	1.972	0.000	0.751	2.723
ENGINEERING PERSONNEL	8	2	22	32	3.338	1.203	7.400	11.939
TOTAL	147	23	227	397	56.699	7.286	109.250	173.535
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	1	4	82	87	0.811	1.790	57.168	59.568
OPERATIONS PERSONNEL	0	0	0	0	0.120	0.000	0.090	0.200
HEALTH PHYSICS PERSONNEL	2	0	11	13	0.717	0.000	3.031	3.748
SUPERVISORY PERSONNEL	1	0	0	1	0.445	0.000	0.000	0.445
ENGINEERING PERSONNEL	1	8	38	42	0.427	6.642	15.224	22.293
TOTAL	5	12	123	140	2.320	8.432	75.500	86.252
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	4	32	64	100	1.494	10.332	29.578	41.404
OPERATIONS PERSONNEL	0	0	5	5	0.383	0.000	1.370	1.753
HEALTH PHYSICS PERSONNEL	6	0	3	9	2.001	0.000	1.550	3.551
SUPERVISORY PERSONNEL	2	1	3	6	0.729	0.189	1.102	2.000
ENGINEERING PERSONNEL	1	3	18	22	0.815	0.750	8.918	10.483
TOTAL	13	36	113	162	5.422	11.251	40.518	57.191
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.013	0.318	0.338	0.667
OPERATIONS PERSONNEL	0	0	0	0	0.034	0.000	0.070	0.104
HEALTH PHYSICS PERSONNEL	5	0	0	5	3.377	0.000	0.032	3.409
SUPERVISORY PERSONNEL	1	0	0	1	0.481	0.000	0.001	0.482
ENGINEERING PERSONNEL	0	0	0	0	0.033	0.015	0.038	0.084
TOTAL	6	0	0	6	3.918	0.333	0.475	4.726
REFUELING								
MAINTENANCE PERSONNEL	15	2	28	45	6.481	0.448	28.006	32.935
OPERATIONS PERSONNEL	17	0	3	20	6.016	0.000	0.814	6.830
HEALTH PHYSICS PERSONNEL	1	0	5	6	0.151	0.000	2.497	2.648
SUPERVISORY PERSONNEL	5	0	3	8	1.445	0.000	4.713	6.161
ENGINEERING PERSONNEL	8	1	19	28	2.463	0.155	18.940	21.558
TOTAL	46	3	58	107	16.556	0.603	52.770	69.932
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	96	59	389	524	48.904	19.371	207.488	273.775
OPERATIONS PERSONNEL	65	0	13	78	23.185	0.045	5.276	28.488
HEALTH PHYSICS PERSONNEL	82	0	68	150	28.435	0.000	37.159	65.594
SUPERVISORY PERSONNEL	20	1	8	29	7.417	0.200	6.753	14.370
ENGINEERING PERSONNEL	29	14	103	143	10.208	8.908	53.911	73.027
GRAND TOTALS	269	74	591	934	116.129	28.524	310.597	455.250

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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	18	0	26	42	5.862	0.000	7.454	13.416
OPERATIONS PERSONNEL	37	0	0	37	12.569	0.000	0.132	12.701
HEALTH PHYSICS PERSONNEL	55	0	59	114	14.015	0.000	18.633	30.648
SUPERVISORY PERSONNEL	0	0	0	0	2.375	0.000	0.044	2.419
ENGINEERING PERSONNEL	0	0	1	1	3.270	0.000	0.606	3.876
TOTAL	120	0	86	208	38.191	0.000	24.869	63.060
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	175	0	350	525	78.694	0.000	168.978	245.672
OPERATIONS PERSONNEL	35	0	5	40	15.497	0.000	1.320	16.817
HEALTH PHYSICS PERSONNEL	56	0	86	142	20.761	0.000	28.679	49.440
SUPERVISORY PERSONNEL	25	0	3	28	8.975	0.000	0.956	9.931
ENGINEERING PERSONNEL	25	0	29	54	15.803	0.000	9.998	25.769
TOTAL	316	0	513	829	137.730	0.000	209.929	347.659
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	1	0	26	27	0.325	0.000	9.267	9.592
OPERATIONS PERSONNEL	1	0	1	2	0.320	0.000	0.549	0.869
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.027	0.000	0.304	0.331
SUPERVISORY PERSONNEL	1	0	0	1	0.125	0.000	0.000	0.125
ENGINEERING PERSONNEL	1	0	4	5	0.654	0.000	2.880	3.534
TOTAL	4	0	31	35	1.451	0.000	13.000	14.451
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	34	34	0.177	0.000	12.975	13.152
OPERATIONS PERSONNEL	0	0	0	0	0.070	0.000	0.000	0.070
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.125	0.000	0.490	0.605
SUPERVISORY PERSONNEL	0	0	1	1	0.000	0.000	0.662	0.662
ENGINEERING PERSONNEL	1	0	3	4	0.308	0.000	0.510	0.818
TOTAL	1	0	38	39	0.680	0.000	14.627	15.307
WASTE PROCESSING								
MAINTENANCE PERSONNEL	1	0	1	2	0.388	0.000	1.160	1.528
OPERATIONS PERSONNEL	0	0	1	1	0.075	0.000	0.444	0.519
HEALTH PHYSICS PERSONNEL	10	0	6	16	3.938	0.000	4.030	7.968
SUPERVISORY PERSONNEL	0	0	0	0	0.156	0.000	0.050	0.206
ENGINEERING PERSONNEL	0	0	0	0	0.003	0.000	0.144	0.147
TOTAL	11	0	10	21	4.538	0.000	5.828	10.364
REFUELING								
MAINTENANCE PERSONNEL	42	0	26	68	17.818	0.000	9.252	27.070
OPERATIONS PERSONNEL	4	0	0	4	1.005	0.000	0.020	1.025
HEALTH PHYSICS PERSONNEL	5	0	12	17	1.921	0.000	4.447	6.368
SUPERVISORY PERSONNEL	11	0	0	11	3.698	0.000	0.000	3.698
ENGINEERING PERSONNEL	4	0	7	11	1.384	0.000	1.839	3.223
TOTAL	66	0	45	111	25.826	0.000	15.559	41.384
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	235	0	503	738	101.342	0.000	209.088	310.428
OPERATIONS PERSONNEL	77	0	7	84	29.538	0.000	2.485	32.001
HEALTH PHYSICS PERSONNEL	126	0	165	291	40.785	0.000	54.573	95.358
SUPERVISORY PERSONNEL	43	0	4	47	15.329	0.000	1.712	17.041
ENGINEERING PERSONNEL	37	0	44	81	21.422	0.000	15.975	37.397
GRAND TOTALS	516	0	723	1241	208.414	0.000	263.811	492.225

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

PLANT: *PEACH BOTTOM 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	442	310	1005	1757	42.861	14.589	47.820	105.270
OPERATIONS PERSONNEL	105	38	100	241	2.424	0.282	3.578	6.284
HEALTH PHYSICS PERSONNEL	22	4	19	45	2.394	0.024	1.596	4.014
SUPERVISORY PERSONNEL	10	8	29	47	0.043	0.026	0.265	0.336
ENGINEERING PERSONNEL	44	64	33	141	0.634	0.931	0.153	1.722
TOTAL	623	422	1166	2231	48.356	15.854	53.422	117.632
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	114	111	293	518	10.547	7.713	23.877	42.137
OPERATIONS PERSONNEL	5	8	22	35	0.182	0.058	1.042	1.280
HEALTH PHYSICS PERSONNEL	2	0	3	5	0.105	0.000	0.040	0.145
SUPERVISORY PERSONNEL	0	0	4	4	0.000	0.000	0.105	0.105
ENGINEERING PERSONNEL	2	7	6	17	0.024	0.084	0.041	0.156
TOTAL	123	124	330	577	10.858	7.863	25.105	43.826
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	17	13	314	344	0.483	0.845	44.165	45.493
OPERATIONS PERSONNEL	0	3	4	7	0.000	0.037	0.744	0.781
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	1	1	0.000	0.000	0.007	0.007
ENGINEERING PERSONNEL	0	0	2	2	0.000	0.000	0.018	0.018
TOTAL	17	16	321	354	0.483	0.882	44.954	46.298
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	135	121	385	621	9.858	8.019	32.724	48.599
OPERATIONS PERSONNEL	12	8	27	47	0.303	0.052	4.287	4.642
HEALTH PHYSICS PERSONNEL	7	0	3	10	0.566	0.000	0.272	0.838
SUPERVISORY PERSONNEL	0	2	1	3	0.000	0.032	0.148	0.178
ENGINEERING PERSONNEL	9	13	10	32	0.088	0.282	0.109	0.487
TOTAL	163	144	406	716	10.821	8.385	37.538	54.744
WASTE PROCESSING								
MAINTENANCE PERSONNEL	12	2	15	29	0.238	0.099	0.491	0.828
OPERATIONS PERSONNEL	0	0	1	1	0.000	0.000	0.001	0.001
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	12	2	16	30	0.238	0.099	0.492	0.829
REFUELING								
MAINTENANCE PERSONNEL	228	274	812	1314	19.648	43.041	57.632	120.619
OPERATIONS PERSONNEL	43	20	44	107	2.101	1.022	3.238	6.361
HEALTH PHYSICS PERSONNEL	14	2	15	31	1.657	0.009	1.572	3.238
SUPERVISORY PERSONNEL	3	2	9	14	0.178	0.059	0.887	1.122
ENGINEERING PERSONNEL	28	32	15	75	0.908	1.958	0.489	3.355
TOTAL	317	330	895	1542	24.488	48.088	64.128	134.705
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	948	(555) 831	(483) 2804	(1558) 4993	(2964) 83.609	72.308	207.029	362.944
OPERATIONS PERSONNEL	165	(210) 73	(108) 198	(178) 438	(496) 5.010	1.449	12.890	19.349
HEALTH PHYSICS PERSONNEL	45	(49) 8	(9) 40	(27) 91	(85) 4.722	0.033	3.460	8.235
SUPERVISORY PERSONNEL	13	(18) 12	(18) 44	(96) 89	(132) 0.219	0.119	1.410	1.748
ENGINEERING PERSONNEL	84	(65) 121	(184) 68	(66) 273	(377) 1.662	3.265	0.830	5.757
GRAND TOTALS	1255	(927) 043	(802) 3154	(1955) 5452	(3684) 65.222	77.172	225.639	398.033

*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**

1995

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	147	33	145	325	0.578	0.019	0.390	0.928
OPERATIONS PERSONNEL	228	21	17	266	7.903	0.053	0.006	7.964
HEALTH PHYSICS PERSONNEL	63	12	45	120	2.827	0.041	0.549	3.417
SUPERVISORY PERSONNEL	3	4	52	59	0.002	0.003	0.173	0.178
ENGINEERING PERSONNEL	39	90	40	169	0.249	0.317	0.265	0.831
TOTAL	480	160	299	939	11.560	0.433	1.315	13.308
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	216	81	378	675	14.351	3.989	11.410	29.750
OPERATIONS PERSONNEL	324	49	44	417	3.093	0.327	0.191	3.611
HEALTH PHYSICS PERSONNEL	68	15	62	143	2.871	0.828	2.478	6.175
SUPERVISORY PERSONNEL	4	4	40	48	0.000	0.014	0.116	0.130
ENGINEERING PERSONNEL	58	184	88	330	0.378	1.378	0.608	2.364
TOTAL	680	313	592	1573	20.634	6.534	14.601	41.969
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	2	0	4	6	0.010	0.000	0.000	0.010
OPERATIONS PERSONNEL	5	2	0	7	0.007	0.005	0.000	0.012
HEALTH PHYSICS PERSONNEL	8	0	0	8	0.035	0.000	0.000	0.035
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	7	2	9	0.000	0.148	0.000	0.148
TOTAL	15	9	6	30	0.052	0.151	0.000	0.203
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	91	12	48	151	2.981	0.064	0.639	3.684
OPERATIONS PERSONNEL	68	3	5	76	0.805	0.002	0.038	0.843
HEALTH PHYSICS PERSONNEL	32	5	10	47	0.548	0.029	0.074	0.648
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	8	16	2	26	0.016	0.093	0.016	0.125
TOTAL	199	36	65	300	4.360	0.185	0.765	5.310
WASTE PROCESSING								
MAINTENANCE PERSONNEL	74	28	38	138	0.409	0.237	0.201	0.947
OPERATIONS PERSONNEL	78	5	11	94	2.046	0.001	0.045	2.092
HEALTH PHYSICS PERSONNEL	49	14	33	96	0.531	0.428	0.237	1.194
SUPERVISORY PERSONNEL	0	1	4	5	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	13	12	4	29	0.087	0.001	0.000	0.088
TOTAL	214	60	86	360	3.023	0.765	0.483	4.271
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	530	154	611	1295	16.330	4.409	12.780	35.519
OPERATIONS PERSONNEL	703	80	77	860	13.794	0.388	0.280	14.462
HEALTH PHYSICS PERSONNEL	218	48	150	414	6.812	1.321	3.338	11.469
SUPERVISORY PERSONNEL	7	9	96	112	0.002	0.017	0.289	0.308
ENGINEERING PERSONNEL	118	299	118	523	0.661	1.633	0.879	3.173
GRAND TOTALS	1576	578	1050	3204	39.619	6.068	17.564	65.251

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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	170	13	718	899	3.663	0.230	7.868	11.761
OPERATIONS PERSONNEL	126	10	74	210	29.413	0.100	1.567	31.080
HEALTH PHYSICS PERSONNEL	41	4	30	75	3.768	0.436	5.587	9.791
SUPERVISORY PERSONNEL	123	15	69	227	2.654	0.532	1.132	4.518
ENGINEERING PERSONNEL	128	22	48	198	3.852	0.898	0.682	5.213
TOTAL	588	64	957	1609	43.550	1.997	16.816	62.363
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	230	32	708	1088	71.691	6.904	200.870	279.365
OPERATIONS PERSONNEL	110	4	166	280	9.450	0.251	9.914	19.615
HEALTH PHYSICS PERSONNEL	64	3	44	101	19.289	0.089	7.154	26.552
SUPERVISORY PERSONNEL	132	16	106	254	12.634	0.715	8.026	21.675
ENGINEERING PERSONNEL	144	23	59	226	8.854	0.836	3.936	13.626
TOTAL	670	78	1171	1919	122.128	8.805	232.902	363.835
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	66	2	288	356	3.362	0.003	23.525	26.890
OPERATIONS PERSONNEL	7	0	10	17	0.028	0.000	0.312	0.338
HEALTH PHYSICS PERSONNEL	19	0	6	25	0.287	0.000	0.133	0.400
SUPERVISORY PERSONNEL	15	4	13	32	0.164	0.020	0.416	0.600
ENGINEERING PERSONNEL	26	3	2	31	0.514	0.046	0.210	0.770
TOTAL	133	9	319	461	4.323	0.069	24.596	29.988
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	38	3	265	306	1.679	0.023	14.041	16.743
OPERATIONS PERSONNEL	8	0	8	16	0.267	0.000	0.379	0.666
HEALTH PHYSICS PERSONNEL	3	0	1	4	0.007	0.000	0.009	0.016
SUPERVISORY PERSONNEL	2	0	14	16	0.001	0.000	0.314	0.315
ENGINEERING PERSONNEL	13	3	12	28	0.222	0.004	0.915	1.141
TOTAL	64	6	300	370	2.196	0.027	15.658	17.881
WASTE PROCESSING								
MAINTENANCE PERSONNEL	50	3	28	81	0.852	0.056	0.913	1.863
OPERATIONS PERSONNEL	43	2	1	46	6.364	0.624	0.004	6.992
HEALTH PHYSICS PERSONNEL	29	0	2	31	2.114	0.000	0.110	2.224
SUPERVISORY PERSONNEL	16	0	1	17	0.557	0.000	0.000	0.557
ENGINEERING PERSONNEL	7	0	2	9	0.794	0.000	0.017	0.811
TOTAL	144	5	34	183	10.681	0.722	1.044	12.447
REFUELING								
MAINTENANCE PERSONNEL	128	10	163	301	9.176	0.346	38.269	47.821
OPERATIONS PERSONNEL	48	2	25	75	2.524	0.001	2.814	5.339
HEALTH PHYSICS PERSONNEL	28	0	12	40	2.125	0.000	2.063	4.208
SUPERVISORY PERSONNEL	36	4	16	56	2.084	0.012	3.339	5.445
ENGINEERING PERSONNEL	38	2	17	57	0.701	0.319	1.514	2.534
TOTAL	274	18	237	529	16.620	0.678	48.049	65.347
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	660	63	2288	3001	90.313	7.604	285.516	383.433
OPERATIONS PERSONNEL	340	18	284	642	48.064	0.978	14.990	64.030
HEALTH PHYSICS PERSONNEL	174	7	95	276	27.580	0.536	16.076	43.191
SUPERVISORY PERSONNEL	323	39	241	603	18.604	1.279	13.227	33.110
ENGINEERING PERSONNEL	356	53	140	549	14.937	1.604	10.256	27.097
GRAND TOTALS	1673	160	3016	5071	169.498	12.296	339.065	550.861

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

PLANT: *POINT BEACH 1,2

TYPE PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100 p/REM)				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	48	0	0	48	11.210	0.000	0.040	11.250
HEALTH PHYSICS PERSONNEL	27	0	0	27	10.440	0.000	0.000	10.440
SUPERVISORY PERSONNEL	10	0	0	10	3.710	0.000	0.000	3.710
ENGINEERING PERSONNEL	9	10	0	19	1.700	1.120	0.380	3.190
TOTAL	94	10	0	103	27.060	1.120	0.400	28.580
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	52	40	0	92	24.380	11.060	0.000	35.420
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	8	0	0	8	0.860	0.000	0.000	0.860
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	58	40	0	98	25.220	11.060	0.000	36.280
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	2	2	0.000	0.000	0.310	0.310
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	1	4	21	26	0.570	1.560	9.990	11.720
TOTAL	1	4	23	28	0.570	1.560	9.990	12.030
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	52	0	53	105	3.810	0.000	27.120	30.930
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	37	37	0.000	0.000	11.779	11.779
SUPERVISORY PERSONNEL	8	0	2	8	0.110	0.000	2.470	2.580
ENGINEERING PERSONNEL	0	0	68	68	0.000	0.000	38.130	38.130
TOTAL	58	0	160	218	3.920	0.000	79.499	83.419
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	7	7	0.000	0.000	1.270	1.270
OPERATIONS PERSONNEL	48	0	0	48	0.150	0.000	0.000	0.150
HEALTH PHYSICS PERSONNEL	27	0	2	29	0.400	0.000	0.850	1.250
SUPERVISORY PERSONNEL	1	0	0	1	0.210	0.000	0.000	0.210
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	76	0	9	85	0.760	0.000	2.120	2.880
REFUELING								
MAINTENANCE PERSONNEL	52	40	0	92	13.760	10.940	0.000	24.700
OPERATIONS PERSONNEL	48	0	0	48	1.360	0.000	0.000	1.360
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	13	0	0	13	0.790	0.000	0.000	0.790
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	113	40	0	153	15.910	10.940	0.000	26.850
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	158	(52) 80	(40) 82	(92) 298	(154) 41.930	22.000	28.700	92.630
OPERATIONS PERSONNEL	144	(48) 0	(0) 0	(0) 144	(48) 12.720	0.000	0.040	12.760
HEALTH PHYSICS PERSONNEL	54	(27) 0	(0) 39	(39) 93	(66) 10.840	0.000	12.629	23.469
SUPERVISORY PERSONNEL	38	(38) 0	(0) 2	(2) 38	(38) 5.890	0.000	2.470	8.190
ENGINEERING PERSONNEL	9	(9) 14	(14) 89	(89) 112	(112) 2.270	2.660	48.090	53.030
GRAND TOTALS	369	(172) 94	(54) 192	(192) 685	(418) 73.440	24.680	91.919	190.039

*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

1995

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	2	0	0	2	1.044	0.711	0.008	1.761
OPERATIONS PERSONNEL	4	0	0	4	2.769	0.000	0.000	2.769
HEALTH PHYSICS PERSONNEL	6	0	10	16	1.524	0.000	2.622	4.346
SUPERVISORY PERSONNEL	3	0	1	4	1.228	0.146	0.324	1.698
ENGINEERING PERSONNEL	0	0	0	0	0.277	0.000	0.000	0.277
TOTAL	15	0	11	26	6.872	0.857	3.152	10.881
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	24	23	2	49	5.669	7.661	0.673	14.423
OPERATIONS PERSONNEL	1	0	0	1	0.131	0.000	0.000	0.131
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.169	0.000	0.212	0.401
SUPERVISORY PERSONNEL	3	0	8	11	1.406	0.273	2.613	4.494
ENGINEERING PERSONNEL	2	0	0	2	1.527	0.000	0.000	1.527
TOTAL	34	23	10	67	9.144	7.934	3.686	20.976
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	5	32	7	44	1.261	11.190	2.692	15.063
OPERATIONS PERSONNEL	0	0	0	0	0.017	0.000	0.000	0.017
HEALTH PHYSICS PERSONNEL	0	0	7	7	0.273	0.000	1.278	1.551
SUPERVISORY PERSONNEL	1	0	23	24	0.469	0.044	7.736	8.271
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.120	0.120
TOTAL	6	32	37	75	2.060	11.234	11.728	25.022
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	4	5	10	19	1.093	2.265	4.040	7.398
OPERATIONS PERSONNEL	0	0	0	0	0.026	0.000	0.000	0.026
HEALTH PHYSICS PERSONNEL	0	0	3	3	0.096	0.000	0.661	1.099
SUPERVISORY PERSONNEL	1	0	23	24	0.962	0.102	13.636	14.802
ENGINEERING PERSONNEL	1	0	0	1	0.467	0.000	0.000	0.467
TOTAL	6	5	36	47	2.648	2.367	16.669	23.682
WASTE PROCESSING								
MAINTENANCE PERSONNEL	1	0	0	1	0.606	0.075	0.000	0.683
OPERATIONS PERSONNEL	0	0	0	0	0.060	0.000	0.000	0.060
HEALTH PHYSICS PERSONNEL	1	0	0	1	0.216	0.000	0.032	0.248
SUPERVISORY PERSONNEL	0	0	0	0	0.110	0.039	0.000	0.149
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	2	0	0	2	0.994	0.114	0.032	1.140
REFUELING								
MAINTENANCE PERSONNEL	26	43	0	69	6.722	11.349	0.000	18.071
OPERATIONS PERSONNEL	0	0	0	0	0.206	0.000	0.000	0.206
HEALTH PHYSICS PERSONNEL	0	0	1	1	0.262	0.000	0.162	0.444
SUPERVISORY PERSONNEL	1	0	2	3	0.664	0.119	0.466	1.171
ENGINEERING PERSONNEL	1	0	0	1	0.227	0.000	0.000	0.227
TOTAL	28	43	3	74	8.003	11.468	0.650	20.121
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	62	103	19	184	16.637	33.251	7.611	57.399
OPERATIONS PERSONNEL	5	0	0	5	3.241	0.000	0.000	3.241
HEALTH PHYSICS PERSONNEL	7	0	21	28	2.582	0.000	5.497	8.079
SUPERVISORY PERSONNEL	9	0	57	66	4.761	0.723	25.201	30.685
ENGINEERING PERSONNEL	8	0	0	8	2.496	0.000	0.120	2.616
GRAND TOTALS	91	103	97	291	29.719	33.974	38.329	102.022

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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	2	0	16	18	1.844	0.000	4.278	5.922
OPERATIONS PERSONNEL	103	0	175	278	36.058	0.000	13.756	49.817
HEALTH PHYSICS PERSONNEL	44	37	17	98	21.711	0.360	4.743	26.844
SUPERVISORY PERSONNEL	108	0	28	134	10.568	0.000	1.273	11.839
ENGINEERING PERSONNEL	84	1	11	96	5.968	0.006	0.700	6.674
TOTAL	341	38	245	624	75.947	0.366	24.753	101.066
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	154	0	844	998	127.688	0.000	229.976	357.667
OPERATIONS PERSONNEL	27	0	0	27	9.477	0.000	0.000	9.513
HEALTH PHYSICS PERSONNEL	28	109	39	176	14.081	1.148	10.566	25.795
SUPERVISORY PERSONNEL	147	0	138	283	14.305	0.000	6.565	20.670
ENGINEERING PERSONNEL	88	0	52	125	4.894	0.000	3.604	8.298
TOTAL	422	109	1078	1609	170.245	1.148	250.750	422.143
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	1	0	122	123	0.630	0.000	33.084	33.624
OPERATIONS PERSONNEL	1	0	0	1	0.220	0.000	0.000	0.220
HEALTH PHYSICS PERSONNEL	1	18	3	22	0.545	0.195	0.853	1.593
SUPERVISORY PERSONNEL	2	0	7	9	0.208	0.000	0.330	0.539
ENGINEERING PERSONNEL	13	0	13	26	0.833	0.000	0.818	1.754
TOTAL	18	18	145	181	2.440	0.195	35.085	37.730
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	5	0	407	412	4.178	0.000	110.755	114.833
OPERATIONS PERSONNEL	3	0	1	4	1.172	0.000	0.085	1.257
HEALTH PHYSICS PERSONNEL	5	19	29	53	2.779	0.196	8.165	11.140
SUPERVISORY PERSONNEL	12	0	81	93	1.150	0.000	3.913	5.063
ENGINEERING PERSONNEL	31	7	68	106	2.184	0.035	4.180	6.399
TOTAL	56	26	566	648	11.463	0.231	127.098	138.792
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	5	5	0.392	0.000	1.229	1.621
OPERATIONS PERSONNEL	28	0	11	37	9.178	0.000	0.834	10.012
HEALTH PHYSICS PERSONNEL	5	0	0	5	2.306	0.000	0.059	2.366
SUPERVISORY PERSONNEL	32	0	0	32	3.062	0.000	0.010	3.072
ENGINEERING PERSONNEL	0	0	0	0	0.028	0.000	0.000	0.028
TOTAL	65	0	16	79	14.964	0.000	2.132	17.099
REFUELING								
MAINTENANCE PERSONNEL	12	0	5	17	9.401	0.000	1.329	10.730
OPERATIONS PERSONNEL	13	0	0	13	4.501	0.000	0.006	4.507
HEALTH PHYSICS PERSONNEL	3	27	0	30	1.398	0.288	0.072	1.758
SUPERVISORY PERSONNEL	17	0	1	18	1.704	0.000	0.081	1.765
ENGINEERING PERSONNEL	5	0	3	8	0.308	0.000	0.175	0.543
TOTAL	50	27	9	86	17.372	0.288	1.843	19.301
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	174	0	1369	1573	143.833	0.000	380.664	524.497
OPERATIONS PERSONNEL	173	0	187	360	60.608	0.000	14.720	75.326
HEALTH PHYSICS PERSONNEL	88	210	88	384	42.820	2.218	24.458	69.496
SUPERVISORY PERSONNEL	318	0	251	599	30.698	0.000	12.152	43.148
ENGINEERING PERSONNEL	199	8	154	361	14.176	0.041	9.477	23.694
GRAND TOTALS	950	218	2079	3247	292.431	2.259	441.471	736.161

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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	6	1	5	12	0.005	0.000	0.000	0.005
OPERATIONS PERSONNEL	49	1	3	53	0.241	0.000	0.002	0.243
HEALTH PHYSICS PERSONNEL	22	1	3	26	0.818	0.000	0.108	0.926
SUPERVISORY PERSONNEL	13	1	5	19	0.005	0.000	0.000	0.005
ENGINEERING PERSONNEL	10	0	10	20	0.024	0.000	0.000	0.024
TOTAL	100	4	26	130	1.083	0.000	0.113	1.208
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	29	1	18	48	0.274	0.000	0.012	0.286
OPERATIONS PERSONNEL	13	0	1	14	0.016	0.000	0.001	0.017
HEALTH PHYSICS PERSONNEL	6	0	2	8	0.012	0.000	0.003	0.015
SUPERVISORY PERSONNEL	5	0	0	5	0.005	0.000	0.000	0.005
ENGINEERING PERSONNEL	7	0	3	10	0.005	0.000	0.003	0.008
TOTAL	60	1	24	85	0.312	0.000	0.019	0.331
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	10	0	3	13	0.018	0.000	0.000	0.018
OPERATIONS PERSONNEL	5	0	0	5	0.010	0.000	0.000	0.010
HEALTH PHYSICS PERSONNEL	5	0	1	6	0.037	0.000	0.011	0.048
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	9	0	0	9	0.000	0.000	0.000	0.000
TOTAL	20	0	4	24	0.113	0.000	0.011	0.124
REFUELING								
MAINTENANCE PERSONNEL	1	0	0	1	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	10	0	0	10	0.008	0.000	0.000	0.008
HEALTH PHYSICS PERSONNEL	2	0	1	3	0.003	0.000	0.000	0.003
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	14	0	1	15	0.011	0.000	0.000	0.011
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	48	2	28	74	0.285	0.000	0.012	0.307
OPERATIONS PERSONNEL	77	1	4	82	0.275	0.000	0.003	0.278
HEALTH PHYSICS PERSONNEL	35	1	7	43	0.820	0.000	0.122	1.042
SUPERVISORY PERSONNEL	18	1	5	24	0.010	0.000	0.000	0.010
ENGINEERING PERSONNEL	15	0	13	31	0.029	0.000	0.006	0.035
GRAND TOTALS	194	5	55	254	1.529	0.000	0.143	1.672

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

PLANT: *RIVER BEND 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	3	0	3	6	0.630	0.029	0.469	1.028
OPERATIONS PERSONNEL	36	0	0	36	8.268	0.000	0.008	8.274
HEALTH PHYSICS PERSONNEL	18	1	3	22	4.519	0.065	0.421	4.999
SUPERVISORY PERSONNEL	0	0	1	1	0.000	0.000	0.035	0.035
ENGINEERING PERSONNEL	4	1	1	6	0.622	0.108	0.048	0.778
TOTAL	61	2	8	71	13.839	0.202	0.979	15.014
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	11	1	1	13	1.570	0.214	0.199	1.983
OPERATIONS PERSONNEL	0	0	0	0	0.256	0.000	0.000	0.256
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.069	0.000	0.000	0.069
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.005	0.005
ENGINEERING PERSONNEL	1	0	0	1	0.244	0.011	0.005	0.260
TOTAL	12	1	1	14	2.138	0.225	0.209	2.572
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	1	4	14	4.141	0.217	1.168	5.548
OPERATIONS PERSONNEL	2	0	0	2	0.953	0.000	0.000	0.953
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.049	0.000	0.012	0.061
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.017	0.017
ENGINEERING PERSONNEL	0	1	2	4	0.085	0.105	0.684	0.874
TOTAL	11	2	7	20	5.228	0.322	1.901	7.451
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	24	2	60	86	10.263	0.239	14.592	25.114
OPERATIONS PERSONNEL	1	0	0	1	0.228	0.000	0.253	0.481
HEALTH PHYSICS PERSONNEL	1	0	0	1	1.332	0.088	0.314	1.712
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.107	0.107
ENGINEERING PERSONNEL	1	1	0	2	0.343	0.167	0.209	0.719
TOTAL	27	3	60	60	12.166	0.472	15.475	28.133
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	22	22	0.002	0.000	5.498	5.498
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.065	0.065
HEALTH PHYSICS PERSONNEL	2	0	1	3	0.787	0.003	0.654	1.424
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.005	0.000	0.000	0.005
TOTAL	2	0	23	25	0.774	0.003	6.215	6.992
REFUELING								
MAINTENANCE PERSONNEL	3	0	1	4	0.103	0.000	0.085	0.188
OPERATIONS PERSONNEL	0	0	0	0	0.004	0.000	0.000	0.004
HEALTH PHYSICS PERSONNEL	1	0	0	1	0.061	0.000	0.011	0.072
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	4	0	1	5	0.168	0.000	0.096	0.264
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	50	4	91	145	16.629	0.699	22.029	39.357
OPERATIONS PERSONNEL	39	0	0	39	9.709	0.000	0.324	10.033
HEALTH PHYSICS PERSONNEL	22	1	4	27	6.790	0.134	1.412	8.336
SUPERVISORY PERSONNEL	0	0	1	1	0.000	0.000	0.164	0.164
ENGINEERING PERSONNEL	6	3	4	13	1.199	0.391	0.948	2.538
GRAND TOTALS	117	8	100	225	34.327	1.224	24.875	60.426

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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	6	0	0	6	2.160	0.007	0.084	2.251
OPERATIONS PERSONNEL	14	0	0	14	4.285	0.000	0.077	4.372
HEALTH PHYSICS PERSONNEL	15	0	0	15	4.320	0.009	0.112	4.435
SUPERVISORY PERSONNEL	0	0	0	0	0.121	0.001	0.002	0.124
ENGINEERING PERSONNEL	0	0	0	0	0.960	0.013	0.132	1.105
TOTAL	35	0	0	35	11.856	0.024	0.407	12.287
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	2	0	2	4	1.271	0.021	1.066	2.358
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.005	0.005
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.073	0.000	0.000	0.073
SUPERVISORY PERSONNEL	0	0	0	0	0.008	0.000	0.012	0.015
ENGINEERING PERSONNEL	0	0	0	0	0.047	0.006	0.009	0.062
TOTAL	2	0	2	4	1.394	0.027	1.092	2.513
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	0	0	0.052	0.000	0.052	0.104
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	1	0	0	1	0.419	0.000	0.000	0.419
SUPERVISORY PERSONNEL	0	0	0	0	0.001	0.000	0.000	0.001
ENGINEERING PERSONNEL	1	0	0	1	0.479	0.000	0.141	0.620
TOTAL	2	0	0	2	0.951	0.000	0.193	1.144
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	36	0	7	43	8.672	0.341	2.621	11.634
OPERATIONS PERSONNEL	0	0	0	0	0.140	0.000	0.005	0.145
HEALTH PHYSICS PERSONNEL	4	0	0	4	1.642	0.000	0.034	1.676
SUPERVISORY PERSONNEL	0	0	0	0	0.068	0.000	0.000	0.068
ENGINEERING PERSONNEL	2	0	0	2	1.015	0.040	0.224	1.279
TOTAL	42	0	7	46	11.537	0.381	3.084	15.002
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.033	0.000	0.003	0.036
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	5	0	0	5	1.436	0.000	0.017	1.453
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.032	0.000	0.075	0.107
TOTAL	5	0	0	5	1.501	0.000	0.096	1.597
REFUELING								
MAINTENANCE PERSONNEL	80	27	169	283	40.582	9.304	68.024	107.910
OPERATIONS PERSONNEL	38	0	0	38	10.408	0.000	0.327	10.733
HEALTH PHYSICS PERSONNEL	28	0	38	64	8.785	0.000	11.595	18.340
SUPERVISORY PERSONNEL	14	1	5	20	3.892	0.120	2.249	6.325
ENGINEERING PERSONNEL	24	0	64	108	7.315	0.205	36.133	43.653
TOTAL	182	28	283	613	69.050	9.629	108.282	186.961
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	134	27	175	336	52.770	9.673	62.050	124.493
OPERATIONS PERSONNEL	52	0	0	52	14.841	0.000	0.414	15.255
HEALTH PHYSICS PERSONNEL	51	0	38	89	14.675	0.003	11.718	23.396
SUPERVISORY PERSONNEL	14	1	5	20	4.155	0.121	2.257	6.533
ENGINEERING PERSONNEL	27	0	64	111	9.848	0.284	38.715	48.827
GRAND TOTALS	278	28	302	608	96.289	10.081	113.154	219.504

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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	3	1	0	4	1.240	0.185	0.013	1.438
OPERATIONS PERSONNEL	2	0	0	2	0.756	0.150	0.033	0.939
HEALTH PHYSICS PERSONNEL	4	0	0	4	1.329	0.000	0.004	1.333
SUPERVISORY PERSONNEL	0	0	0	0	0.012	0.004	0.000	0.016
ENGINEERING PERSONNEL	0	0	0	0	0.018	0.032	0.000	0.050
TOTAL	9	1	0	10	3.355	0.371	0.050	3.776
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	15	1	7	23	8.221	2.034	5.305	15.560
OPERATIONS PERSONNEL	11	1	0	12	6.171	0.958	1.197	8.328
HEALTH PHYSICS PERSONNEL	17	0	0	17	3.512	0.164	0.418	4.094
SUPERVISORY PERSONNEL	0	0	0	0	0.112	0.037	0.124	0.273
ENGINEERING PERSONNEL	1	0	0	1	0.408	0.558	0.214	1.178
TOTAL	44	2	7	53	18.422	3.751	7.258	29.431
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	1	3	4	0.129	1.075	1.980	3.084
OPERATIONS PERSONNEL	0	1	1	2	0.139	0.569	0.592	1.300
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.018	0.022	0.189	0.228
SUPERVISORY PERSONNEL	0	0	0	0	0.008	0.000	0.051	0.059
ENGINEERING PERSONNEL	0	0	0	0	0.008	0.285	0.037	0.330
TOTAL	0	2	4	6	0.302	1.951	2.728	4.979
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	5	1	22	28	3.728	0.692	7.083	11.483
OPERATIONS PERSONNEL	0	0	1	1	0.466	0.131	0.709	1.307
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.350	0.000	0.041	0.391
SUPERVISORY PERSONNEL	0	0	0	0	0.105	0.008	0.031	0.114
ENGINEERING PERSONNEL	0	0	0	0	0.067	0.005	0.007	0.079
TOTAL	5	1	23	29	4.748	0.836	7.820	13.404
WASTE PROCESSING								
MAINTENANCE PERSONNEL	1	0	1	2	0.330	0.106	0.248	0.684
OPERATIONS PERSONNEL	0	0	0	0	0.034	0.004	0.208	0.246
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.624	0.160	1.062	2.156
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.058	0.030	0.000	0.088
TOTAL	1	0	1	2	1.346	0.290	1.538	3.174
REFUELING								
MAINTENANCE PERSONNEL	24	7	217	248	11.748	5.030	83.195	99.973
OPERATIONS PERSONNEL	4	0	38	42	5.312	0.765	21.851	27.928
HEALTH PHYSICS PERSONNEL	22	0	44	68	8.965	0.179	17.700	27.814
SUPERVISORY PERSONNEL	0	0	3	3	0.171	0.031	2.493	2.695
ENGINEERING PERSONNEL	0	0	0	0	0.335	0.892	0.283	1.510
TOTAL	60	7	302	369	27.501	6.897	125.502	159.900
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	48	11	250	309	25.396	9.122	97.684	132.202
OPERATIONS PERSONNEL	17	2	40	59	12.010	2.577	24.589	40.076
HEALTH PHYSICS PERSONNEL	43	0	44	87	16.088	0.515	19.431	36.014
SUPERVISORY PERSONNEL	0	0	3	3	0.408	0.060	2.669	3.157
ENGINEERING PERSONNEL	1	0	0	1	0.892	1.802	0.521	3.215
GRAND TOTALS	109	13	337	459	55.674	14.086	144.894	214.694

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

PLANT: *SAN ONOFRE 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	17	2	26	45	0.178	0.002	0.118	0.296				
OPERATIONS PERSONNEL	3	0	0	3	0.027	0.000	0.000	0.027				
HEALTH PHYSICS PERSONNEL	2	0	11	13	0.008	0.000	0.115	0.123				
SUPERVISORY PERSONNEL	1	0	0	1	0.009	0.000	0.000	0.009				
ENGINEERING PERSONNEL	8	0	2	10	0.112	0.000	0.009	0.115				
TOTAL	31	2	39	72	0.334	0.002	0.234	0.570				
ROUTINE MAINTENANCE												
MAINTENANCE PERSONNEL	201	28	617	846	82.152	11.192	246.507	339.851				
OPERATIONS PERSONNEL	45	25	18	88	8.724	8.109	1.047	16.880				
HEALTH PHYSICS PERSONNEL	74	2	125	202	30.094	0.289	38.643	69.026				
SUPERVISORY PERSONNEL	5	0	8	13	1.651	0.000	2.968	4.619				
ENGINEERING PERSONNEL	35	5	42	82	10.552	2.114	12.299	24.965				
TOTAL	360	60	809	1229	134.180	19.704	301.454	455.338				
IN-SERVICE INSPECTION												
MAINTENANCE PERSONNEL	22	3	82	107	0.583	0.086	1.442	2.081				
OPERATIONS PERSONNEL	3	1	0	4	0.054	0.001	0.000	0.055				
HEALTH PHYSICS PERSONNEL	10	0	25	35	0.043	0.000	0.017	0.060				
SUPERVISORY PERSONNEL	1	0	3	4	0.018	0.000	0.129	0.147				
ENGINEERING PERSONNEL	8	0	7	15	0.373	0.000	0.117	0.490				
TOTAL	44	4	117	165	1.071	0.087	1.675	2.833				
SPECIAL MAINTENANCE												
MAINTENANCE PERSONNEL	64	4	61	149	0.782	0.140	2.256	3.178				
OPERATIONS PERSONNEL	19	6	1	26	0.084	0.050	0.003	0.137				
HEALTH PHYSICS PERSONNEL	37	0	14	51	0.180	0.000	0.084	0.264				
SUPERVISORY PERSONNEL	1	0	4	5	0.085	0.000	0.139	0.224				
ENGINEERING PERSONNEL	9	2	4	15	0.272	0.050	0.185	0.507				
TOTAL	124	12	104	240	1.403	0.240	2.677	4.320				
WASTE PROCESSING												
MAINTENANCE PERSONNEL	10	1	26	37	0.868	0.282	0.505	1.355				
OPERATIONS PERSONNEL	3	3	15	21	1.527	1.033	6.799	9.359				
HEALTH PHYSICS PERSONNEL	33	1	63	97	7.540	0.065	17.368	24.973				
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000				
ENGINEERING PERSONNEL	0	1	0	1	0.000	0.241	0.000	0.241				
TOTAL	46	6	104	156	9.935	1.621	24.672	36.928				
REFUELING												
MAINTENANCE PERSONNEL	48	3	129	180	16.882	1.409	38.541	56.842				
OPERATIONS PERSONNEL	5	3	4	12	0.253	0.141	0.043	0.437				
HEALTH PHYSICS PERSONNEL	9	1	11	21	1.348	0.001	0.232	1.579				
SUPERVISORY PERSONNEL	1	0	3	4	0.028	0.000	0.965	0.993				
ENGINEERING PERSONNEL	17	3	7	27	1.320	0.372	0.391	2.063				
TOTAL	80	10	154	244	19.839	1.823	40.172	61.934				
TOTAL BY JOB FUNCTION												
MAINTENANCE PERSONNEL	362	(201)	41	(28)	961	(630)	1364	(859)	101.155	13.111	289.337	403.603
OPERATIONS PERSONNEL	72	(45)	38	(25)	36	(17)	148	(87)	11.669	7.334	7.892	26.895
HEALTH PHYSICS PERSONNEL	165	(74)	4	(2)	250	(135)	419	(211)	39.214	0.365	58.459	98.028
SUPERVISORY PERSONNEL	9	(5)	0	(0)	18	(8)	27	(13)	1.791	0.000	4.201	5.992
ENGINEERING PERSONNEL	77	(35)	11	(5)	62	(42)	150	(82)	12.639	2.777	12.995	28.408
GRAND TOTALS	685	(380)	94	(60)	1327	(832)	2109	(1252)	166.462	23.577	370.884	560.923

*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

1995

PLANT: *SEABROOK

TYPE: PWR

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100mREM)				TOTAL PERSON-REM			
	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPS & SURV								
MAINTENANCE PERSONNEL	2	0	0	2	0.138	0.000	0.000	0.138
OPERATIONS PERSONNEL	14	0	1	15	1.318	0.000	0.097	1.415
HEALTH PHYSICS PERSONNEL	2	0	0	2	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	1	0	1	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	16	1	1	20	1.454	0.000	0.097	1.551
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	35	3	147	185	6.980	0.462	22.807	30.049
OPERATIONS PERSONNEL	23	8	7	38	2.098	0.865	0.852	3.815
HEALTH PHYSICS PERSONNEL	16	0	49	65	4.354	0.000	7.882	12.016
SUPERVISORY PERSONNEL	2	6	0	8	0.020	0.485	0.000	0.485
ENGINEERING PERSONNEL	0	2	37	39	0.000	0.333	7.873	8.211
TOTAL	76	17	240	333	13.452	2.125	38.868	54.578
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	1	0	1	0.000	0.011	0.000	0.011
OPERATIONS PERSONNEL	0	1	0	1	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	2	0	1	3	0.012	0.000	0.000	0.012
SUPERVISORY PERSONNEL	0	1	0	1	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	1	0	1	0.000	0.000	0.000	0.000
TOTAL	2	4	1	7	0.012	0.011	0.000	0.023
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	1	0	3	4	0.000	0.000	0.038	0.038
OPERATIONS PERSONNEL	0	0	1	1	0.000	0.000	0.018	0.018
HEALTH PHYSICS PERSONNEL	1	0	1	2	0.002	0.000	0.013	0.015
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	6	7	0.002	0.000	0.069	0.071
WASTE PROCESSING								
MAINTENANCE PERSONNEL	5	1	17	23	0.488	0.012	1.414	1.894
OPERATIONS PERSONNEL	3	0	1	4	0.152	0.000	0.048	0.198
HEALTH PHYSICS PERSONNEL	8	0	18	26	0.329	0.000	1.983	2.292
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	1	1	0.000	0.000	0.008	0.008
TOTAL	16	1	37	54	0.949	0.012	3.431	4.392
REFUELING								
MAINTENANCE PERSONNEL	28	2	75	103	1.807	0.165	11.888	13.870
OPERATIONS PERSONNEL	8	3	3	14	0.294	0.483	0.574	1.351
HEALTH PHYSICS PERSONNEL	1	0	17	18	0.002	0.000	1.573	1.575
SUPERVISORY PERSONNEL	2	4	0	6	0.584	0.833	0.000	1.197
ENGINEERING PERSONNEL	0	1	24	25	0.000	0.004	6.285	6.289
TOTAL	37	10	119	166	2.687	1.285	20.340	24.292
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	69	7	242	318	9.391	0.650	35.857	45.898
OPERATIONS PERSONNEL	48	10	13	71	3.882	1.348	1.587	6.797
HEALTH PHYSICS PERSONNEL	30	0	66	118	4.699	0.000	11.211	15.910
SUPERVISORY PERSONNEL	4	12	0	16	0.584	1.098	0.000	1.682
ENGINEERING PERSONNEL	0	4	62	66	0.000	0.337	14.181	14.518
GRAND TOTALS	151	33	403	587	18.536	3.433	62.836	84.806

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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	90	2	158	246	1.756	0.019	3.292	5.067
OPERATIONS PERSONNEL	53	3	7	63	7.560	0.480	0.061	8.091
HEALTH PHYSICS PERSONNEL	58	3	55	116	6.254	0.213	7.921	14.388
SUPERVISORY PERSONNEL	13	6	0	19	0.773	0.233	0.000	1.006
ENGINEERING PERSONNEL	24	6	9	39	0.679	0.024	0.628	1.328
TOTAL	238	20	227	485	17.019	0.949	11.802	29.870
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	113	4	367	484	29.103	0.692	69.708	98.491
OPERATIONS PERSONNEL	52	5	9	66	1.558	0.145	1.197	2.899
HEALTH PHYSICS PERSONNEL	74	3	60	137	19.400	0.083	7.288	26.771
SUPERVISORY PERSONNEL	18	7	0	25	3.365	0.158	0.000	3.543
ENGINEERING PERSONNEL	31	19	60	110	3.242	0.818	6.368	12.428
TOTAL	288	38	496	822	56.668	1.886	88.559	145.131
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	16	0	48	64	2.427	0.000	9.020	11.447
OPERATIONS PERSONNEL	6	1	4	11	0.714	0.126	0.079	0.919
HEALTH PHYSICS PERSONNEL	28	4	38	70	2.001	0.606	8.566	11.072
SUPERVISORY PERSONNEL	2	5	0	7	0.076	0.810	0.000	0.886
ENGINEERING PERSONNEL	7	23	109	139	0.787	8.102	51.757	60.646
TOTAL	59	33	199	291	6.005	9.543	69.422	84.970
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	62	3	259	321	7.729	0.599	60.076	68.404
OPERATIONS PERSONNEL	33	2	10	45	0.928	0.334	1.233	2.495
HEALTH PHYSICS PERSONNEL	52	1	19	72	2.694	0.008	0.549	3.251
SUPERVISORY PERSONNEL	11	5	2	18	0.457	0.245	0.282	0.984
ENGINEERING PERSONNEL	21	5	72	98	1.636	0.242	18.569	20.447
TOTAL	179	16	369	564	13.444	1.428	80.708	95.581
WASTE PROCESSING								
MAINTENANCE PERSONNEL	8	0	19	27	0.187	0.000	0.405	0.592
OPERATIONS PERSONNEL	0	0	1	1	0.000	0.000	0.739	0.739
HEALTH PHYSICS PERSONNEL	34	0	17	51	3.298	0.000	0.399	3.695
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	1	1	0.000	0.000	0.810	0.810
TOTAL	42	0	38	80	3.453	0.000	2.353	5.806
REFUELING								
MAINTENANCE PERSONNEL	10	0	21	31	0.458	0.000	2.869	3.355
OPERATIONS PERSONNEL	1	1	3	5	0.078	0.100	0.295	0.473
HEALTH PHYSICS PERSONNEL	7	0	8	15	0.623	0.000	0.184	0.817
SUPERVISORY PERSONNEL	5	0	0	5	1.568	0.000	0.000	1.568
ENGINEERING PERSONNEL	3	2	21	26	0.175	0.234	8.561	8.970
TOTAL	26	3	53	82	2.900	0.334	11.949	15.183
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	299	9	807	1115	41.658	1.300	145.398	188.356
OPERATIONS PERSONNEL	145	12	34	191	10.838	1.165	3.604	15.605
HEALTH PHYSICS PERSONNEL	253	11	197	461	34.238	0.609	24.917	59.764
SUPERVISORY PERSONNEL	49	23	2	74	6.259	1.446	0.282	7.987
ENGINEERING PERSONNEL	66	55	272	413	6.516	9.420	88.663	104.629
GRAND TOTALS	832	110	1372	2314	99.507	14.140	282.884	376.541

*Workers are counted in more than one category.

APPENDIX D (Continued)

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

1995

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	3	0	1	4	2,598	0.000	0.497	3.095
OPERATIONS PERSONNEL	11	0	1	12	3,492	0.000	0.330	3,822
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	11	0	12	23	3,788	0.000	3,887	7,675
ENGINEERING PERSONNEL	2	0	0	2	1,214	0.000	0.005	1,219
TOTAL	27	0	14	41	11,092	0.000	4,719	16,811
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	74	0	30	104	28,782	0.000	8,346	35,108
OPERATIONS PERSONNEL	7	0	0	7	1,678	0.000	0.000	1,678
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	20	0	113	133	7,833	0.000	40,534	48,487
ENGINEERING PERSONNEL	8	0	0	8	1,689	0.000	0.043	1,742
TOTAL	107	0	143	250	38,070	0.000	48,923	86,993
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	13	0	18	31	4,603	0.000	6,028	9,631
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	4	0	17	21	1,074	0.000	6,239	7,313
ENGINEERING PERSONNEL	7	0	1	8	1,583	0.000	0,837	2,530
TOTAL	24	0	36	60	7,308	0.000	12,204	19,510
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	13	0	5	18	5,487	0.000	1,425	6,892
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	2	0	189	191	1,582	0.000	89,429	100,991
ENGINEERING PERSONNEL	2	0	2	4	0,290	0.000	0,294	0,894
TOTAL	17	0	196	213	7,319	0.000	101,148	108,467
WASTE PROCESSING								
MAINTENANCE PERSONNEL	2	0	2	4	0,575	0.000	0,302	0,877
OPERATIONS PERSONNEL	24	0	0	24	7,388	0.000	0.000	7,388
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	25	0	73	98	9,071	0.000	26,854	36,025
ENGINEERING PERSONNEL	0	0	0	0	0,048	0.000	0.000	0,048
TOTAL	51	0	75	126	17,080	0.000	27,256	44,316
REFUELING								
MAINTENANCE PERSONNEL	16	0	4	20	5,847	0.000	1,950	7,497
OPERATIONS PERSONNEL	2	0	0	2	0,434	0.000	0.000	0,434
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	6	0	89	95	2,627	0.000	30,657	33,584
ENGINEERING PERSONNEL	0	0	0	0	0,343	0.000	0.000	0,343
TOTAL	24	0	93	117	9,251	0.000	32,607	41,858
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	121	0	60	181	45,852	0.000	17,248	63,100
OPERATIONS PERSONNEL	44	0	1	45	13,004	0.000	0,330	13,334
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	88	0	493	581	28,055	0.000	208,000	234,055
ENGINEERING PERSONNEL	17	0	3	20	5,187	0.000	1,279	6,466
GRAND TOTALS	280	0	557	807	90,096	0.000	226,857	316,955

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

PLANT: *ST. LUCIE 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	5	0	1	6	2.172	0.057	0.936	3.165				
OPERATIONS PERSONNEL	40	2	2	44	11.291	0.717	1.238	13.244				
HEALTH PHYSICS PERSONNEL	5	0	2	7	1.337	0.002	0.589	1.928				
SUPERVISORY PERSONNEL	0	0	0	0	0.009	0.000	0.000	0.009				
ENGINEERING PERSONNEL	0	2	0	2	0.000	1.318	0.000	1.318				
TOTAL	50	4	5	59	14.809	2.084	2.761	19.654				
ROUTINE MAINTENANCE												
MAINTENANCE PERSONNEL	235	3	231	469	113.613	0.718	78.348	192.677				
OPERATIONS PERSONNEL	26	8	96	130	9.244	3.770	53.508	66.522				
HEALTH PHYSICS PERSONNEL	55	0	87	142	24.337	0.002	38.741	63.080				
SUPERVISORY PERSONNEL	1	0	0	1	0.159	0.000	0.000	0.159				
ENGINEERING PERSONNEL	0	7	0	7	0.000	2.509	0.141	2.650				
TOTAL	317	18	414	749	147.353	6.997	170.738	325.088				
IN-SERVICE INSPECTION												
MAINTENANCE PERSONNEL	1	0	6	7	0.479	0.058	1.575	2.212				
OPERATIONS PERSONNEL	0	5	6	11	0.441	1.065	1.930	3.468				
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.066	0.000	0.002	0.070				
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000				
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.600	0.034	0.634				
TOTAL	1	5	12	18	0.986	1.753	3.541	6.382				
SPECIAL MAINTENANCE												
MAINTENANCE PERSONNEL	63	0	37	100	20.563	0.003	11.681	32.247				
OPERATIONS PERSONNEL	1	0	1	2	0.480	0.063	0.483	1.018				
HEALTH PHYSICS PERSONNEL	19	0	3	22	6.005	0.000	0.945	5.950				
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000				
ENGINEERING PERSONNEL	0	2	0	2	0.000	0.300	0.088	0.388				
TOTAL	63	2	41	126	28.028	0.368	13.187	39.581				
WASTE PROCESSING												
MAINTENANCE PERSONNEL	1	0	5	6	1.290	0.016	1.498	2.804				
OPERATIONS PERSONNEL	0	0	1	1	0.153	0.012	0.395	0.560				
HEALTH PHYSICS PERSONNEL	14	0	0	14	5.228	0.000	0.695	5.923				
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000				
ENGINEERING PERSONNEL	0	2	0	2	0.000	0.779	0.092	0.871				
TOTAL	15	2	6	23	6.671	0.809	2.678	10.158				
REFUELING												
MAINTENANCE PERSONNEL	0	0	0	0	1.157	0.000	0.311	1.468				
OPERATIONS PERSONNEL	1	1	0	2	1.887	0.113	0.021	2.021				
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.020	0.000	0.008	0.028				
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000				
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.141	0.000	0.141				
TOTAL	1	1	0	2	3.064	0.254	0.338	3.656				
TOTAL BY JOB FUNCTION												
MAINTENANCE PERSONNEL	305	(267)	3	(3)	280	(271)	588	(541)	139.274	0.852	94.447	234.573
OPERATIONS PERSONNEL	68	(73)	16	(6)	108	(101)	160	(153)	23.476	5.770	57.565	86.631
HEALTH PHYSICS PERSONNEL	83	(58)	0	(0)	92	(92)	185	(151)	35.965	0.004	40.978	76.977
SUPERVISORY PERSONNEL	1	(1)	0	(0)	0	(0)	1	(1)	0.168	0.000	0.000	0.168
ENGINEERING PERSONNEL	0	(0)	13	(13)	0	(0)	13	(13)	0.000	5.847	0.333	5.980
GRAND TOTALS	467	(400)	32	(25)	476	(484)	977	(689)	198.913	12.273	193.343	404.529

*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

1995

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	0.052	0.000	0.056	0.108
OPERATIONS PERSONNEL	0	0	1	1	0.860	0.000	0.158	1.018
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.634	0.000	0.044	0.678
SUPERVISORY PERSONNEL	0	0	0	0	0.051	0.000	0.031	0.082
ENGINEERING PERSONNEL	0	0	0	0	0.110	0.000	0.013	0.123
TOTAL	0	0	1	1	1.707	0.000	0.300	2.007
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	0	0	1.380	0.001	0.776	2.167
OPERATIONS PERSONNEL	0	0	0	0	0.257	0.000	0.469	0.726
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.252	0.000	0.020	0.272
SUPERVISORY PERSONNEL	0	0	0	0	0.061	0.000	0.008	0.069
ENGINEERING PERSONNEL	0	0	0	0	0.032	0.000	0.003	0.035
TOTAL	0	0	0	0	1.892	0.001	1.274	3.267
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	3	0	2	5	1.480	0.000	1.032	2.512
OPERATIONS PERSONNEL	0	0	0	0	0.342	0.000	0.285	0.627
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.341	0.000	0.017	0.358
SUPERVISORY PERSONNEL	0	0	0	0	0.080	0.000	0.000	0.080
ENGINEERING PERSONNEL	0	0	0	0	0.089	0.000	0.151	0.239
TOTAL	3	0	2	5	2.306	0.000	1.485	3.801
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.035	0.000	0.033	0.068
OPERATIONS PERSONNEL	0	0	0	0	0.010	0.000	0.071	0.081
HEALTH PHYSICS PERSONNEL	1	0	0	1	0.573	0.000	0.069	0.642
SUPERVISORY PERSONNEL	0	0	0	0	0.001	0.000	0.000	0.001
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	1	0	0	1	0.619	0.000	0.173	0.792
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	3	0	2	5	2.957	0.001	1.897	4.855
OPERATIONS PERSONNEL	0	0	1	1	1.469	0.000	0.691	2.160
HEALTH PHYSICS PERSONNEL	1	0	0	1	1.800	0.000	0.160	1.960
SUPERVISORY PERSONNEL	0	0	0	0	0.173	0.000	0.037	0.210
ENGINEERING PERSONNEL	0	0	0	0	0.225	0.000	0.187	0.392
GRAND TOTALS	4	0	3	7	6.624	0.001	3.242	9.867

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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	201	4	338	541	4.138	0.017	1.892	6.147
OPERATIONS PERSONNEL	312	54	43	409	21.628	0.058	0.220	21.904
HEALTH PHYSICS PERSONNEL	89	1	207	297	10.272	0.001	17.878	28.149
SUPERVISORY PERSONNEL	128	8	29	165	2.481	0.001	0.278	2.740
ENGINEERING PERSONNEL	105	8	14	127	0.759	0.005	0.034	0.798
TOTAL	835	75	629	1539	39.258	0.080	20.400	59.738
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	215	11	851	1077	78.140	1.377	108.368	185.885
OPERATIONS PERSONNEL	261	44	28	333	5.911	0.383	1.079	7.373
HEALTH PHYSICS PERSONNEL	58	0	162	240	13.228	0.000	27.982	41.180
SUPERVISORY PERSONNEL	89	3	30	122	5.570	0.012	3.085	8.667
ENGINEERING PERSONNEL	77	10	36	123	3.422	0.098	1.472	4.992
TOTAL	700	68	1127	1895	104.271	1.870	141.988	248.107
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	69	0	294	363	4.513	0.000	44.918	49.432
OPERATIONS PERSONNEL	53	1	4	58	0.191	0.022	0.285	0.498
HEALTH PHYSICS PERSONNEL	37	0	57	94	1.178	0.000	2.657	3.836
SUPERVISORY PERSONNEL	25	1	8	34	0.391	0.000	3.572	3.963
ENGINEERING PERSONNEL	13	1	32	46	1.549	0.000	13.151	14.700
TOTAL	197	3	395	595	7.823	0.022	64.684	72.429
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	44	1	291	336	1.279	0.013	13.861	15.153
OPERATIONS PERSONNEL	24	3	13	40	0.575	0.032	0.035	0.642
HEALTH PHYSICS PERSONNEL	19	0	32	51	0.405	0.000	0.437	0.842
SUPERVISORY PERSONNEL	11	0	23	34	0.122	0.000	0.717	0.839
ENGINEERING PERSONNEL	15	0	1	16	0.283	0.000	0.009	0.272
TOTAL	113	4	360	477	2.644	0.045	15.059	17.748
WASTE PROCESSING								
MAINTENANCE PERSONNEL	41	0	6	49	0.076	0.000	0.039	0.115
OPERATIONS PERSONNEL	30	7	3	40	0.454	0.050	0.005	0.509
HEALTH PHYSICS PERSONNEL	40	0	13	53	0.492	0.000	0.144	0.576
SUPERVISORY PERSONNEL	14	0	1	15	0.130	0.000	0.000	0.130
ENGINEERING PERSONNEL	3	0	0	3	0.001	0.000	0.000	0.001
TOTAL	128	7	25	160	1.093	0.050	0.188	1.331
REFUELING								
MAINTENANCE PERSONNEL	20	0	65	85	0.594	0.000	2.548	3.140
OPERATIONS PERSONNEL	31	14	4	49	1.344	0.118	0.658	2.118
HEALTH PHYSICS PERSONNEL	23	0	39	62	0.498	0.000	0.638	1.131
SUPERVISORY PERSONNEL	17	0	1	18	0.534	0.000	0.058	0.590
ENGINEERING PERSONNEL	3	0	0	3	0.033	0.000	0.000	0.033
TOTAL	94	14	109	217	2.998	0.118	3.898	7.012
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	530	18	1845	2451	88.740	1.407	171.725	259.872
OPERATIONS PERSONNEL	711	123	95	929	30.103	0.659	2.282	33.044
HEALTH PHYSICS PERSONNEL	269	1	530	797	28.008	0.001	48.714	75.724
SUPERVISORY PERSONNEL	284	12	62	358	9.208	0.013	7.708	16.929
ENGINEERING PERSONNEL	218	19	83	318	6.027	0.103	14.888	20.798
GRAND TOTALS	2067	171	2645	4883	158.087	2.163	248.035	408.365

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1996

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	1	0	0	1	0.118	0.000	0.000	0.118
OPERATIONS PERSONNEL	55	0	0	55	18.714	0.000	0.000	18.714
HEALTH PHYSICS PERSONNEL	32	1	38	71	13.802	0.104	12.498	26.405
SUPERVISORY PERSONNEL	2	0	0	2	0.477	0.000	0.000	0.477
ENGINEERING PERSONNEL	1	0	0	1	0.318	0.000	0.000	0.318
TOTAL	91	1	38	130	33.428	0.104	12.498	46.031
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	318	18	151	488	142.833	10.782	58.483	212.198
OPERATIONS PERSONNEL	10	0	0	10	4.535	0.000	0.000	4.535
HEALTH PHYSICS PERSONNEL	50	0	34	84	18.521	0.000	10.481	27.002
SUPERVISORY PERSONNEL	10	0	4	14	2.063	0.000	0.957	3.020
ENGINEERING PERSONNEL	21	4	5	30	4.711	0.688	0.837	6.216
TOTAL	409	23	194	626	170.763	11.450	70.756	252.971
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	21	3	94	118	8.915	1.401	44.260	54.576
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	10	10	0.000	0.000	5.302	5.302
SUPERVISORY PERSONNEL	1	1	1	3	0.134	0.152	0.200	0.486
ENGINEERING PERSONNEL	0	0	8	8	0.000	0.000	2.419	2.419
TOTAL	22	4	111	137	9.049	1.553	52.181	62.783
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	47	1	51	99	28.733	0.184	11.593	38.500
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	1	1	0.000	0.000	0.222	0.222
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	8	8	0.000	0.000	1.684	1.684
TOTAL	47	1	60	108	28.733	0.184	13.498	40.386
WASTE PROCESSING								
MAINTENANCE PERSONNEL	1	0	0	1	0.124	0.000	0.000	0.124
OPERATIONS PERSONNEL	0	0	1	1	0.000	0.000	1.310	1.310
HEALTH PHYSICS PERSONNEL	5	0	2	7	1.354	0.000	0.624	1.978
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	6	0	3	9	1.478	0.000	1.934	3.412
REFUELING								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
OPERATIONS PERSONNEL	11	0	0	11	1.723	0.000	0.000	1.723
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	1	0	0	1	0.147	0.000	0.000	0.147
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	12	0	0	12	1.870	0.000	0.000	1.870
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	388	23	280	707	178.824	12.387	114.326	305.517
OPERATIONS PERSONNEL	76	0	1	77	24.972	0.000	1.310	26.282
HEALTH PHYSICS PERSONNEL	87	1	85	173	31.577	0.104	29.128	60.909
SUPERVISORY PERSONNEL	14	1	5	20	2.821	0.152	1.157	4.130
ENGINEERING PERSONNEL	22	4	19	45	6.027	0.688	4.920	10.615
GRAND TOTALS	587	29	408	1022	243.321	13.281	150.841	407.453

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

PLANT: ***THREE MILE ISLAND 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	108	5	90	203	1.881	0.081	2.971	4.943				
OPERATIONS PERSONNEL	108	1	0	109	11.656	0.028	0.000	11.721				
HEALTH PHYSICS PERSONNEL	70	4	23	97	8.554	0.356	1.658	10.568				
SUPERVISORY PERSONNEL	167	37	29	233	3.527	0.277	1.289	5.093				
ENGINEERING PERSONNEL	52	7	7	73	1.957	0.119	0.178	2.254				
TOTAL	512	54	149	715	27.654	0.859	6.098	34.609				
ROUTINE MAINTENANCE												
MAINTENANCE PERSONNEL	139	14	397	550	10.264	0.255	5.182	15.701				
OPERATIONS PERSONNEL	59	3	4	66	1.043	0.001	0.004	1.048				
HEALTH PHYSICS PERSONNEL	28	1	6	35	0.278	0.003	0.033	0.312				
SUPERVISORY PERSONNEL	197	35	37	269	2.211	0.088	0.070	2.379				
ENGINEERING PERSONNEL	75	13	16	104	0.803	0.059	0.387	1.249				
TOTAL	498	66	460	1024	14.597	0.418	5.876	20.689				
IN-SERVICE INSPECTION												
MAINTENANCE PERSONNEL	31	1	86	120	0.883	0.008	2.945	3.636				
OPERATIONS PERSONNEL	6	1	1	8	0.101	0.049	0.160	0.310				
HEALTH PHYSICS PERSONNEL	5	0	1	6	0.052	0.000	0.014	0.068				
SUPERVISORY PERSONNEL	19	3	3	25	1.099	0.093	0.025	1.217				
ENGINEERING PERSONNEL	9	4	1	14	0.028	0.020	0.104	0.152				
TOTAL	70	9	94	173	2.183	0.170	3.248	5.561				
SPECIAL MAINTENANCE												
MAINTENANCE PERSONNEL	125	6	740	871	11.874	0.089	62.543	104.506				
OPERATIONS PERSONNEL	59	0	3	62	3.742	0.000	0.378	4.121				
HEALTH PHYSICS PERSONNEL	40	1	13	54	3.957	0.327	3.855	8.139				
SUPERVISORY PERSONNEL	74	5	55	134	3.579	0.134	5.907	9.620				
ENGINEERING PERSONNEL	45	7	37	89	2.283	0.078	5.793	8.154				
TOTAL	343	19	848	1210	25.415	0.628	108.447	134.490				
WASTE PROCESSING												
MAINTENANCE PERSONNEL	56	1	61	118	1.189	0.022	3.057	4.268				
OPERATIONS PERSONNEL	63	0	1	64	8.446	0.000	0.127	8.573				
HEALTH PHYSICS PERSONNEL	34	1	3	38	0.624	0.000	0.107	0.731				
SUPERVISORY PERSONNEL	35	4	3	42	1.542	0.000	0.000	1.542				
ENGINEERING PERSONNEL	6	4	3	15	0.010	0.000	0.000	0.010				
TOTAL	198	10	71	277	11.811	0.022	3.291	15.124				
REFUELING												
MAINTENANCE PERSONNEL	91	1	193	285	5.738	0.004	10.478	16.218				
OPERATIONS PERSONNEL	85	0	0	85	4.047	0.000	0.000	4.047				
HEALTH PHYSICS PERSONNEL	17	3	5	25	0.705	0.028	0.232	0.963				
SUPERVISORY PERSONNEL	49	5	11	62	2.082	0.142	0.608	2.830				
ENGINEERING PERSONNEL	15	4	20	42	0.518	0.107	2.818	3.441				
TOTAL	257	13	229	499	13.086	0.279	14.134	27.499				
TOTAL BY JOB FUNCTION												
MAINTENANCE PERSONNEL	550	(150)	28	(19)	1589	(835)	2147	(1004)	31.837	0.459	117.176	149.472
OPERATIONS PERSONNEL	380	(116)	5	(3)	9	(4)	394	(123)	29.074	0.076	0.670	29.820
HEALTH PHYSICS PERSONNEL	194	(71)	10	(6)	51	(26)	255	(103)	14.168	0.712	5.899	20.779
SUPERVISORY PERSONNEL	538	(239)	89	(72)	138	(79)	765	(390)	14.040	0.744	7.897	22.681
ENGINEERING PERSONNEL	214	(102)	39	(26)	84	(57)	337	(185)	5.607	0.383	9.250	15.240
GRAND TOTALS	1876	(678)	171	(126)	1651	(1001)	3668	(1805)	94.726	2.974	140.892	237.962

*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**

1995

PLANT: ***THREE MILE ISLAND 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	28	1	15	44	0.232	0.000	0.002	0.234				
OPERATIONS PERSONNEL	91	0	0	91	0.255	0.000	0.000	0.255				
HEALTH PHYSICS PERSONNEL	37	1	5	43	0.486	0.000	0.009	0.475				
SUPERVISORY PERSONNEL	29	3	6	38	0.212	0.001	0.000	0.213				
ENGINEERING PERSONNEL	8	1	0	9	0.004	0.000	0.000	0.004				
TOTAL	193	6	26	225	1.169	0.001	0.011	1.181				
ROUTINE MAINTENANCE												
MAINTENANCE PERSONNEL	57	0	5	62	0.008	0.000	0.000	0.008				
OPERATIONS PERSONNEL	6	0	0	6	0.000	0.000	0.000	0.000				
HEALTH PHYSICS PERSONNEL	9	0	0	9	0.005	0.000	0.000	0.005				
SUPERVISORY PERSONNEL	4	0	0	4	0.000	0.000	0.000	0.000				
ENGINEERING PERSONNEL	2	0	0	2	0.001	0.000	0.000	0.001				
TOTAL	78	0	5	83	0.014	0.000	0.000	0.014				
IN-SERVICE INSPECTION												
MAINTENANCE PERSONNEL	4	0	0	4	0.343	0.000	0.000	0.343				
OPERATIONS PERSONNEL	1	0	0	1	0.000	0.000	0.000	0.000				
HEALTH PHYSICS PERSONNEL	3	0	0	3	0.296	0.000	0.000	0.296				
SUPERVISORY PERSONNEL	2	0	0	2	0.093	0.000	0.000	0.093				
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000				
TOTAL	10	0	0	10	0.729	0.000	0.000	0.729				
SPECIAL MAINTENANCE												
MAINTENANCE PERSONNEL	8	0	0	8	0.000	0.000	0.000	0.000				
OPERATIONS PERSONNEL	5	0	0	5	0.000	0.000	0.000	0.000				
HEALTH PHYSICS PERSONNEL	3	0	0	3	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	16	0	0	16	0.000	0.000	0.000	0.000				
WASTE PROCESSING												
MAINTENANCE PERSONNEL	1	0	1	2	0.017	0.000	0.000	0.017				
OPERATIONS PERSONNEL	7	0	0	7	0.080	0.000	0.000	0.080				
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	8	0	1	9	0.097	0.000	0.000	0.097				
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	98	(71)	1	(1)	21	(20)	120	(92)	0.600	0.000	0.002	0.602
OPERATIONS PERSONNEL	110	(95)	0	(0)	0	(0)	110	(95)	0.335	0.000	0.000	0.335
HEALTH PHYSICS PERSONNEL	52	(39)	1	(1)	5	(5)	58	(45)	0.784	0.000	0.009	0.773
SUPERVISORY PERSONNEL	35	(33)	3	(3)	8	(8)	44	(42)	0.305	0.001	0.000	0.306
ENGINEERING PERSONNEL	10	(10)	1	(1)	0	(0)	11	(11)	0.005	0.000	0.000	0.005
GRAND TOTALS	305	(248)	6	(6)	32	(31)	343	(285)	2.009	0.001	0.011	2.021

*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**

1995

PLANT: ***TURKEY POINT 3,4**

TYPE: **PWR**

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL (>100mREM)				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	0.080	0.000	0.000	0.080				
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.144	0.000	0.000	0.144				
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000				
ENGINEERING PERSONNEL	0	0	0	0	0.057	0.000	0.000	0.057				
TOTAL	0	0	0	0	0.281	0.000	0.000	0.281				
ROUTINE MAINTENANCE												
MAINTENANCE PERSONNEL	141	4	147	292	41.887	0.804	36.735	79.226				
OPERATIONS PERSONNEL	32	0	2	34	10.620	0.000	0.861	11.181				
HEALTH PHYSICS PERSONNEL	42	0	55	97	13.974	0.008	11.957	25.939				
SUPERVISORY PERSONNEL	5	0	2	7	1.717	0.063	1.267	3.067				
ENGINEERING PERSONNEL	19	0	3	19	8.200	0.261	1.267	7.728				
TOTAL	239	4	209	449	74.098	1.156	51.887	127.141				
IN-SERVICE INSPECTION												
MAINTENANCE PERSONNEL	5	1	67	73	1.164	0.168	21.579	22.911				
OPERATIONS PERSONNEL	0	0	0	0	0.452	0.000	0.000	0.452				
HEALTH PHYSICS PERSONNEL	0	0	7	7	0.449	0.000	1.498	1.945				
SUPERVISORY PERSONNEL	0	1	56	57	0.031	0.128	23.074	23.231				
ENGINEERING PERSONNEL	11	0	1	12	3.052	0.062	0.311	3.445				
TOTAL	16	2	131	149	5.148	0.378	46.460	51.984				
SPECIAL MAINTENANCE												
MAINTENANCE PERSONNEL	7	0	11	18	2.855	0.081	2.920	5.856				
OPERATIONS PERSONNEL	0	0	0	0	0.085	0.000	0.000	0.085				
HEALTH PHYSICS PERSONNEL	1	0	0	1	0.568	0.000	0.163	0.731				
SUPERVISORY PERSONNEL	2	0	0	2	0.236	0.000	0.015	0.253				
ENGINEERING PERSONNEL	2	1	0	3	0.475	0.167	0.000	0.642				
TOTAL	12	1	11	24	4.201	0.248	3.068	7.547				
WASTE PROCESSING												
MAINTENANCE PERSONNEL	0	0	0	0	0.408	0.000	0.004	0.412				
OPERATIONS PERSONNEL	0	0	0	0	0.106	0.000	0.058	0.162				
HEALTH PHYSICS PERSONNEL	0	0	4	4	0.259	0.000	0.866	1.124				
SUPERVISORY PERSONNEL	0	0	0	0	0.005	0.000	0.012	0.017				
ENGINEERING PERSONNEL	0	0	0	0	0.001	0.000	0.000	0.001				
TOTAL	0	0	4	4	0.778	0.000	0.938	1.716				
REFUELING												
MAINTENANCE PERSONNEL	62	0	3	65	27.031	0.000	1.688	28.719				
OPERATIONS PERSONNEL	2	0	1	3	2.817	0.000	0.302	3.119				
HEALTH PHYSICS PERSONNEL	1	0	7	8	0.426	0.009	2.527	2.962				
SUPERVISORY PERSONNEL	1	0	0	1	0.268	0.017	0.011	0.296				
ENGINEERING PERSONNEL	4	0	0	4	1.138	0.045	0.055	1.278				
TOTAL	70	0	11	81	31.680	0.071	4.623	36.374				
TOTAL BY JOB FUNCTION												
MAINTENANCE PERSONNEL	215	(173)	5	(5)	228	(186)	448	(364)	73.145	1.053	62.926	137.124
OPERATIONS PERSONNEL	34	(34)	0	(0)	3	(3)	37	(37)	14.040	0.000	1.018	15.059
HEALTH PHYSICS PERSONNEL	44	(42)	0	(0)	73	(71)	117	(113)	15.819	0.017	17.008	32.845
SUPERVISORY PERSONNEL	8	(5)	1	(1)	59	(58)	67	(64)	2.259	0.228	24.378	26.864
ENGINEERING PERSONNEL	33	(33)	1	(1)	4	(4)	38	(38)	10.923	0.555	1.873	13.151
GRAND TOTALS	334	(287)	7	(7)	388	(322)	707	(616)	116.185	1.851	107.008	225.043

*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**

1995

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	22	0	65	87	5.124	0.000	23.608	28.732
OPERATIONS PERSONNEL	25	0	1	26	7.484	0.000	0.433	7.917
HEALTH PHYSICS PERSONNEL	12	0	19	31	4.422	0.000	5.414	9.836
SUPERVISORY PERSONNEL	0	0	0	0	0.060	0.000	0.011	0.101
ENGINEERING PERSONNEL	0	0	0	0	0.188	0.000	0.000	0.188
TOTAL	59	0	85	144	17.308	0.000	29.458	46.772
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	23	0	229	252	7.830	0.000	64.114	61.744
OPERATIONS PERSONNEL	2	0	0	2	1.453	0.000	0.037	1.830
HEALTH PHYSICS PERSONNEL	8	0	40	48	3.633	0.000	12.069	15.702
SUPERVISORY PERSONNEL	2	0	0	2	0.482	0.000	0.061	0.563
ENGINEERING PERSONNEL	0	0	1	1	0.065	0.000	0.158	0.221
TOTAL	35	0	270	305	13.303	0.000	96.457	109.760
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	54	54	0.072	0.000	22.257	22.329
OPERATIONS PERSONNEL	0	0	0	0	0.015	0.000	0.002	0.017
HEALTH PHYSICS PERSONNEL	0	0	2	2	0.061	0.000	0.760	0.851
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.009	0.009
ENGINEERING PERSONNEL	0	0	0	0	0.010	0.000	0.000	0.010
TOTAL	0	0	56	56	0.158	0.000	23.058	23.216
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	0	0	0.000	0.000	0.353	0.353
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	0.353	0.353
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.237	0.000	0.366	0.632
OPERATIONS PERSONNEL	0	0	0	0	0.007	0.000	0.000	0.007
HEALTH PHYSICS PERSONNEL	0	0	1	1	0.107	0.000	0.287	0.364
SUPERVISORY PERSONNEL	0	0	0	0	0.002	0.000	0.000	0.002
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	0	0	1	1	0.353	0.000	0.682	1.035
REFUELING								
MAINTENANCE PERSONNEL	0	0	0	0	0.069	0.000	0.279	0.368
OPERATIONS PERSONNEL	0	0	0	0	0.157	0.000	0.004	0.161
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.002	0.002
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.008	0.000	0.000	0.008
TOTAL	0	0	0	0	0.252	0.000	0.285	0.537
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	45	0	346	393	13.152	0.000	131.008	144.158
OPERATIONS PERSONNEL	27	0	1	28	9.158	0.000	0.478	9.632
HEALTH PHYSICS PERSONNEL	20	0	62	82	8.223	0.000	18.562	26.785
SUPERVISORY PERSONNEL	2	0	0	2	0.574	0.000	0.101	0.675
ENGINEERING PERSONNEL	0	0	1	1	0.267	0.000	0.158	0.423
GRAND TOTALS	94	0	412	506	31.372	0.000	150.301	181.673

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1985

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	0	0	3	12	2.980	0.065	1.654	4.699
OPERATIONS PERSONNEL	21	0	0	21	8.303	0.000	0.038	8.341
HEALTH PHYSICS PERSONNEL	4	0	1	5	0.780	0.000	0.244	1.004
SUPERVISORY PERSONNEL	1	0	0	1	0.248	0.069	0.181	0.498
ENGINEERING PERSONNEL	0	0	0	0	0.132	0.000	0.018	0.150
TOTAL	36	0	4	39	10.403	0.154	2.135	12.692
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	20	0	29	49	7.854	0.068	9.148	17.168
OPERATIONS PERSONNEL	8	0	0	8	3.130	0.062	0.128	3.318
HEALTH PHYSICS PERSONNEL	60	1	9	70	12.710	0.202	2.748	15.660
SUPERVISORY PERSONNEL	1	0	0	1	0.295	0.000	0.511	0.806
ENGINEERING PERSONNEL	1	0	0	1	0.599	0.000	0.097	0.699
TOTAL	88	1	38	127	24.658	0.360	12.633	37.638
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	1	0	23	24	0.838	0.043	8.848	10.225
OPERATIONS PERSONNEL	0	0	0	0	0.184	0.017	0.000	0.201
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.009	0.000	0.057	0.066
SUPERVISORY PERSONNEL	0	0	6	6	0.053	0.258	2.067	2.378
ENGINEERING PERSONNEL	2	0	2	4	0.440	0.008	0.408	0.857
TOTAL	3	0	31	34	1.216	0.327	12.178	13.721
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	84	1	77	162	40.236	0.818	31.045	71.899
OPERATIONS PERSONNEL	11	0	0	11	8.800	0.080	0.098	8.978
HEALTH PHYSICS PERSONNEL	18	4	36	58	4.477	0.718	8.639	13.834
SUPERVISORY PERSONNEL	8	5	6	17	1.818	1.009	2.134	5.081
ENGINEERING PERSONNEL	1	0	8	9	1.165	0.043	3.285	4.493
TOTAL	120	10	127	257	54.298	2.448	45.162	101.838
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.165	0.019	0.000	0.184
OPERATIONS PERSONNEL	3	0	0	3	1.328	0.000	0.020	1.348
HEALTH PHYSICS PERSONNEL	12	0	27	39	4.829	0.038	8.838	13.603
SUPERVISORY PERSONNEL	1	0	1	2	0.253	0.000	0.301	0.554
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	16	0	28	44	6.673	0.057	8.957	15.687
REFUELING								
MAINTENANCE PERSONNEL	4	0	17	21	1.592	0.000	7.283	8.875
OPERATIONS PERSONNEL	4	0	0	4	1.305	0.000	0.000	1.305
HEALTH PHYSICS PERSONNEL	1	0	7	8	1.058	0.037	2.268	3.391
SUPERVISORY PERSONNEL	2	0	3	5	0.277	0.000	0.922	1.199
ENGINEERING PERSONNEL	1	0	8	7	0.488	0.000	2.142	2.630
TOTAL	12	0	33	45	4.718	0.037	12.600	17.355
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	118	1	149	288	53.433	0.851	58.758	113.040
OPERATIONS PERSONNEL	45	0	0	45	18.748	0.139	0.273	19.160
HEALTH PHYSICS PERSONNEL	85	5	80	180	23.937	0.965	22.990	47.522
SUPERVISORY PERSONNEL	11	5	18	32	3.044	1.339	8.118	10.493
ENGINEERING PERSONNEL	5	0	18	21	2.802	0.052	5.957	8.811
GRAND TOTALS	274	11	281	548	101.984	3.373	93.692	199.029

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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	93	5	48	146	23.832	1.818	5.768	31.219
OPERATIONS PERSONNEL	47	1	1	49	22.834	0.229	0.183	23.256
HEALTH PHYSICS PERSONNEL	35	1	35	71	9.589	0.057	5.185	14.821
SUPERVISORY PERSONNEL	14	4	2	20	2.891	0.539	0.273	3.703
ENGINEERING PERSONNEL	11	20	11	42	1.411	3.282	0.878	5.548
TOTAL	200	31	97	328	60.537	5.705	12.305	78.547
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	98	3	241	342	88.152	2.507	109.110	179.769
OPERATIONS PERSONNEL	2	0	0	2	8.038	0.028	0.000	8.064
HEALTH PHYSICS PERSONNEL	6	0	21	27	11.097	0.048	13.485	24.630
SUPERVISORY PERSONNEL	4	2	6	11	3.715	0.518	1.009	5.242
ENGINEERING PERSONNEL	8	13	31	52	4.027	7.028	9.148	20.202
TOTAL	118	18	299	434	95.019	10.128	132.760	237.907
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	35	35	0.582	0.004	18.544	19.530
OPERATIONS PERSONNEL	0	0	0	0	0.002	0.000	0.000	0.002
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.232	0.000	0.187	0.419
SUPERVISORY PERSONNEL	0	0	1	1	0.000	0.000	0.384	0.384
ENGINEERING PERSONNEL	2	2	18	22	1.027	2.512	10.138	13.678
TOTAL	2	2	52	56	1.843	2.516	29.654	34.013
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	0.949	0.458	0.017	1.424
OPERATIONS PERSONNEL	0	0	0	0	0.010	0.000	0.000	0.010
HEALTH PHYSICS PERSONNEL	1	0	4	5	0.578	0.000	1.980	2.558
SUPERVISORY PERSONNEL	0	0	0	0	0.071	0.000	0.000	0.071
ENGINEERING PERSONNEL	0	0	0	0	0.004	0.013	0.000	0.017
TOTAL	1	0	4	5	1.612	0.471	1.997	4.080
REFUELING								
MAINTENANCE PERSONNEL	15	0	14	29	20.710	0.020	6.423	27.153
OPERATIONS PERSONNEL	2	0	0	2	1.834	0.000	0.000	1.834
HEALTH PHYSICS PERSONNEL	1	0	14	15	0.609	0.000	4.984	5.573
SUPERVISORY PERSONNEL	2	0	1	3	2.188	0.150	0.109	2.447
ENGINEERING PERSONNEL	2	4	8	11	0.857	0.989	1.348	2.892
TOTAL	22	4	34	60	25.968	1.169	12.842	40.009
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	208	8	338	552	114.225	4.607	140.263	259.095
OPERATIONS PERSONNEL	51	1	1	53	32.818	0.255	0.183	33.268
HEALTH PHYSICS PERSONNEL	43	1	74	118	22.075	0.105	25.821	48.001
SUPERVISORY PERSONNEL	20	6	9	35	8.865	1.207	1.775	11.847
ENGINEERING PERSONNEL	23	39	63	125	7.026	13.815	21.506	42.347
GRAND TOTALS	343	55	485	883	185.009	19.989	189.558	394.556

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

PLANT: ***WATERFORD 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	0.088	0.005	0.388	0.477
OPERATIONS PERSONNEL	1	0	2	3	0.392	0.000	0.351	0.743
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.012	0.000	0.000	0.012
SUPERVISORY PERSONNEL	0	0	0	0	0.098	0.000	0.000	0.098
ENGINEERING PERSONNEL	0	0	1	1	0.120	0.000	0.331	0.451
TOTAL	1	0	3	4	0.703	0.005	1.068	1.778
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	11	1	27	39	7.012	0.138	13.310	20.460
OPERATIONS PERSONNEL	12	1	1	14	4.727	0.439	0.157	5.323
HEALTH PHYSICS PERSONNEL	6	3	8	17	1.843	0.656	2.915	5.414
SUPERVISORY PERSONNEL	3	0	6	9	0.973	0.000	1.540	2.813
ENGINEERING PERSONNEL	1	0	26	26	0.739	0.016	6.805	9.590
TOTAL	33	5	67	105	15.294	1.249	28.727	43.270
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	23	1	80	104	7.343	0.663	24.594	32.600
OPERATIONS PERSONNEL	3	0	11	14	1.574	0.031	3.696	5.301
HEALTH PHYSICS PERSONNEL	3	0	14	17	1.018	0.106	3.655	4.779
SUPERVISORY PERSONNEL	2	0	0	2	0.567	0.000	0.032	0.599
ENGINEERING PERSONNEL	1	0	0	1	0.477	0.000	0.111	0.588
TOTAL	32	1	105	138	10.979	0.800	32.088	43.887
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	6	0	11	17	4.172	0.237	6.243	12.652
OPERATIONS PERSONNEL	32	0	1	33	7.102	0.029	0.835	7.966
HEALTH PHYSICS PERSONNEL	15	7	16	38	4.898	1.384	3.697	10.079
SUPERVISORY PERSONNEL	1	0	0	1	0.535	0.000	0.060	0.595
ENGINEERING PERSONNEL	1	0	0	1	0.765	0.000	0.059	0.824
TOTAL	55	7	28	90	17.572	1.650	12.894	31.916
WASTE PROCESSING								
MAINTENANCE PERSONNEL	11	0	24	35	3.410	0.002	6.321	9.733
OPERATIONS PERSONNEL	5	0	1	6	1.293	0.039	0.578	1.909
HEALTH PHYSICS PERSONNEL	1	0	1	2	0.224	0.057	0.319	0.600
SUPERVISORY PERSONNEL	4	0	0	4	1.058	0.000	0.001	1.059
ENGINEERING PERSONNEL	3	0	21	24	0.894	0.000	8.318	9.312
TOTAL	24	0	47	71	6.878	0.097	15.537	22.513
REFUELING								
MAINTENANCE PERSONNEL	4	0	0	4	1.084	0.058	0.048	1.188
OPERATIONS PERSONNEL	1	0	0	1	0.600	0.000	0.075	0.675
HEALTH PHYSICS PERSONNEL	2	0	1	3	0.518	0.004	0.882	1.404
SUPERVISORY PERSONNEL	0	0	0	0	0.028	0.000	0.000	0.028
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	7	0	1	8	2.430	0.060	1.003	3.493
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	55	2	142	199	23.107	1.101	52.600	77.108
OPERATIONS PERSONNEL	54	1	16	71	15.888	0.537	5.492	21.917
HEALTH PHYSICS PERSONNEL	27	10	40	77	8.613	2.207	11.488	22.288
SUPERVISORY PERSONNEL	10	0	6	16	3.254	0.000	1.633	4.887
ENGINEERING PERSONNEL	8	0	47	55	3.095	0.016	17.624	20.735
GRAND TOTALS	152	13	251	416	63.957	3.861	89.117	146.935

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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	0	0	0	0	0.308	0.000	0.134	0.440
OPERATIONS PERSONNEL	0	0	0	0	0.885	0.120	0.001	0.806
HEALTH PHYSICS PERSONNEL	8	1	0	9	3.032	0.124	0.000	3.156
SUPERVISORY PERSONNEL	1	0	0	1	0.469	0.075	0.042	0.618
ENGINEERING PERSONNEL	0	0	0	0	0.382	0.019	0.001	0.382
TOTAL	9	1	0	10	4.864	0.338	0.178	5.400
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	0	0	1.172	0.018	0.275	1.482
OPERATIONS PERSONNEL	0	0	0	0	0.149	0.018	0.000	0.167
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.289	0.033	0.000	0.322
SUPERVISORY PERSONNEL	0	0	0	0	0.581	0.001	0.181	0.743
ENGINEERING PERSONNEL	0	0	0	0	0.587	0.015	0.043	0.645
TOTAL	0	0	0	0	2.758	0.082	0.499	3.339
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	0	0	0.073	0.000	0.003	0.078
OPERATIONS PERSONNEL	0	0	0	0	0.002	0.000	0.000	0.002
HEALTH PHYSICS PERSONNEL	1	0	0	1	0.160	0.000	0.000	0.160
SUPERVISORY PERSONNEL	0	0	0	0	0.027	0.000	0.000	0.027
ENGINEERING PERSONNEL	0	0	0	0	0.032	0.000	0.004	0.039
TOTAL	1	0	0	1	0.324	0.000	0.007	0.331
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	1	0	4	5	0.831	0.082	0.965	1.658
OPERATIONS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.206	0.013	0.000	0.219
SUPERVISORY PERSONNEL	0	0	0	0	0.099	0.000	0.000	0.099
ENGINEERING PERSONNEL	0	0	0	0	0.085	0.004	0.000	0.089
TOTAL	1	0	4	5	1.021	0.109	0.965	2.095
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.274	0.000	0.016	0.292
OPERATIONS PERSONNEL	1	0	0	1	0.416	0.003	0.047	0.466
HEALTH PHYSICS PERSONNEL	3	0	0	3	1.812	0.014	0.000	1.826
SUPERVISORY PERSONNEL	0	0	0	0	0.088	0.000	0.000	0.088
ENGINEERING PERSONNEL	0	0	0	0	0.018	0.000	0.000	0.018
TOTAL	4	0	0	4	2.708	0.017	0.065	2.790
REFUELING								
MAINTENANCE PERSONNEL	0	0	0	0	0.053	0.000	0.000	0.053
OPERATIONS PERSONNEL	0	0	0	0	0.057	0.000	0.000	0.057
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.017	0.001	0.000	0.018
SUPERVISORY PERSONNEL	0	0	0	0	0.040	0.000	0.000	0.040
ENGINEERING PERSONNEL	0	0	0	0	0.044	0.000	0.002	0.046
TOTAL	0	0	0	0	0.211	0.001	0.002	0.214
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	1	0	4	5	2.509	0.107	1.365	4.011
OPERATIONS PERSONNEL	1	0	0	1	1.309	0.141	0.046	1.498
HEALTH PHYSICS PERSONNEL	12	1	0	13	5.848	0.185	0.000	5.831
SUPERVISORY PERSONNEL	1	0	0	1	1.314	0.078	0.223	1.613
ENGINEERING PERSONNEL	0	0	0	0	1.128	0.038	0.050	1.216
GRAND TOTALS	15	1	4	20	11.908	0.547	1.716	14.169

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

PLANT: ***YANKEE-ROWE**

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	0.165	0.075	0.980	1.220
OPERATIONS PERSONNEL	2	0	0	2	0.630	0.010	0.275	0.915
HEALTH PHYSICS PERSONNEL	0	0	3	3	0.015	0.085	1.690	1.790
SUPERVISORY PERSONNEL	0	0	0	0	0.005	0.000	0.010	0.015
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.185	0.015	0.200
TOTAL	2	0	3	5	0.815	0.355	2.970	4.140
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	4	0	19	23	1.015	0.010	7.570	8.595
OPERATIONS PERSONNEL	0	0	1	1	0.085	0.000	0.245	0.340
HEALTH PHYSICS PERSONNEL	3	4	28	33	0.560	1.425	12.965	15.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.035	0.035
ENGINEERING PERSONNEL	0	1	0	1	0.030	0.385	0.035	0.450
TOTAL	7	5	48	58	1.730	1.620	20.870	24.420
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	0	0	0.010	0.000	0.170	0.180
OPERATIONS PERSONNEL	0	0	0	0	0.040	0.000	0.020	0.060
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.005	0.000	0.005	0.010
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.010	0.010
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.040	0.000	0.040
TOTAL	0	0	0	0	0.055	0.040	0.205	0.300
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	2	0	32	34	0.760	0.015	14.928	15.703
OPERATIONS PERSONNEL	0	0	0	0	0.065	0.000	0.010	0.065
HEALTH PHYSICS PERSONNEL	0	0	5	5	0.000	0.005	1.690	1.695
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.050	0.065	0.005	0.120
TOTAL	2	0	37	39	0.875	0.085	16.633	17.653
WASTE PROCESSING								
MAINTENANCE PERSONNEL	2	0	69	71	0.870	0.055	28.615	29.340
OPERATIONS PERSONNEL	0	0	1	1	0.200	0.000	0.991	1.191
HEALTH PHYSICS PERSONNEL	1	1	23	25	0.480	0.380	10.429	11.269
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	1	1	0.030	0.240	0.290	0.600
TOTAL	3	1	94	98	1.360	0.675	40.425	42.460
REFUELING								
MAINTENANCE PERSONNEL	0	0	1	1	0.035	0.000	0.180	0.225
OPERATIONS PERSONNEL	0	0	0	0	0.010	0.000	0.010	0.020
HEALTH PHYSICS PERSONNEL	0	1	1	2	0.000	0.200	0.400	0.600
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.080	0.000	0.080
TOTAL	0	1	2	3	0.045	0.280	0.600	0.925
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	8	0	121	129	2.955	0.155	52.493	55.263
OPERATIONS PERSONNEL	2	0	2	4	1.090	0.010	1.551	2.621
HEALTH PHYSICS PERSONNEL	4	6	58	68	1.070	2.095	27.439	30.604
SUPERVISORY PERSONNEL	0	0	0	0	0.005	0.000	0.055	0.060
ENGINEERING PERSONNEL	0	1	1	2	0.110	0.995	0.445	1.550
GRAND TOTALS	14	7	182	203	4.900	3.295	81.943	90.098

*Workers may be counted in more than one category.

APPENDIX D (Continued)

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

1995

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	0.239	0.000	0.024	0.263
OPERATIONS PERSONNEL	44	0	0	44	7.491	0.000	0.000	7.491
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	8	0	0	8	0.725	0.000	0.008	0.733
ENGINEERING PERSONNEL	0	0	0	0	0.009	0.000	0.000	0.009
TOTAL	52	0	0	52	8.464	0.000	0.032	8.496
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	164	11	1256	1431	92.997	1.568	457.947	552.512
OPERATIONS PERSONNEL	148	0	164	310	24.982	0.000	0.162	25.144
HEALTH PHYSICS PERSONNEL	68	127	83	278	23.450	1.367	35.320	60.137
SUPERVISORY PERSONNEL	277	0	324	601	25.194	0.000	28.073	53.267
ENGINEERING PERSONNEL	173	0	38	211	13.584	0.000	2.217	15.781
TOTAL	828	138	1865	2831	180.197	3.235	523.719	707.141
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	127	127	0.108	0.000	46.415	46.521
OPERATIONS PERSONNEL	0	0	0	0	0.009	0.000	0.000	0.009
HEALTH PHYSICS PERSONNEL	0	1	0	1	0.031	0.009	0.000	0.040
SUPERVISORY PERSONNEL	1	0	88	89	0.091	0.000	7.648	7.739
ENGINEERING PERSONNEL	7	0	33	40	0.464	0.000	1.906	2.360
TOTAL	8	1	248	257	0.721	0.009	55.969	58.699
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	2	0	9	11	0.917	0.000	3.141	4.058
OPERATIONS PERSONNEL	1	0	0	1	0.158	0.000	0.000	0.158
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.018	0.000	0.000	0.018
SUPERVISORY PERSONNEL	1	0	8	9	0.087	0.000	0.697	0.784
ENGINEERING PERSONNEL	4	0	0	4	0.300	0.000	0.034	0.334
TOTAL	8	0	17	25	1.480	0.000	3.872	5.352
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	9	9	0.058	0.000	3.233	3.291
OPERATIONS PERSONNEL	5	0	0	5	0.672	0.000	0.000	0.672
HEALTH PHYSICS PERSONNEL	3	0	3	6	1.079	0.003	1.178	2.260
SUPERVISORY PERSONNEL	2	0	0	2	0.210	0.000	0.027	0.237
ENGINEERING PERSONNEL	0	0	0	0	0.003	0.000	0.003	0.006
TOTAL	10	0	12	22	2.222	0.003	4.441	6.666
REFUELING								
MAINTENANCE PERSONNEL	5	0	5	10	3.122	0.009	1.839	4.970
OPERATIONS PERSONNEL	33	0	0	33	5.544	0.000	0.000	5.544
HEALTH PHYSICS PERSONNEL	0	35	0	35	0.040	0.372	0.022	0.434
SUPERVISORY PERSONNEL	19	0	3	22	1.883	0.000	0.217	1.900
ENGINEERING PERSONNEL	3	0	0	3	0.270	0.000	0.001	0.271
TOTAL	60	35	8	103	10.659	0.381	2.079	13.119
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	171	11	1406	1588	97.439	1.877	542.599	611.915
OPERATIONS PERSONNEL	229	0	164	393	39.056	0.000	0.162	39.218
HEALTH PHYSICS PERSONNEL	71	128	88	320	24.618	1.751	38.520	62.889
SUPERVISORY PERSONNEL	308	0	423	731	27.990	0.000	36.670	64.660
ENGINEERING PERSONNEL	167	0	71	238	14.630	0.000	4.181	18.791
GRAND TOTALS	966	174	2150	3290	203.733	3.628	590.112	797.473

*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**

1973-1996

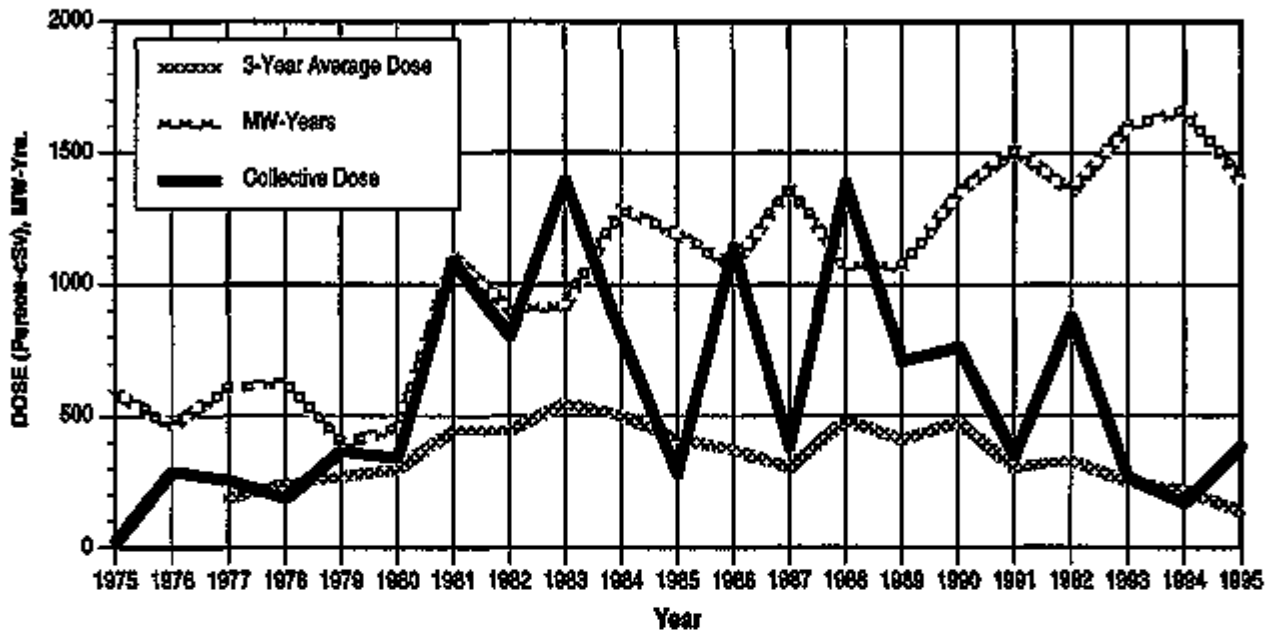
NOTE: Appendix E contains data on operating plants as well as plants which are no longer in commercial operation.

APPENDIX E

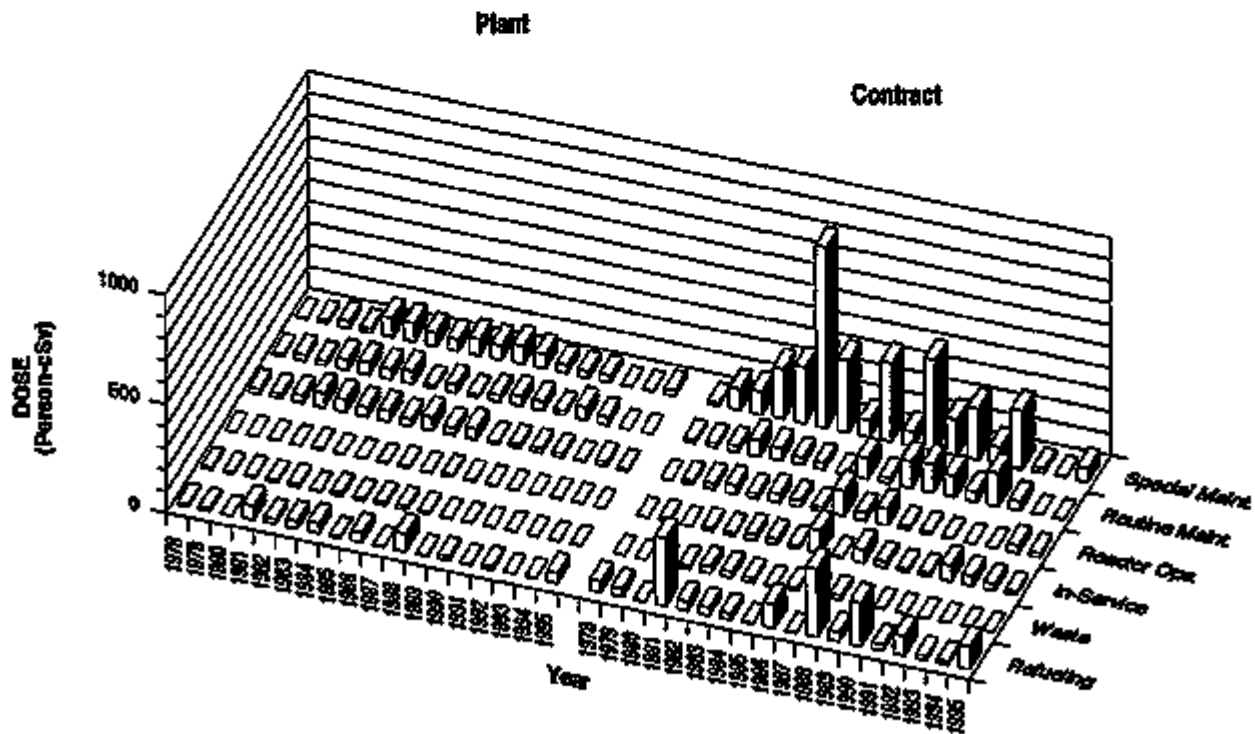
ARKANSAS 1, 2

Dose-Performance Indicators

PWR



Breakdown by Job Function

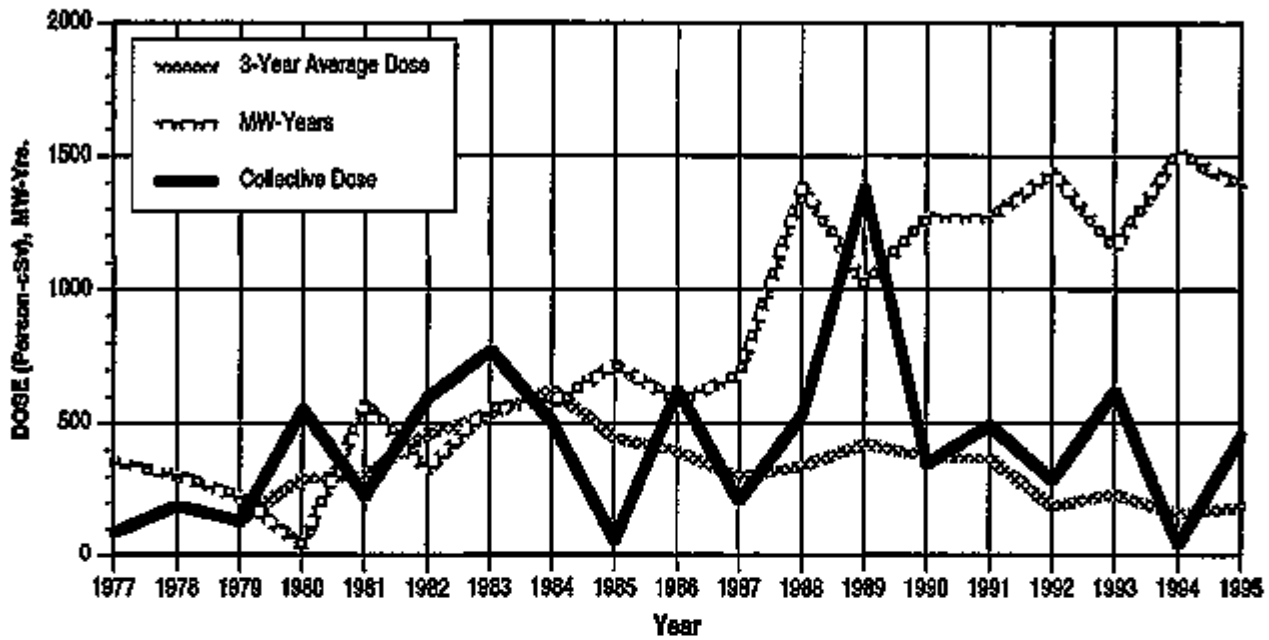


APPENDIX E (continued)

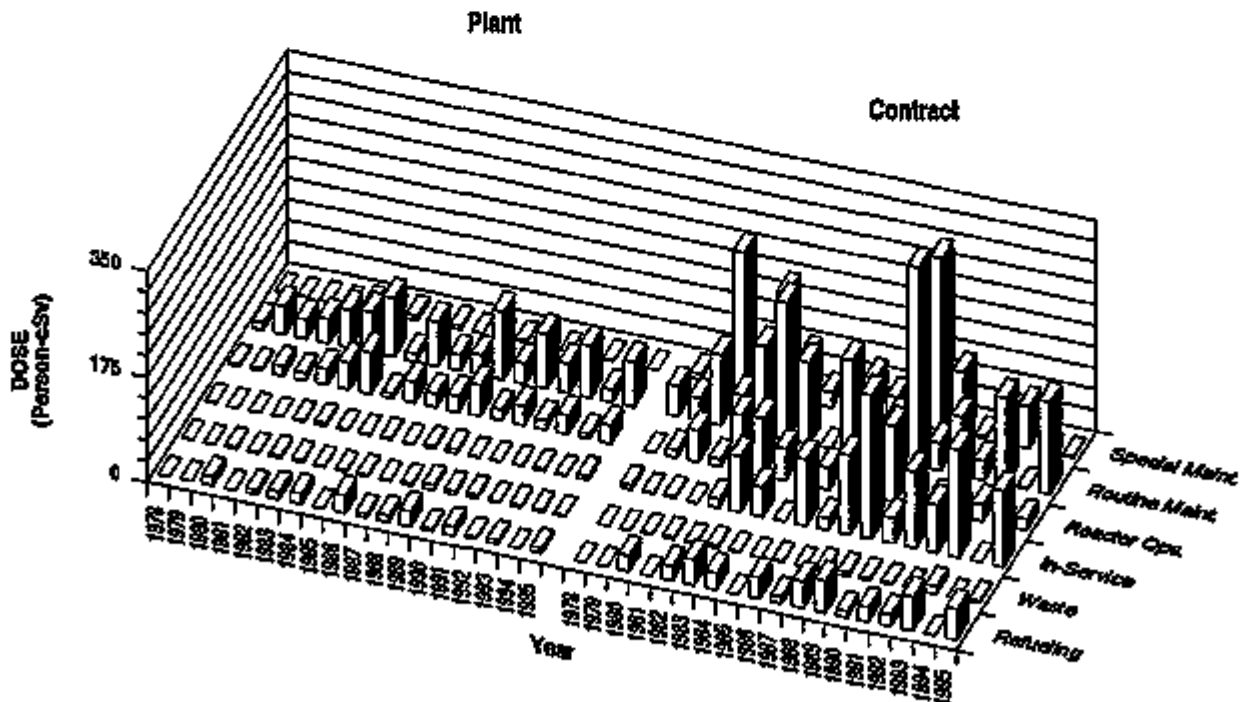
BEAVER VALLEY 1, 2

Dose-Performance Indicators

PWR



Breakdown by Job Function

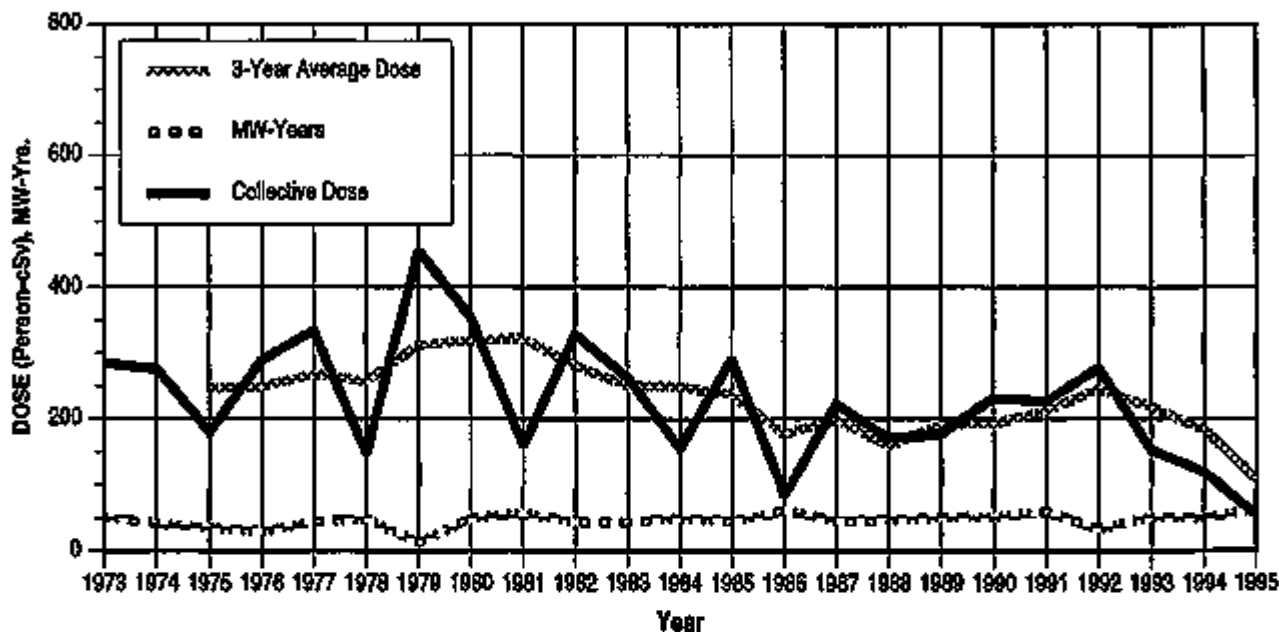


APPENDIX E (continued)

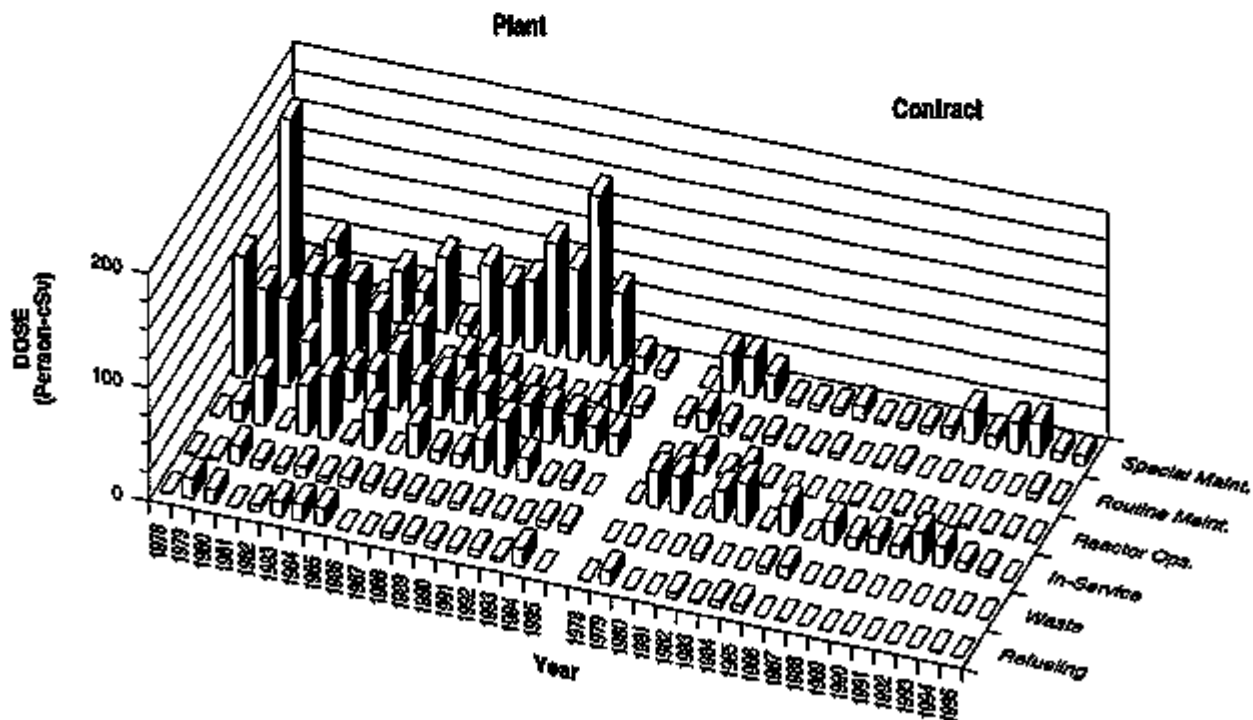
BIG ROCK POINT

Dose-Performance Indicators

BWR



Breakdown by Job Function

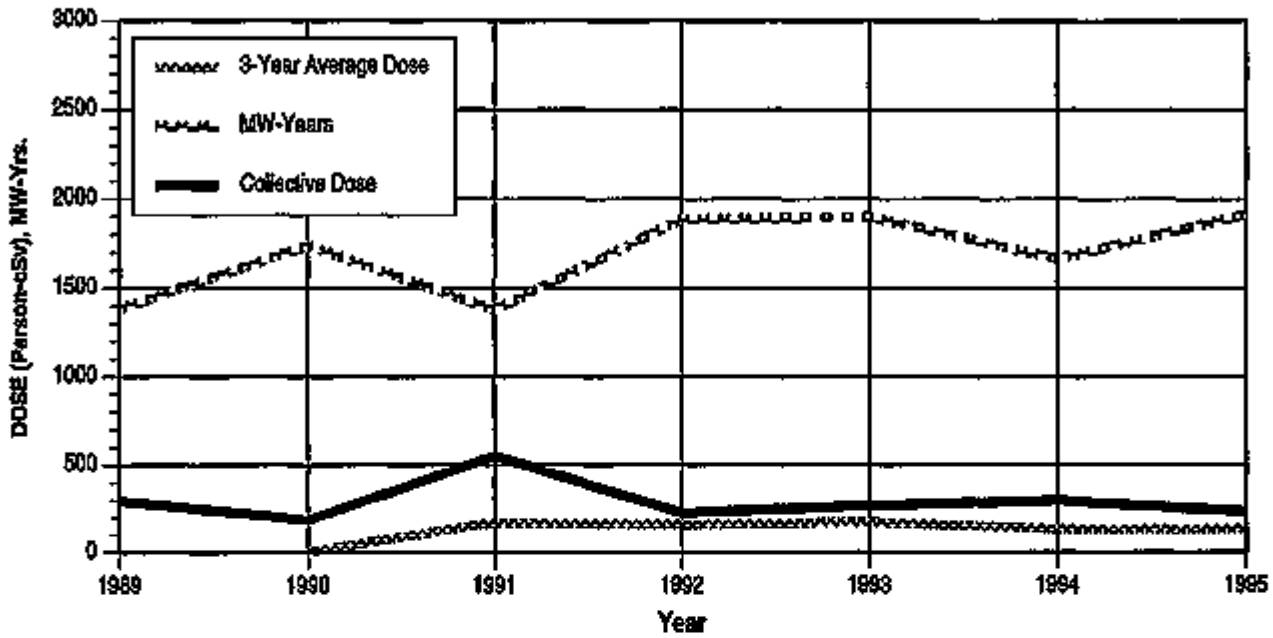


APPENDIX E (continued)

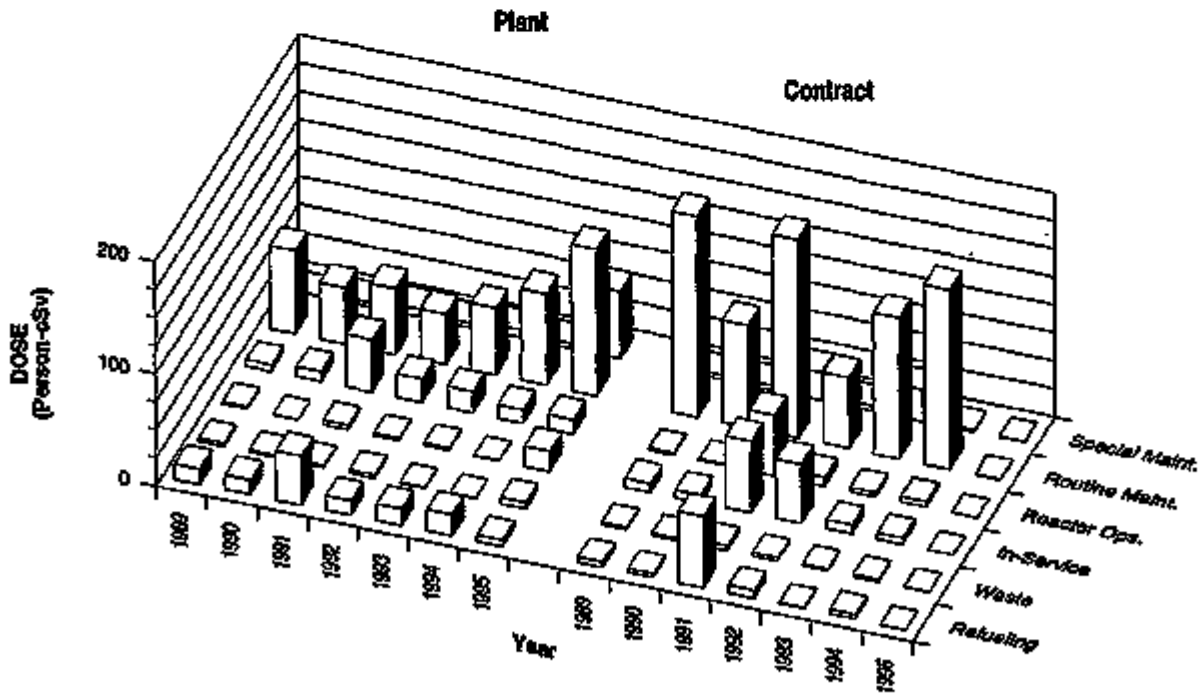
BRAIDWOOD 1, 2

Dose-Performance Indicators

PWR



Breakdown by Job Function

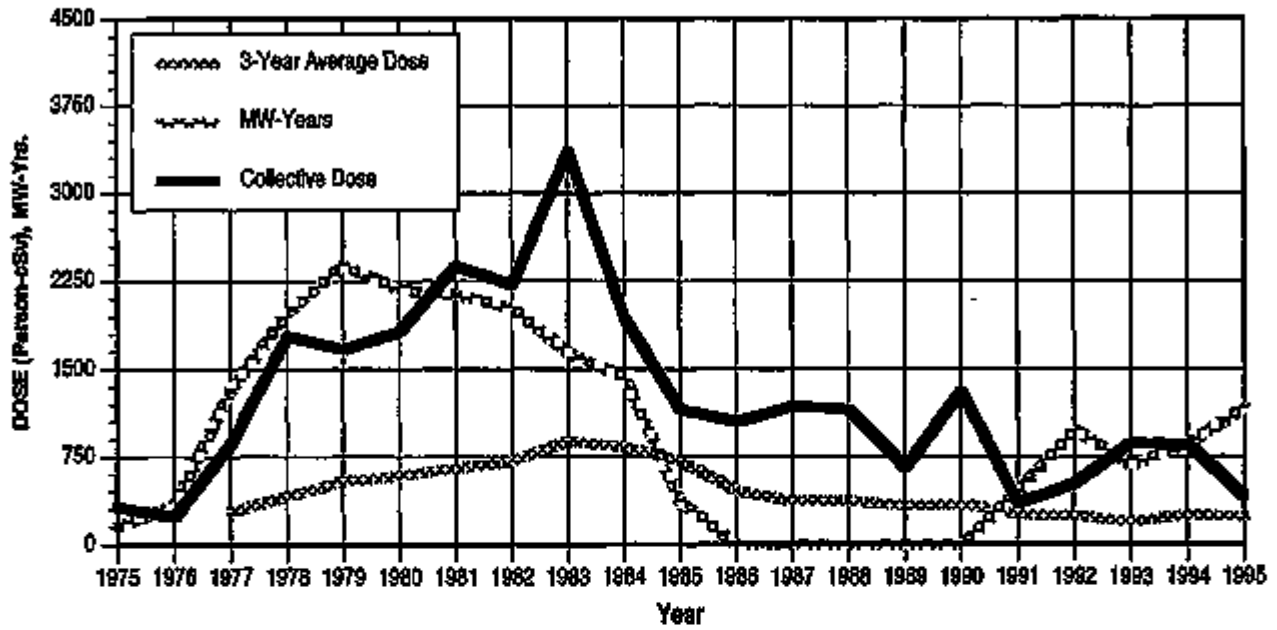


APPENDIX E (continued)

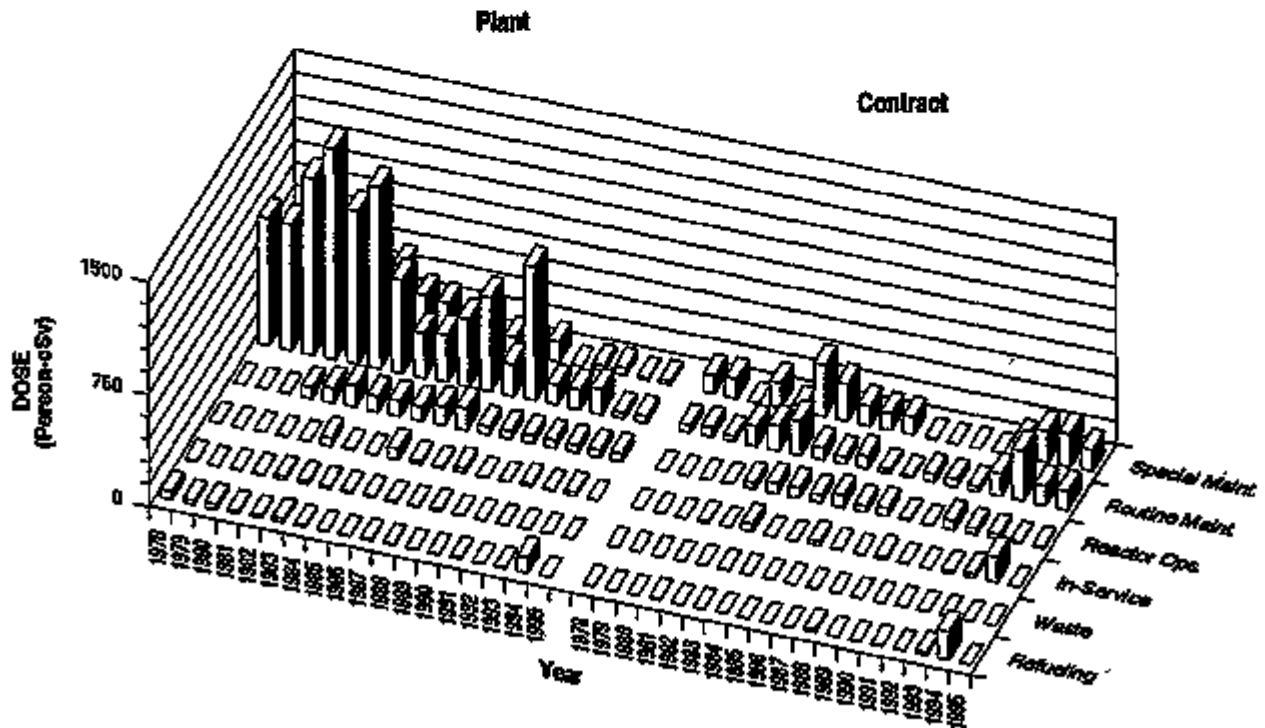
BROWNS FERRY 1, 2, 3

Dose-Performance Indicators

BWR



Breakdown by Job Function

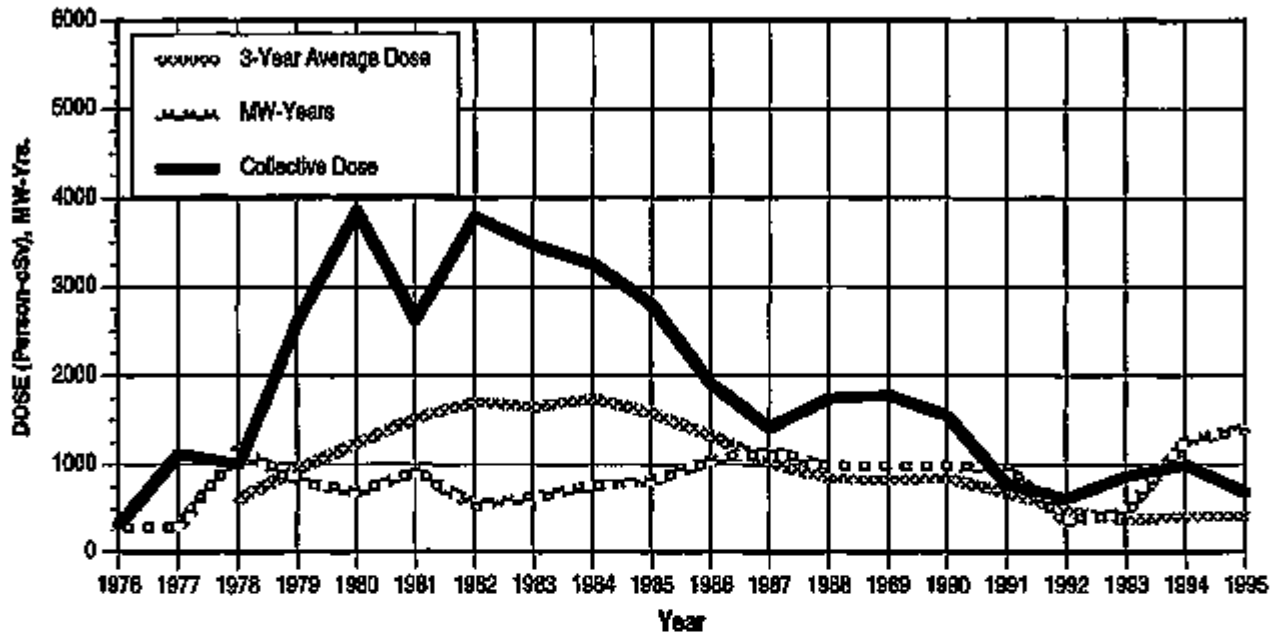


APPENDIX E (continued)

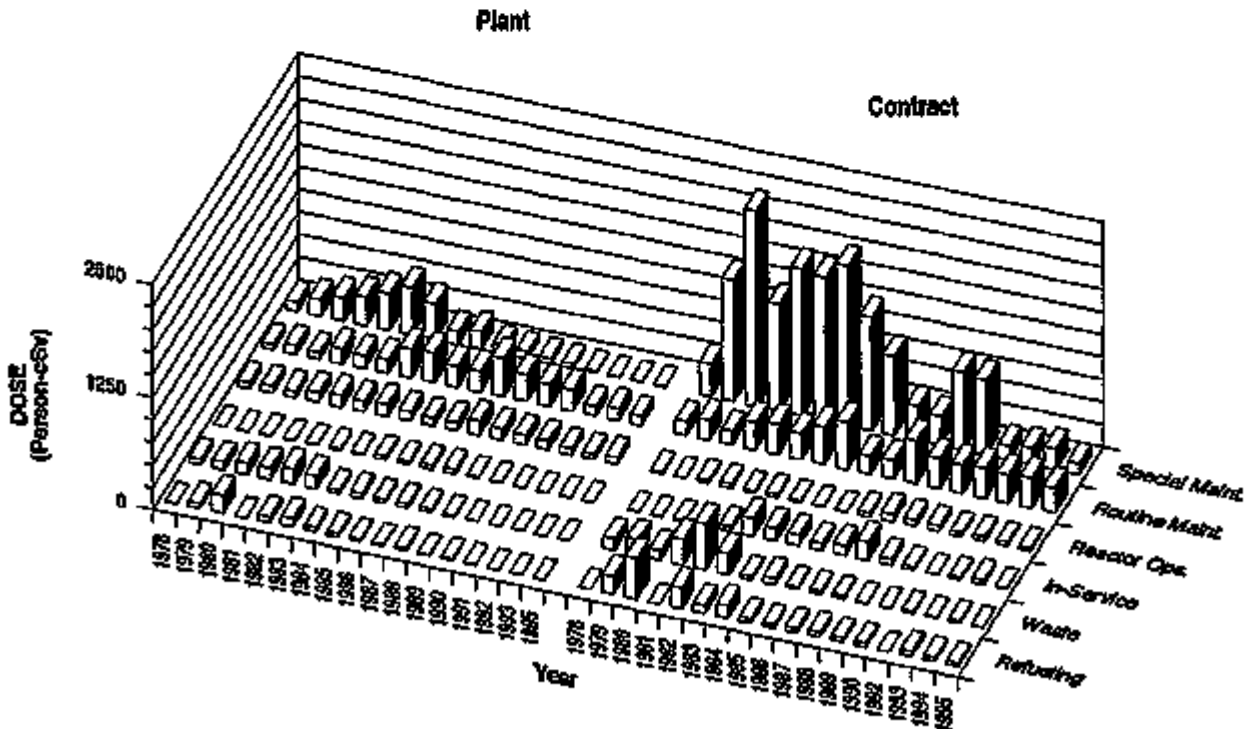
BRUNSWICK 1, 2

Dose-Performance Indicators

BWR



Breakdown by Job Function

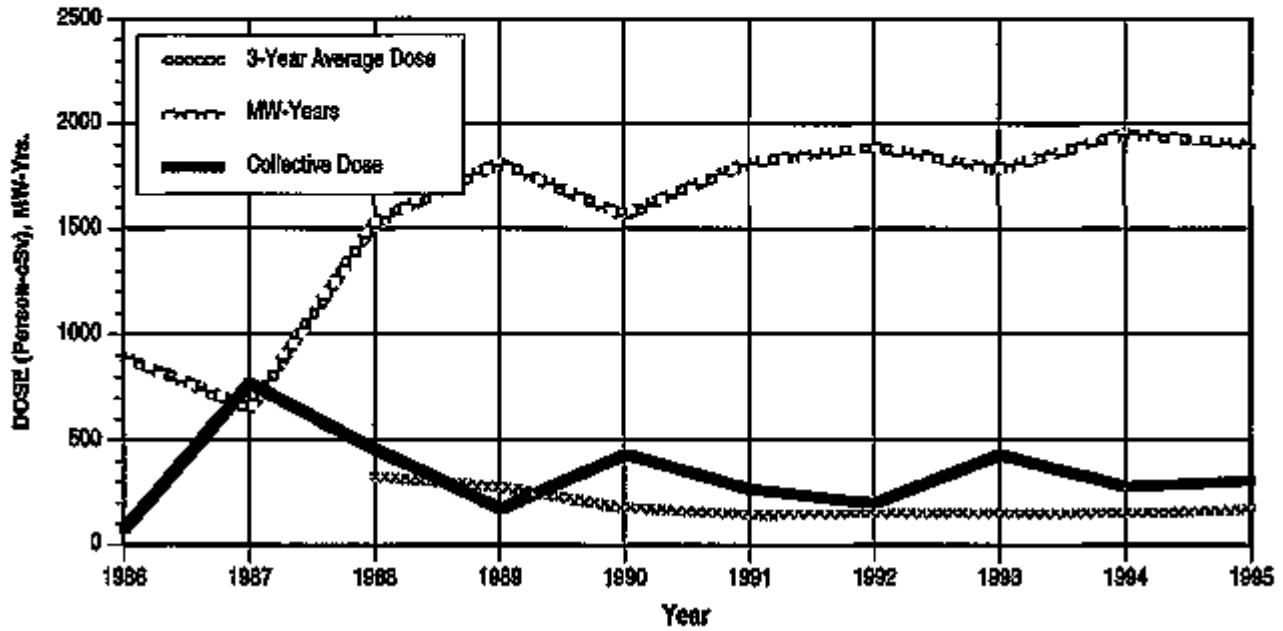


APPENDIX E (continued)

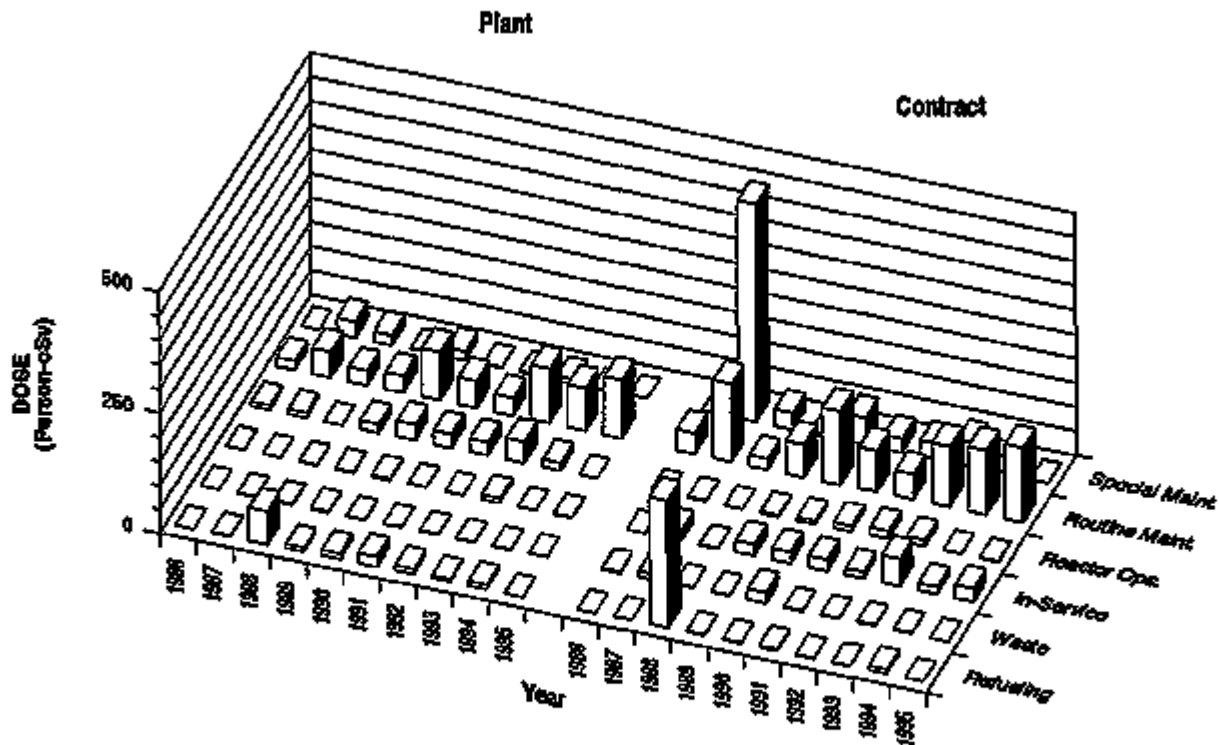
BYRON 1, 2

Dose-Performance Indicators

PWR



Breakdown by Job Function

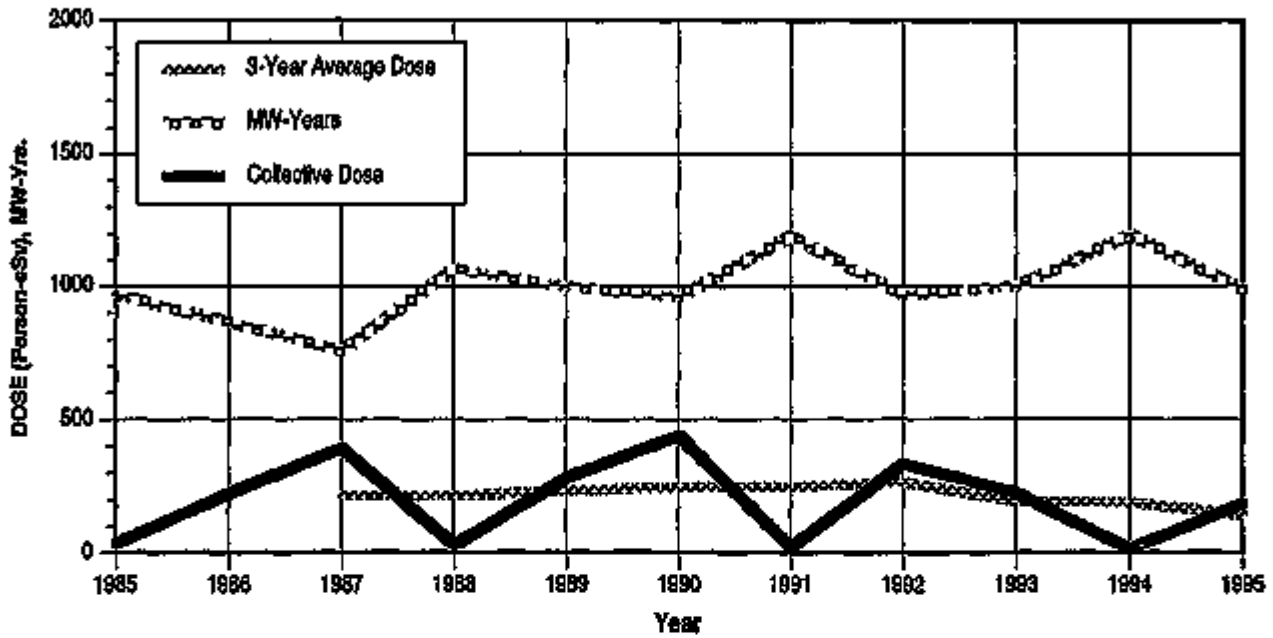


APPENDIX E (continued)

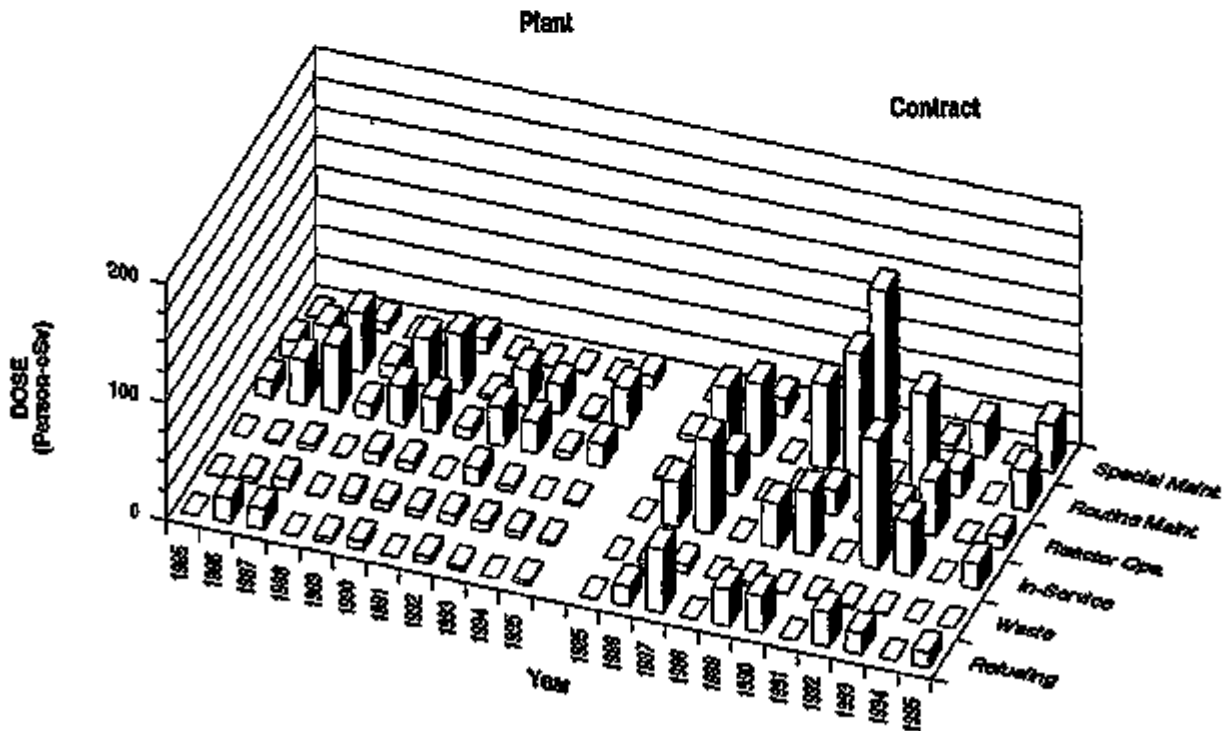
CALLAWAY 1

Dose-Performance Indicators

PWR



Breakdown by Job Function

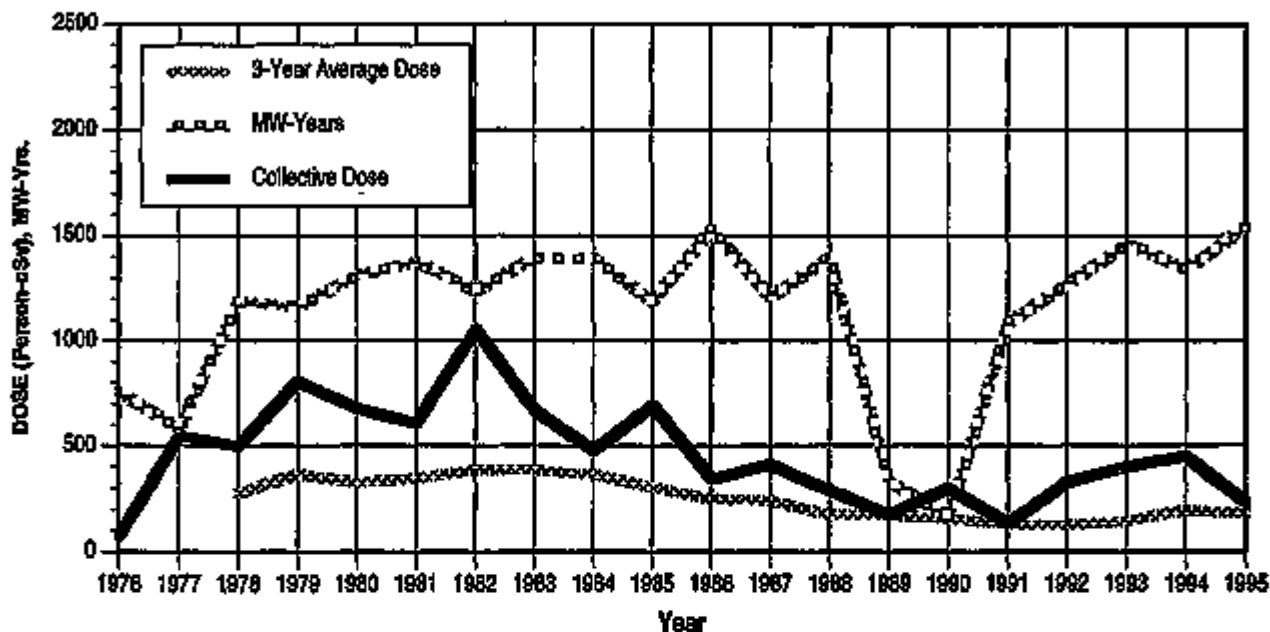


APPENDIX E (continued)

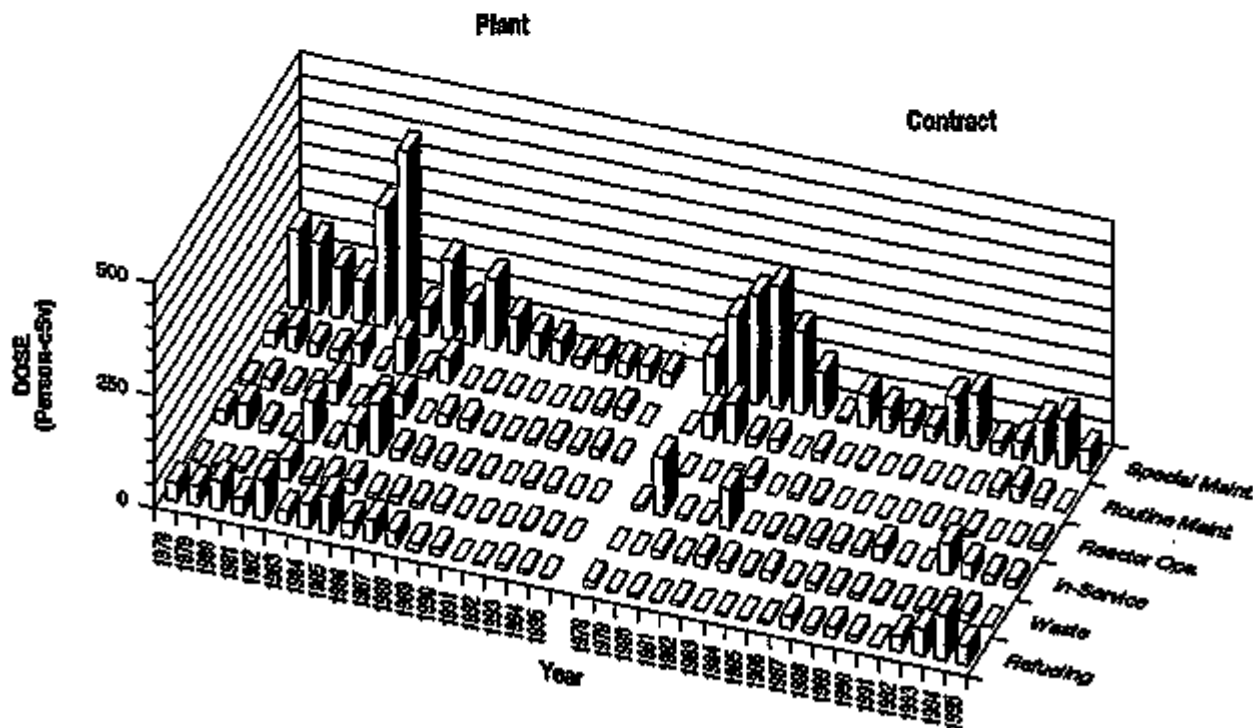
CALVERT CLIFFS 1, 2

Dose-Performance Indicators

PWR



Breakdown by Job Function

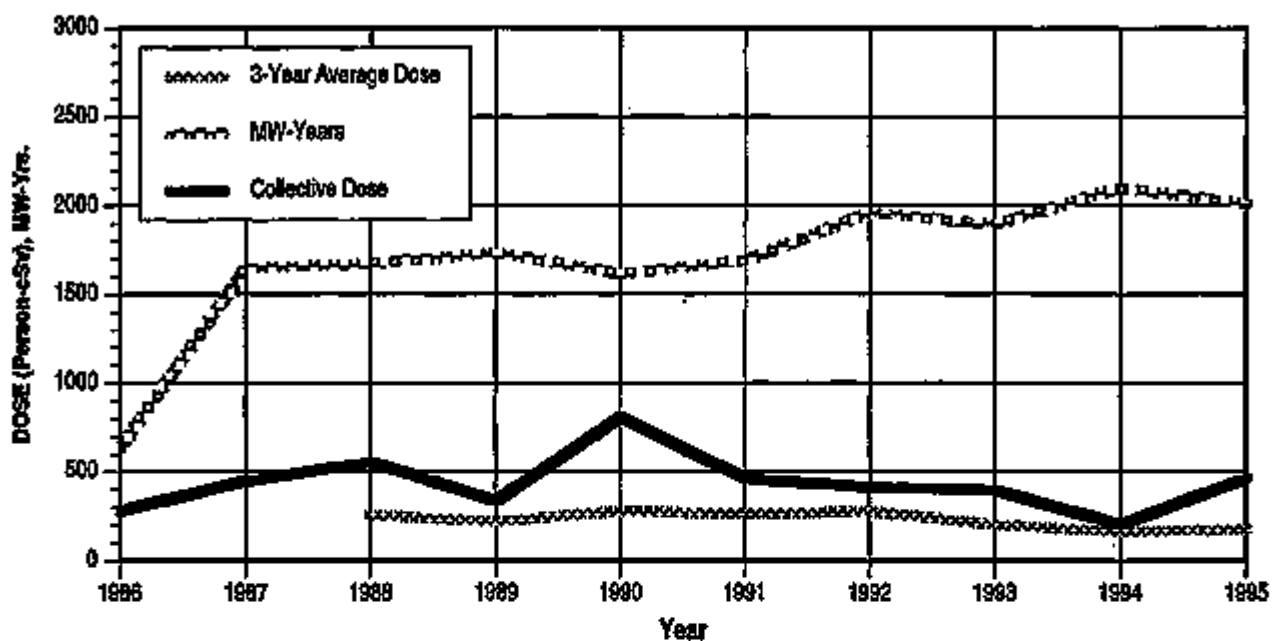


APPENDIX E (continued)

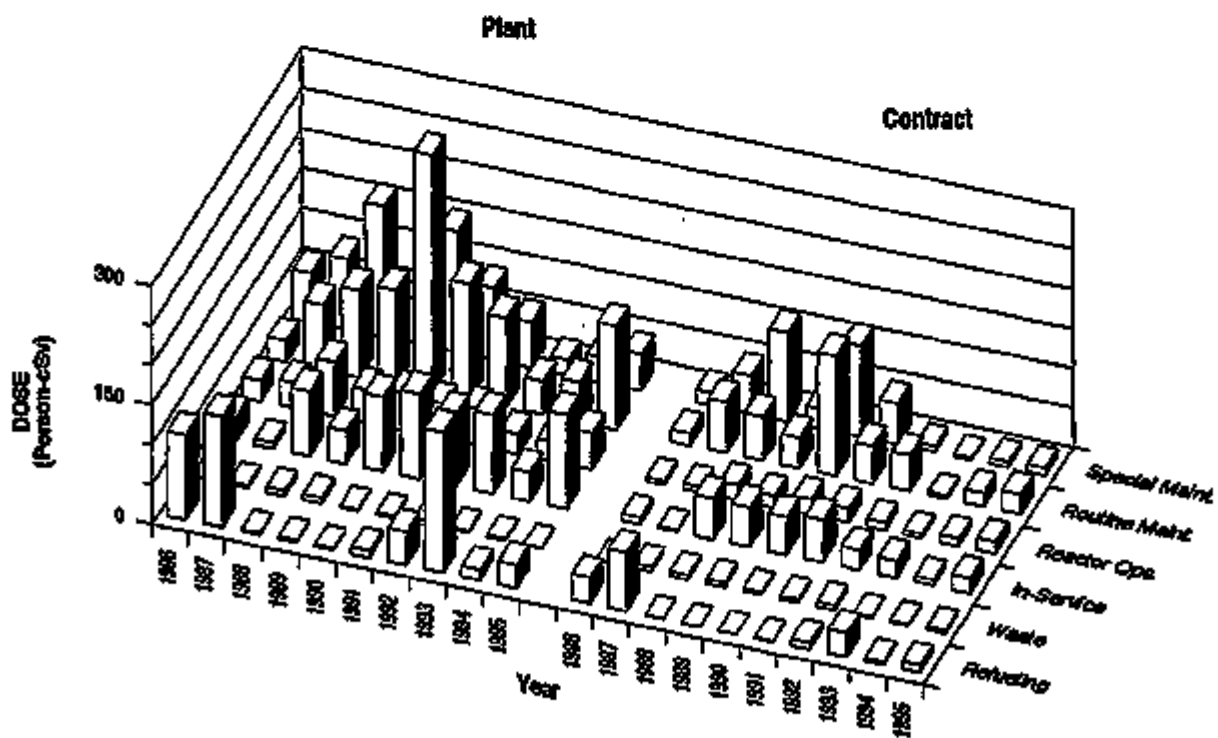
CATAWBA 1, 2

Dose-Performance Indicators

PWR



Breakdown by Job Function

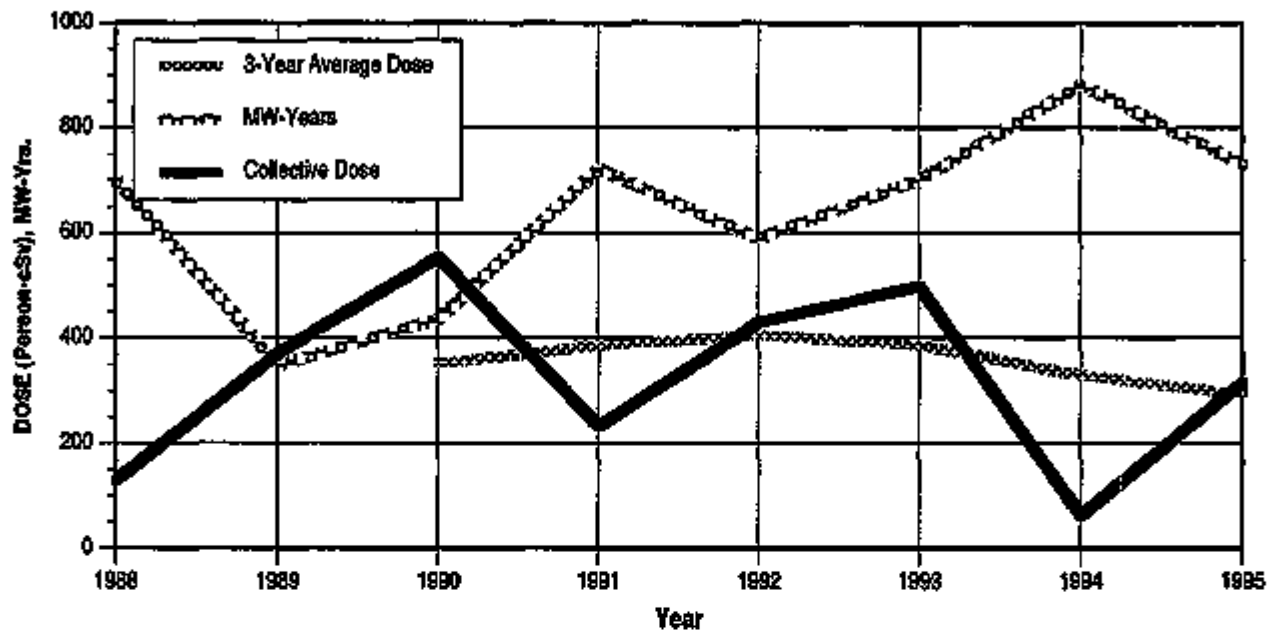


APPENDIX E (continued)

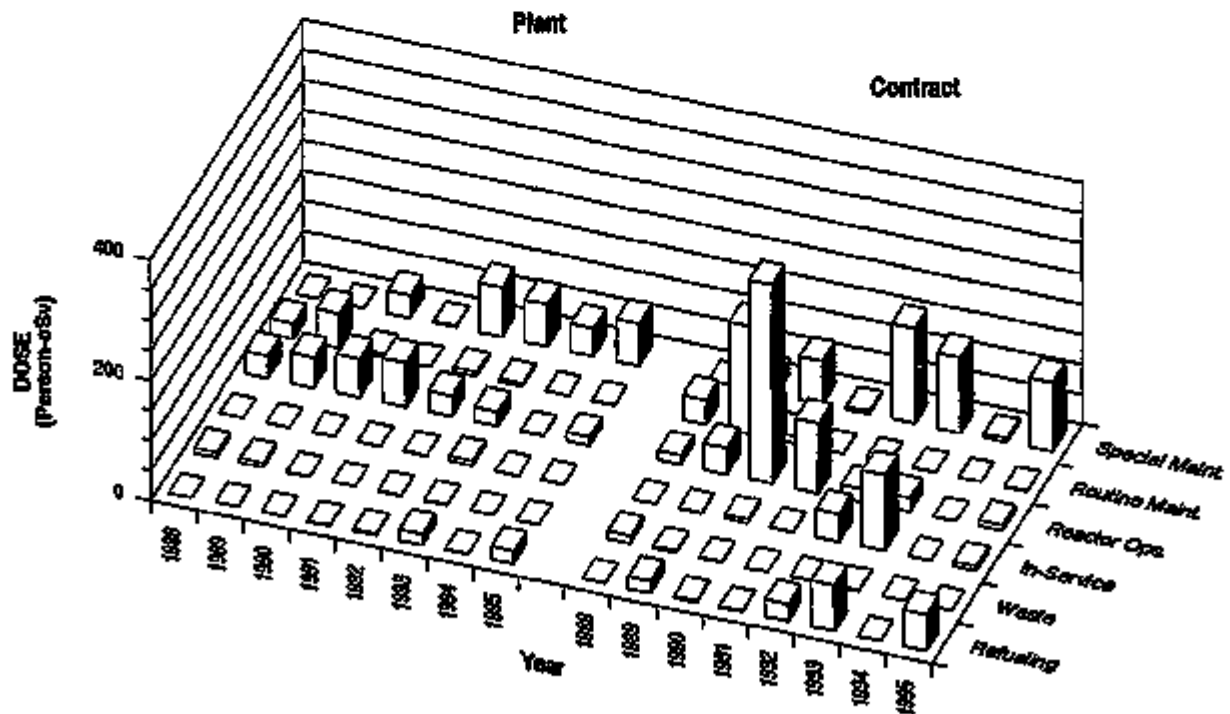
CLINTON

Dose-Performance Indicators

BWR



Breakdown by Job Function

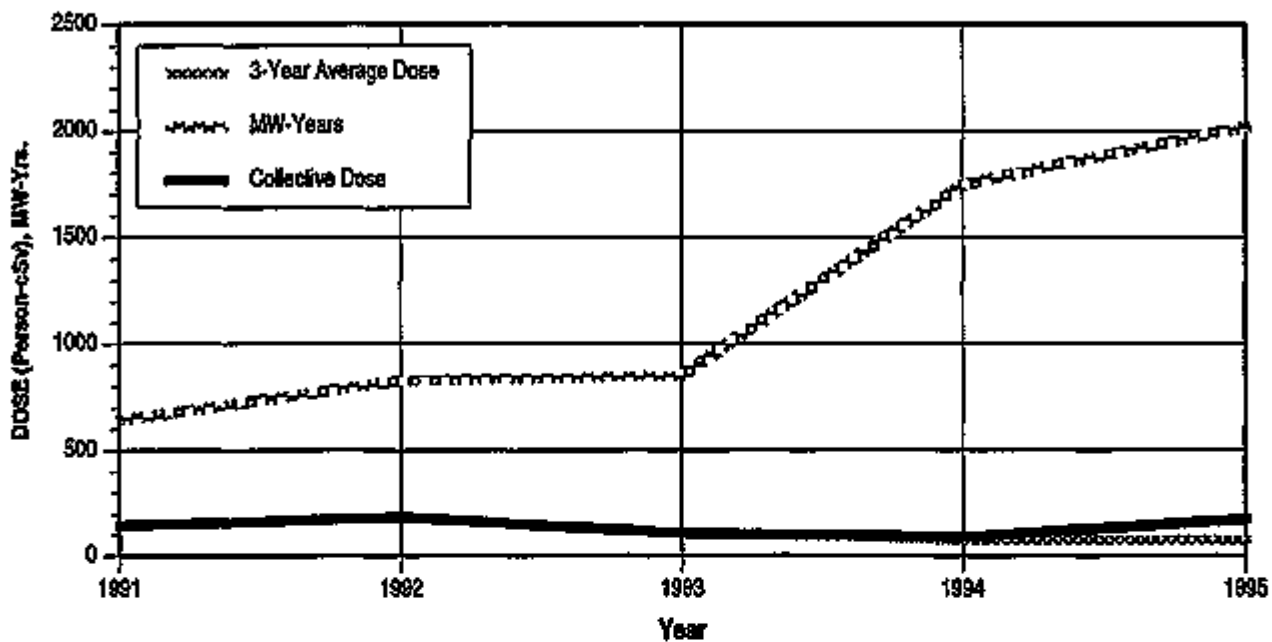


APPENDIX E (continued)

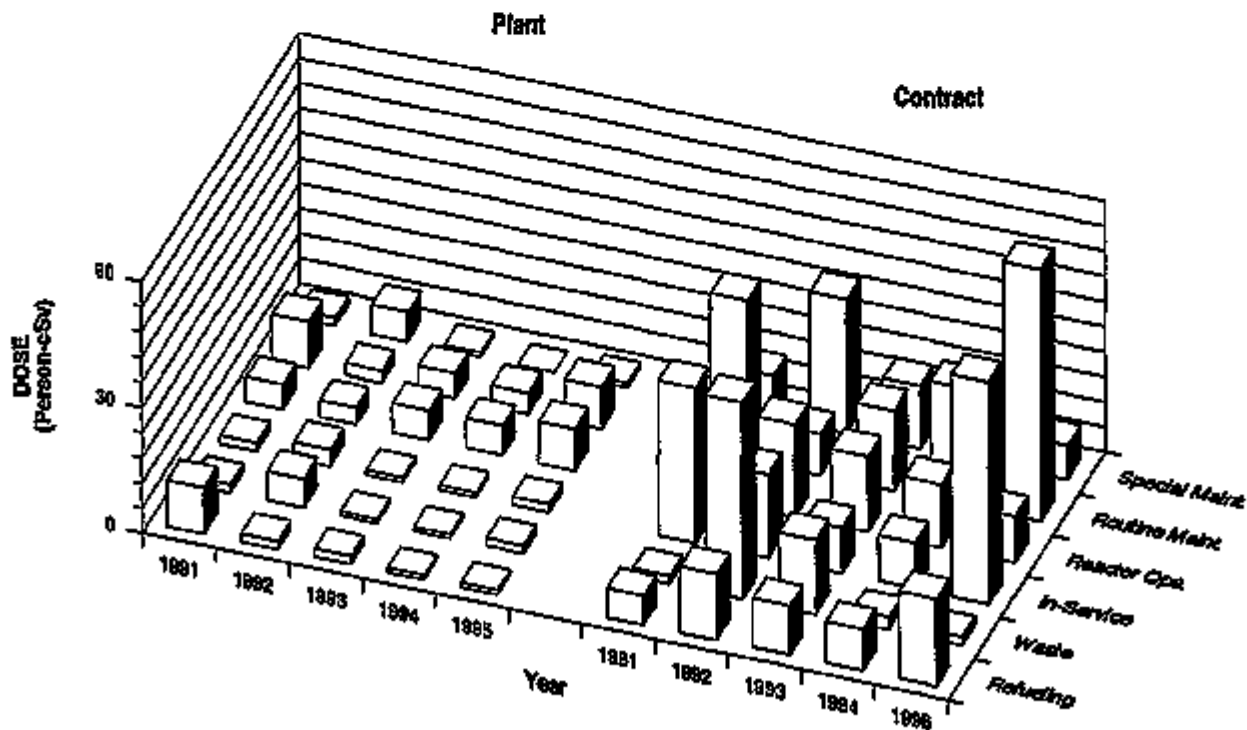
COMANCHE PEAK 1, 2

Dose-Performance Indicators

PWR



Breakdown by Job Function

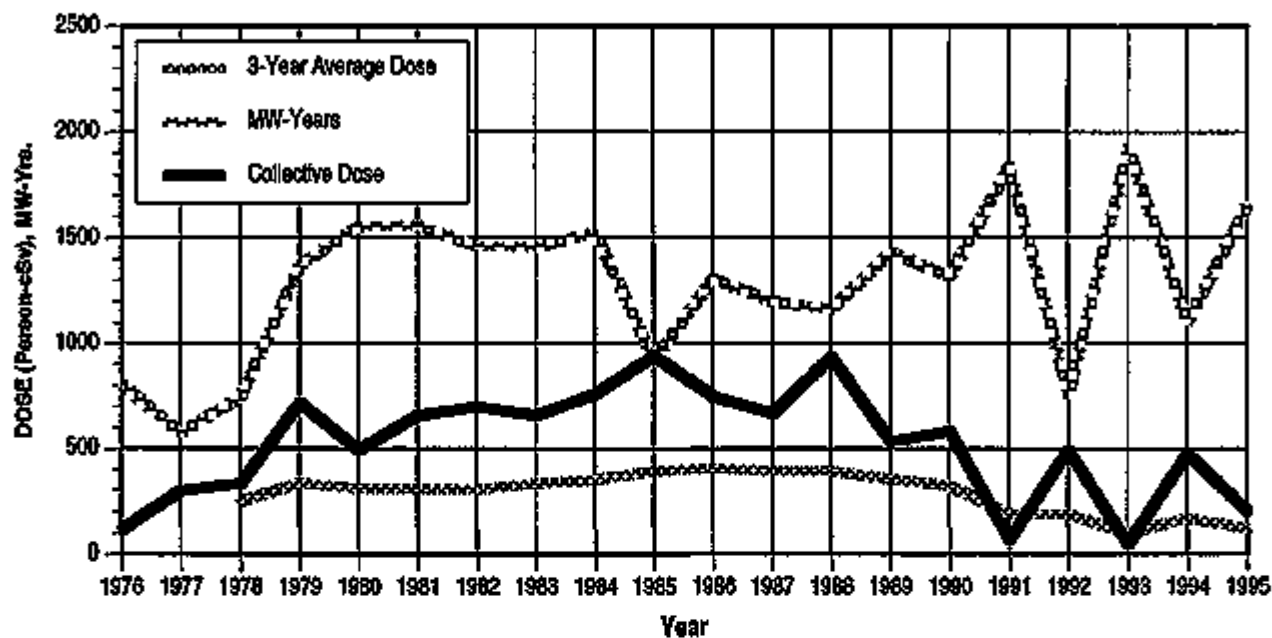


APPENDIX E (continued)

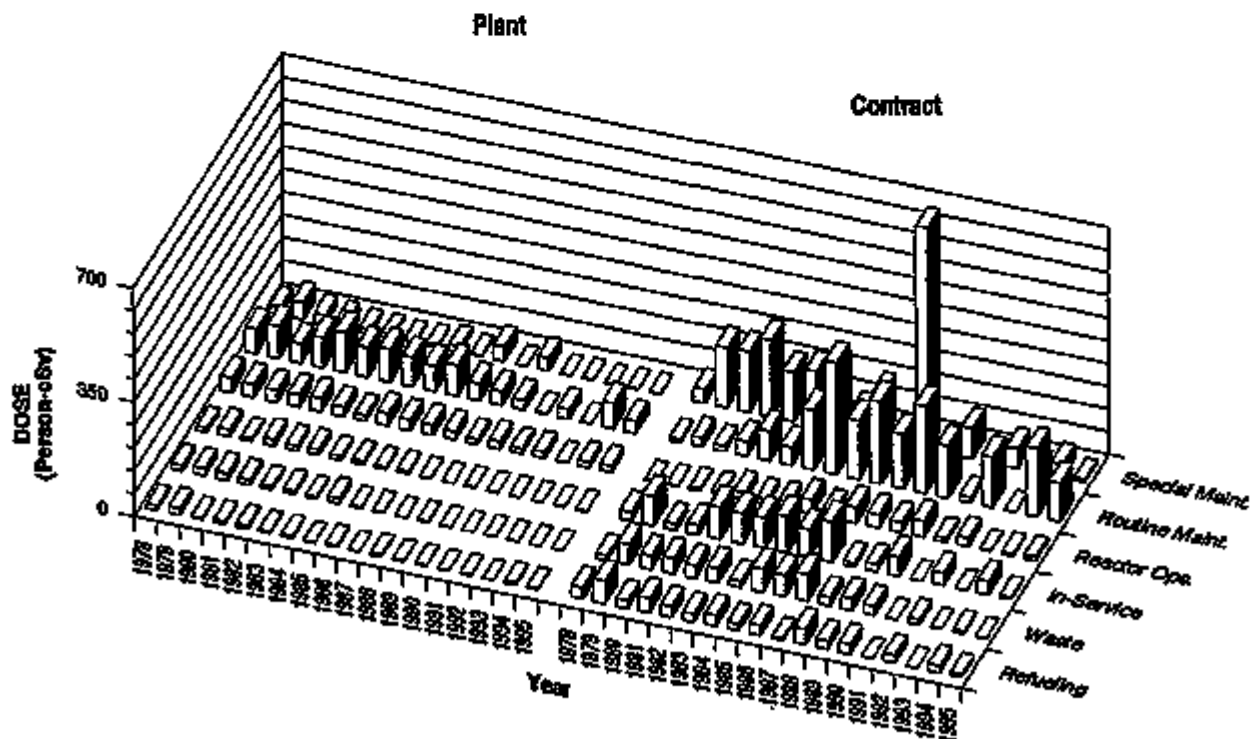
COOK 1, 2

Dose-Performance Indicators

PWR



Breakdown by Job Function

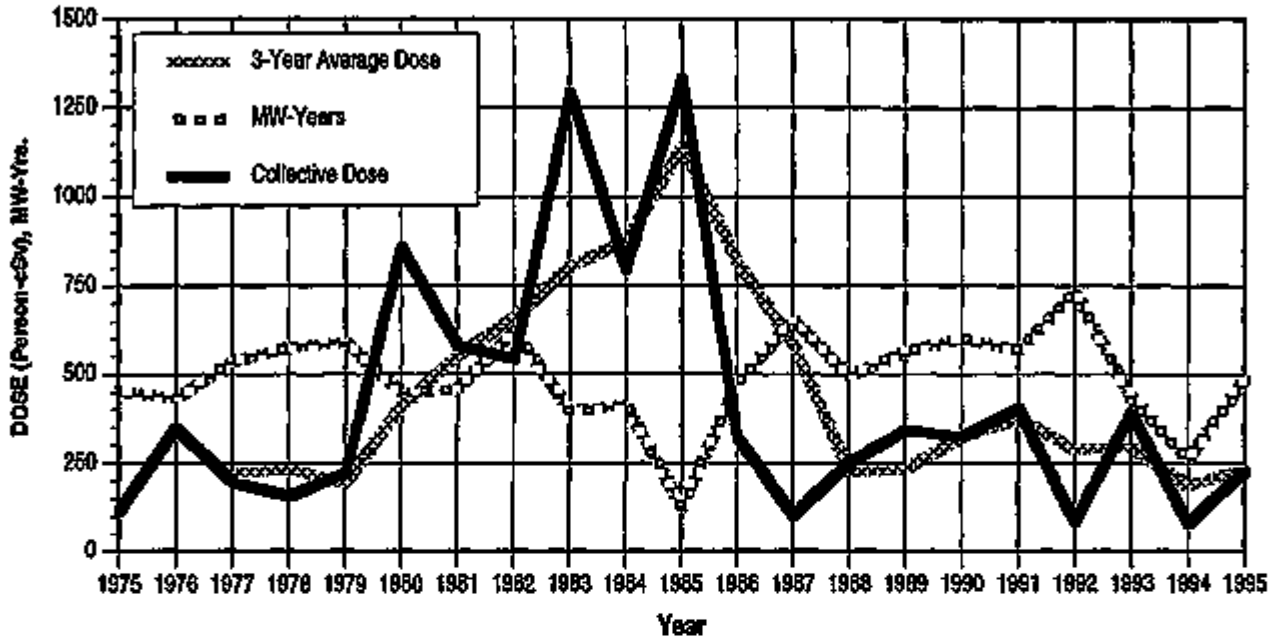


APPENDIX E (continued)

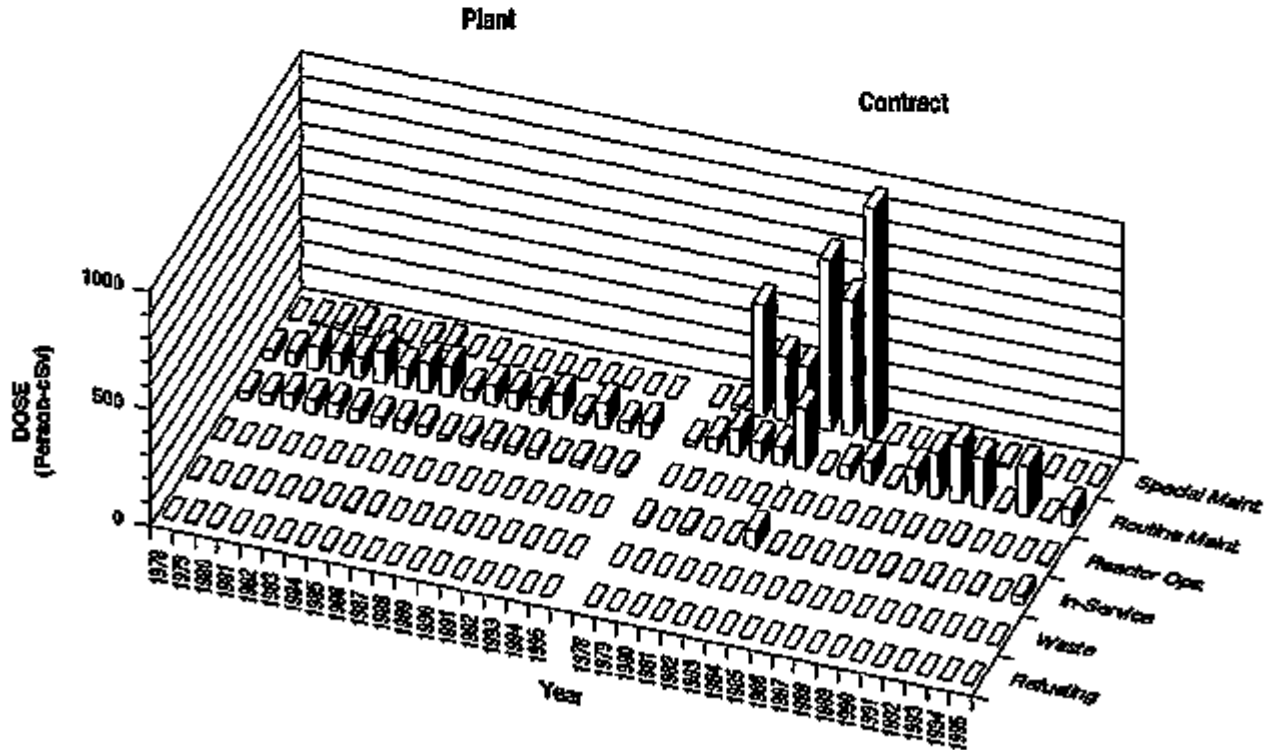
COOPER STATION

Dose-Performance Indicators

BWR



Breakdown by Job Function

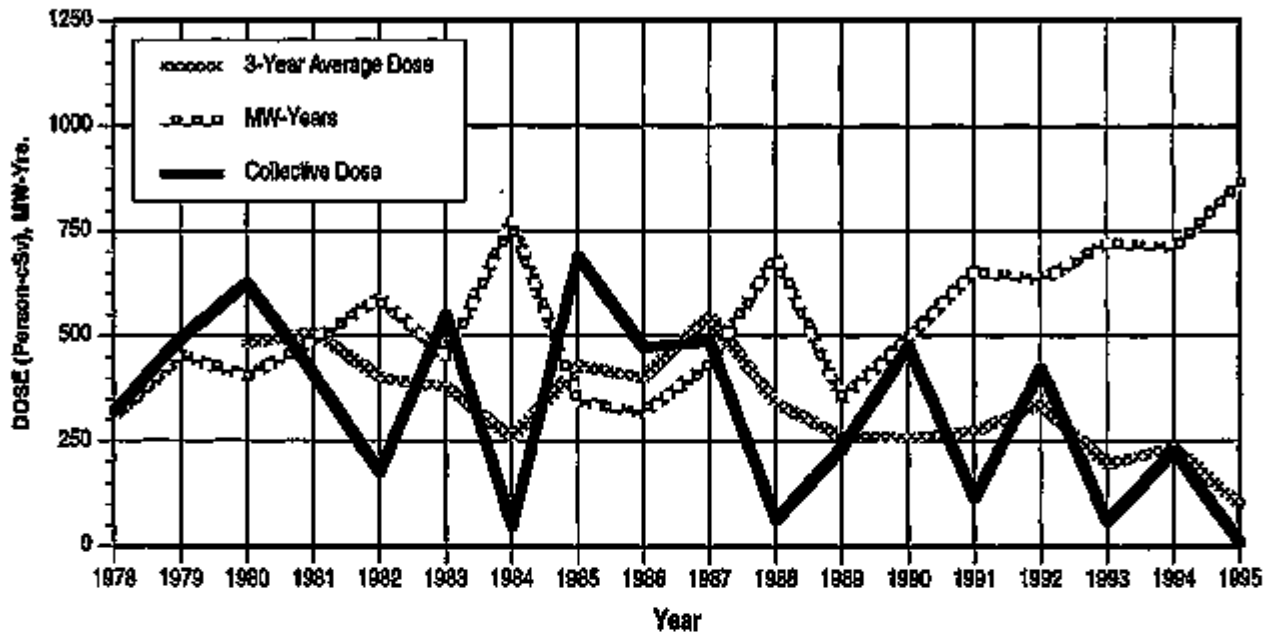


APPENDIX E (continued)

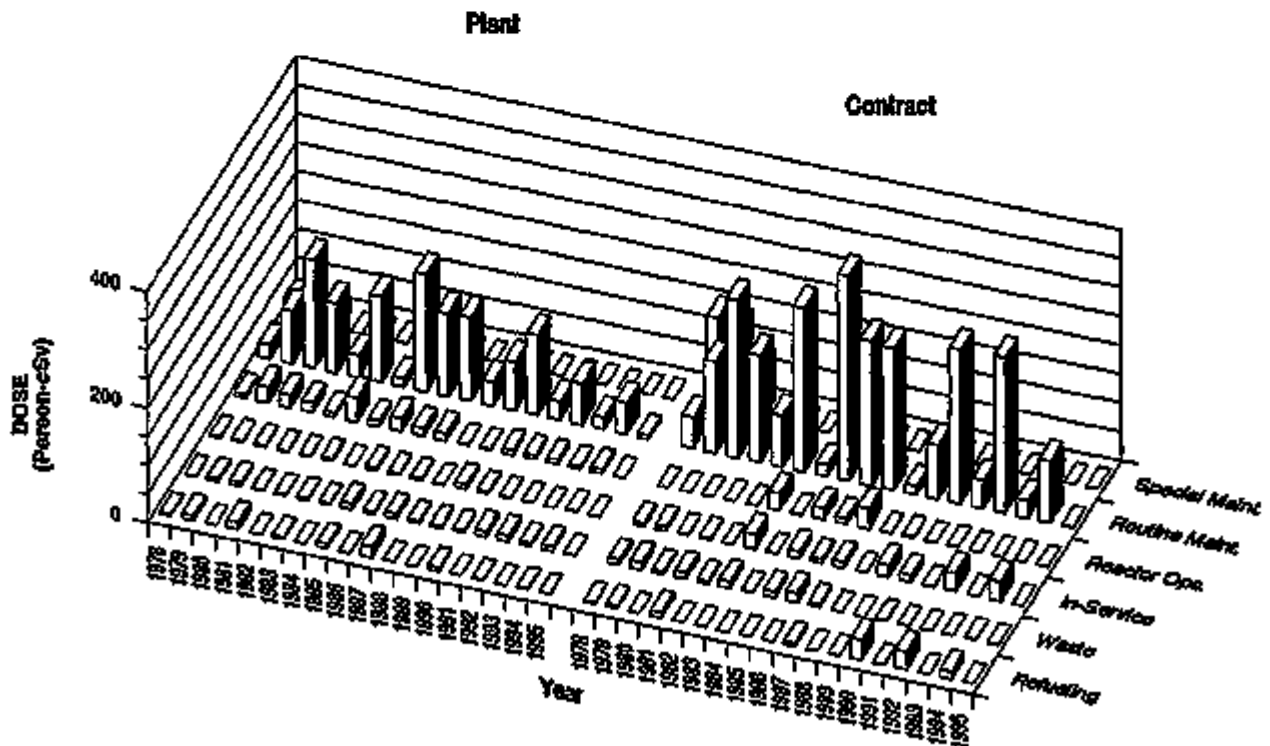
CRYSTAL RIVER 3

Dose-Performance Indicators

PWR



Breakdown by Job Function

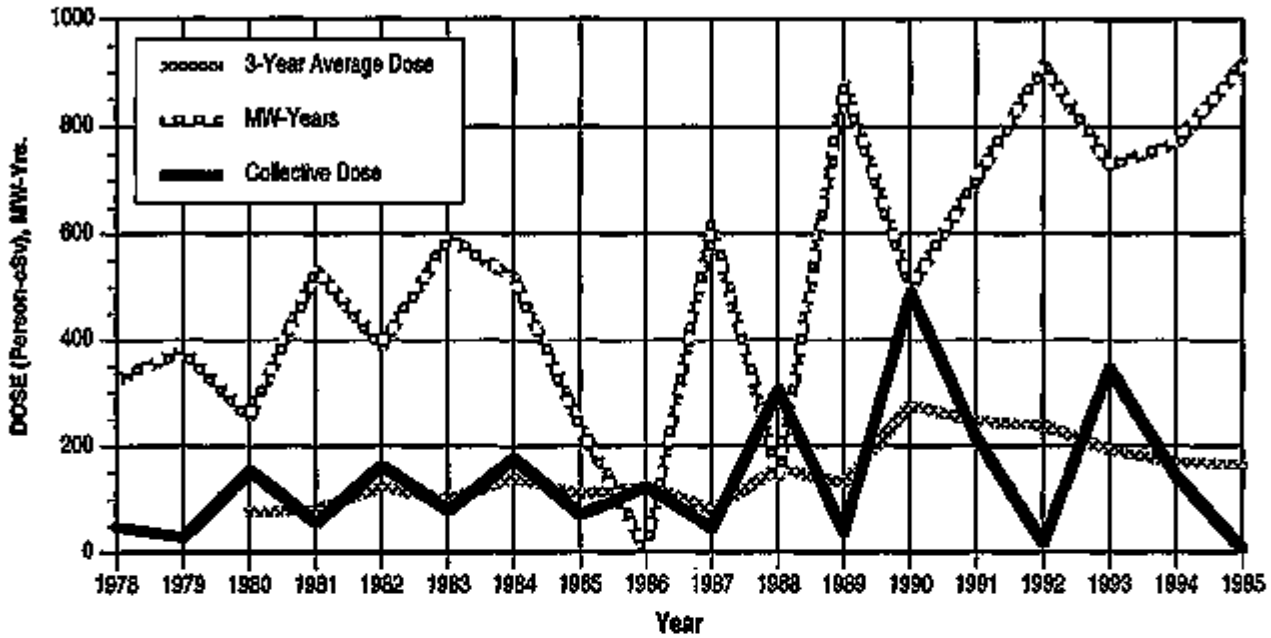


APPENDIX E (continued)

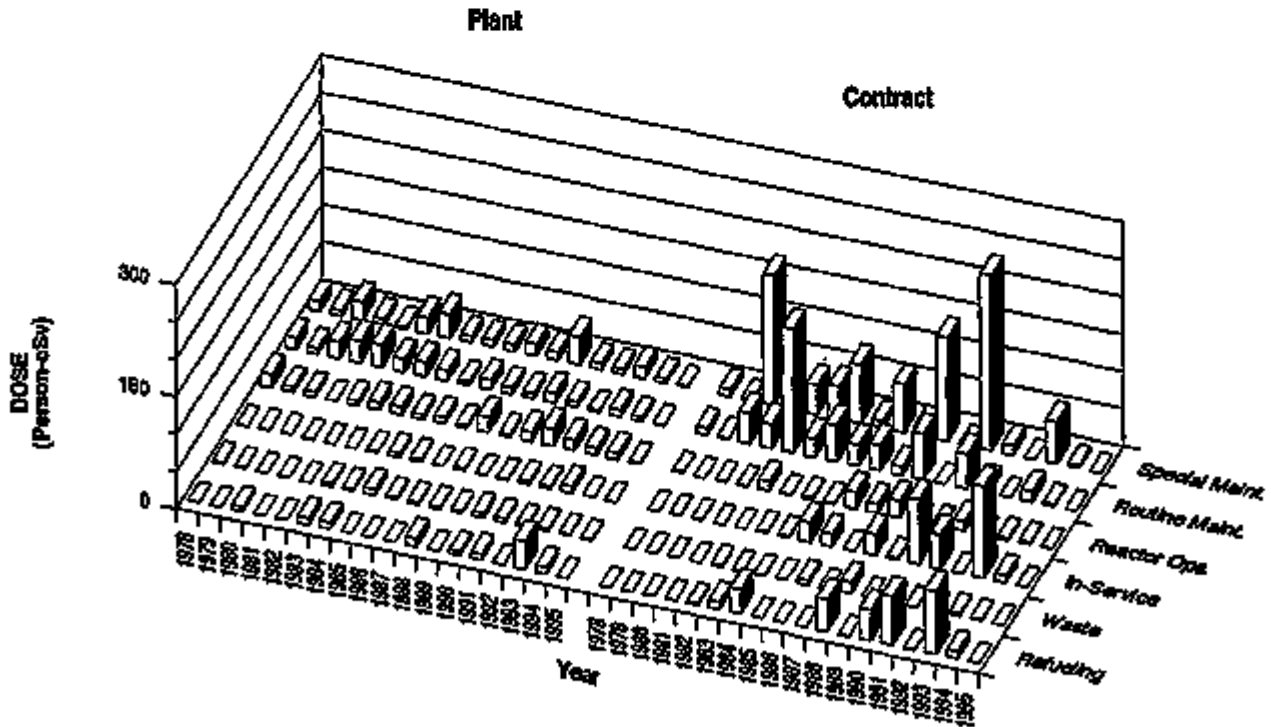
DAVIS-BESSE

Dose-Performance Indicators

PWR



Breakdown by Job Function

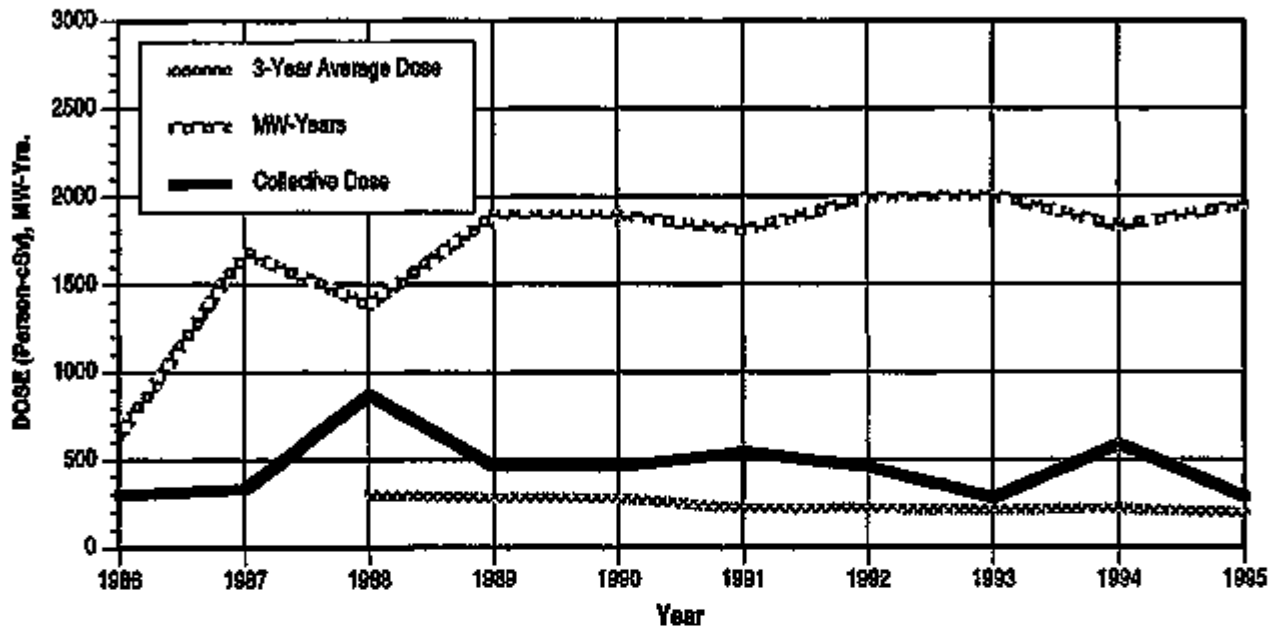


APPENDIX E (continued)

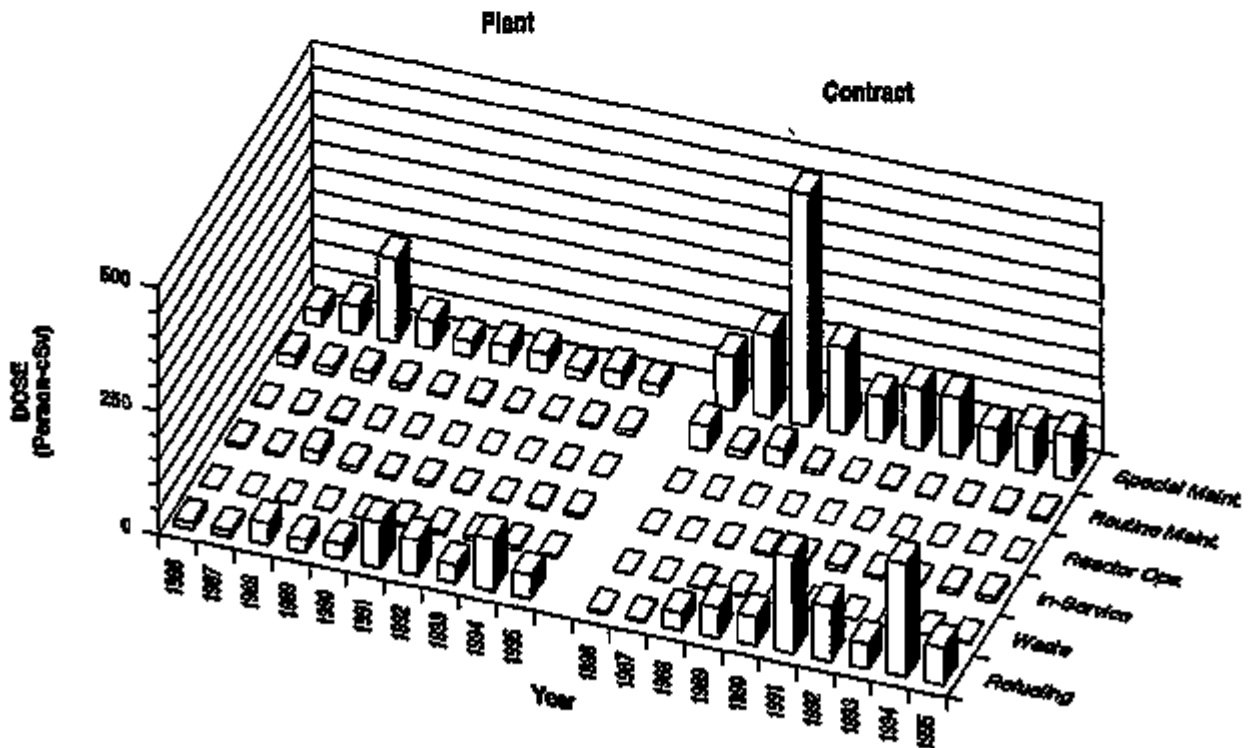
DIABLO CANYON 1, 2

Dose-Performance Indicators

PWR



Breakdown by Job Function

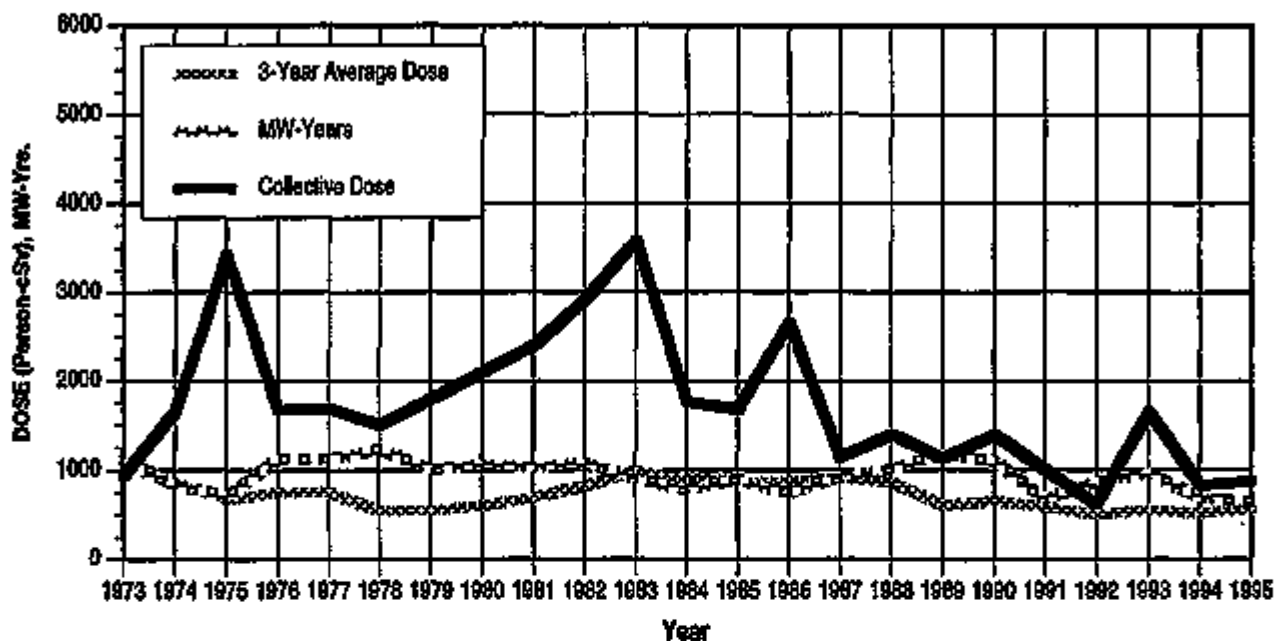


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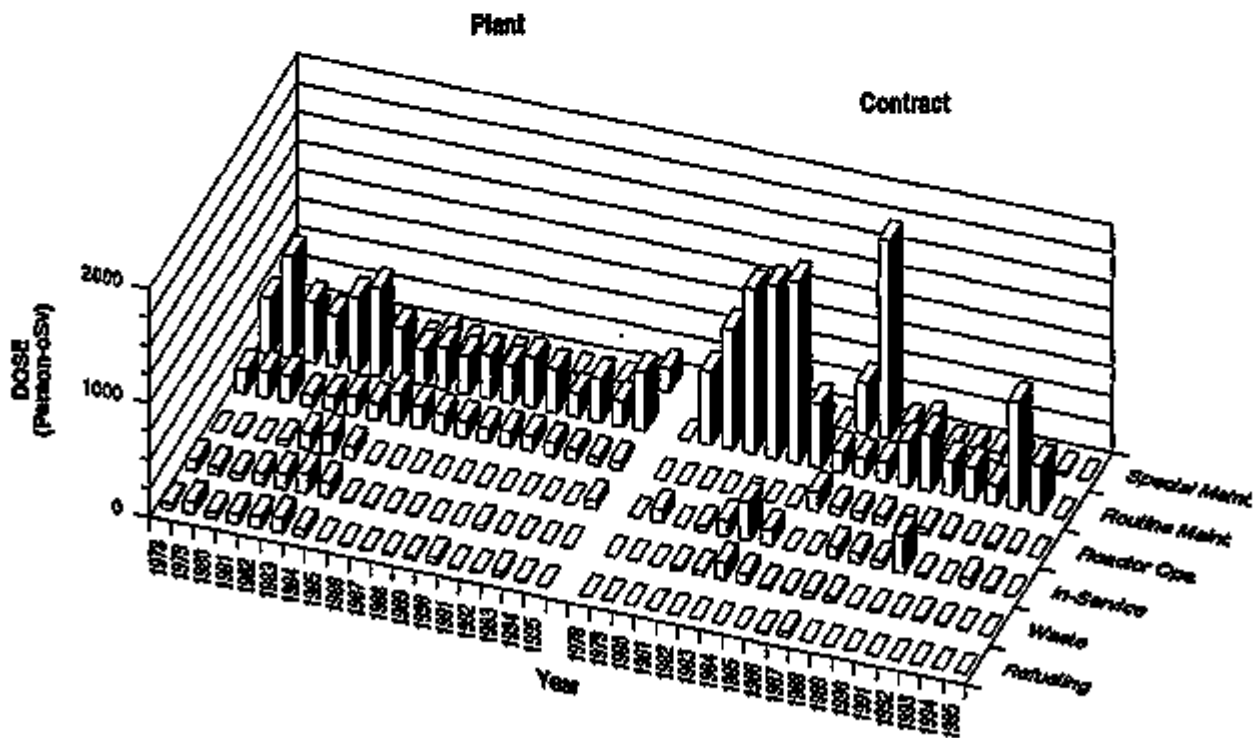
DRESDEN 2, 3

Dose-Performance Indicators

BWR



Breakdown by Job Function

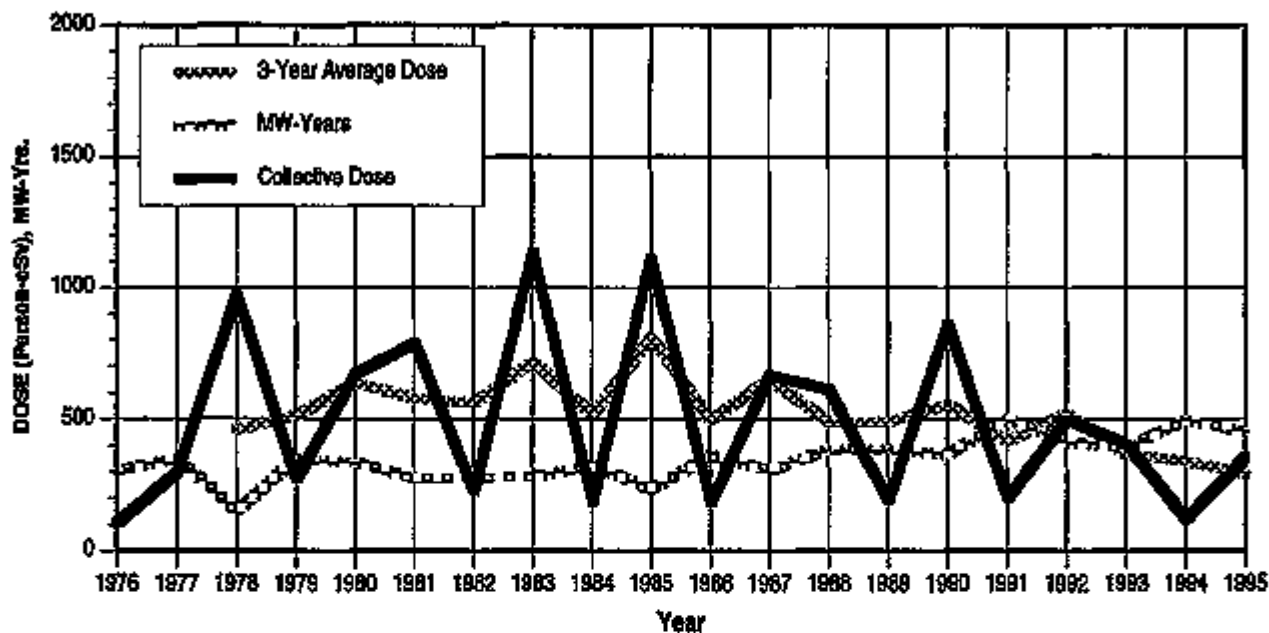


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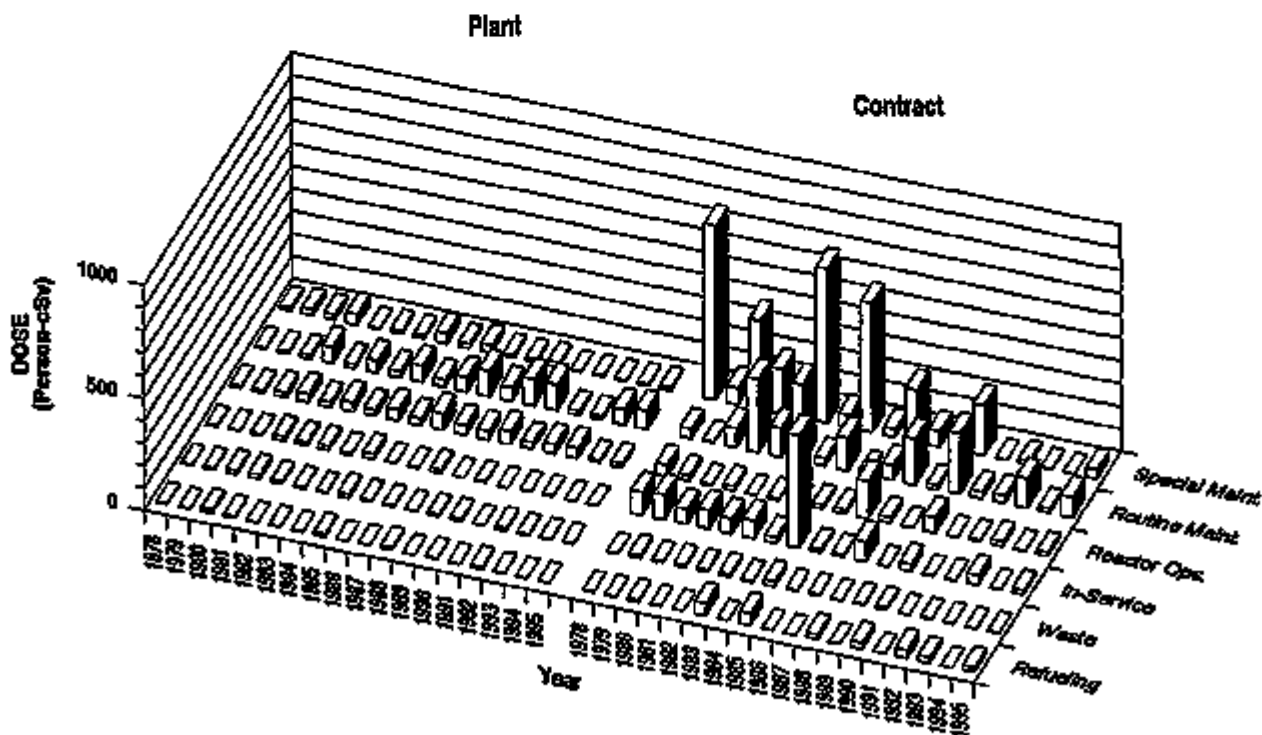
DUANE ARNOLD

Dose-Performance Indicators

BWR



Breakdown by Job Function

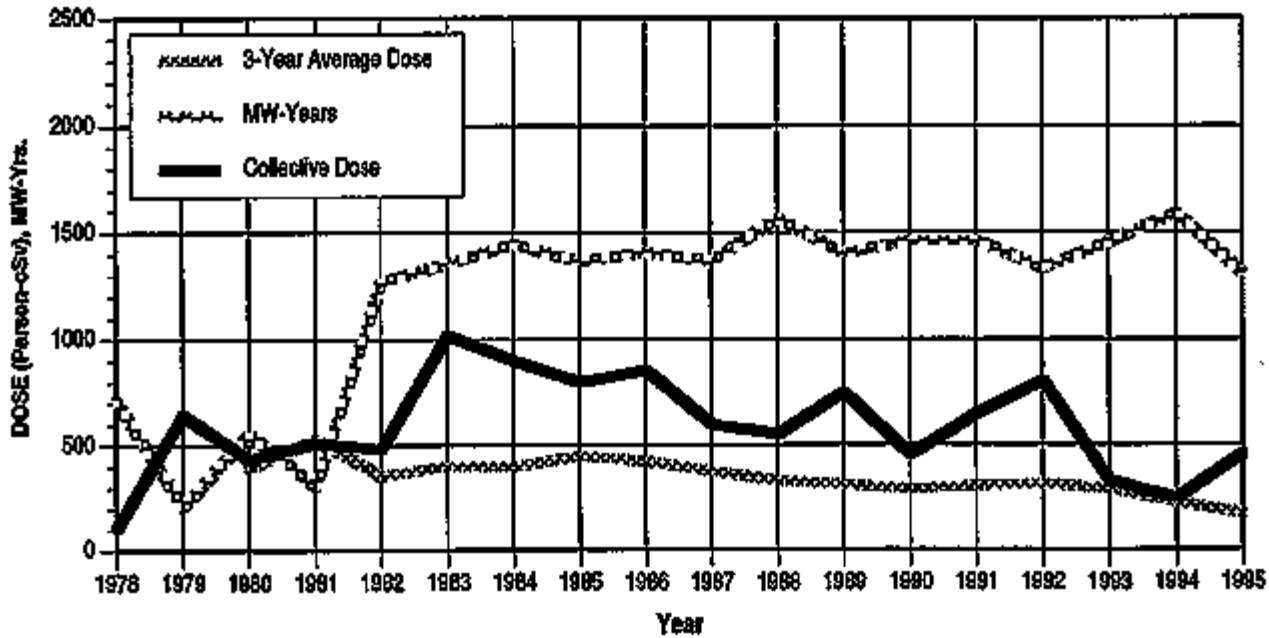


APPENDIX E (continued)

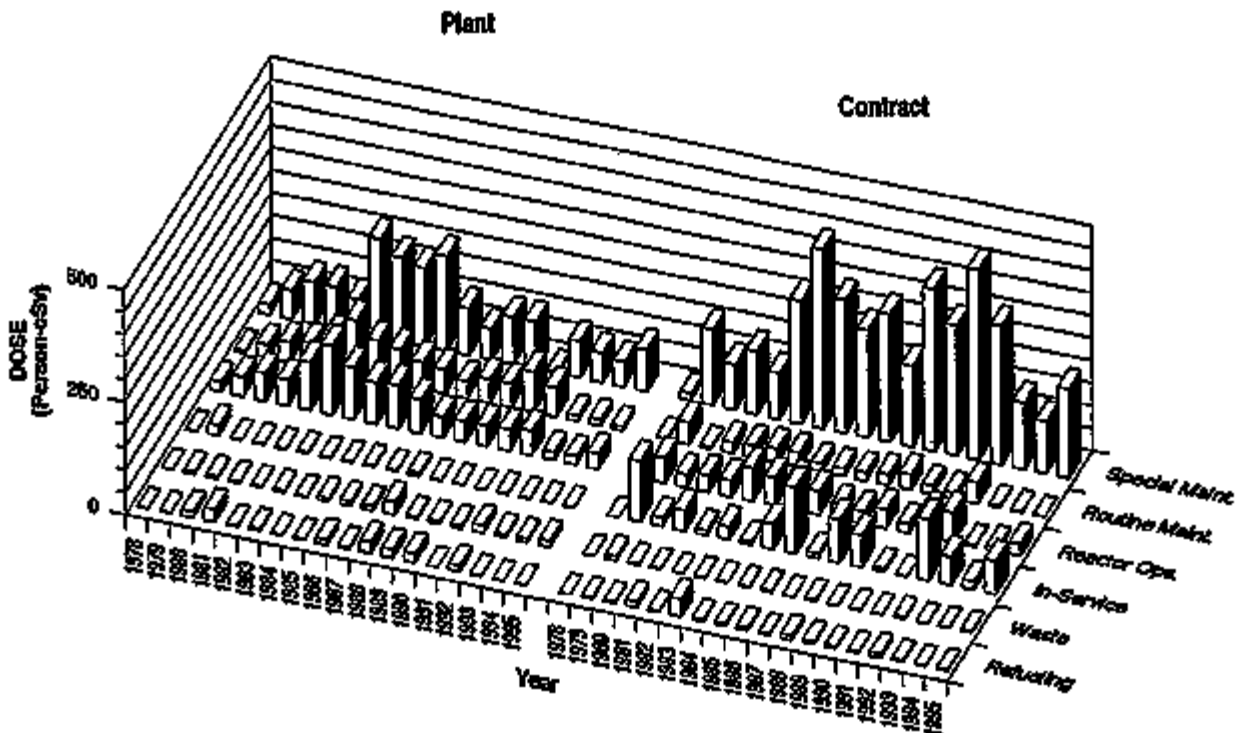
FARLEY 1, 2

Dose-Performance Indicators

PWR



Breakdown by Job Function

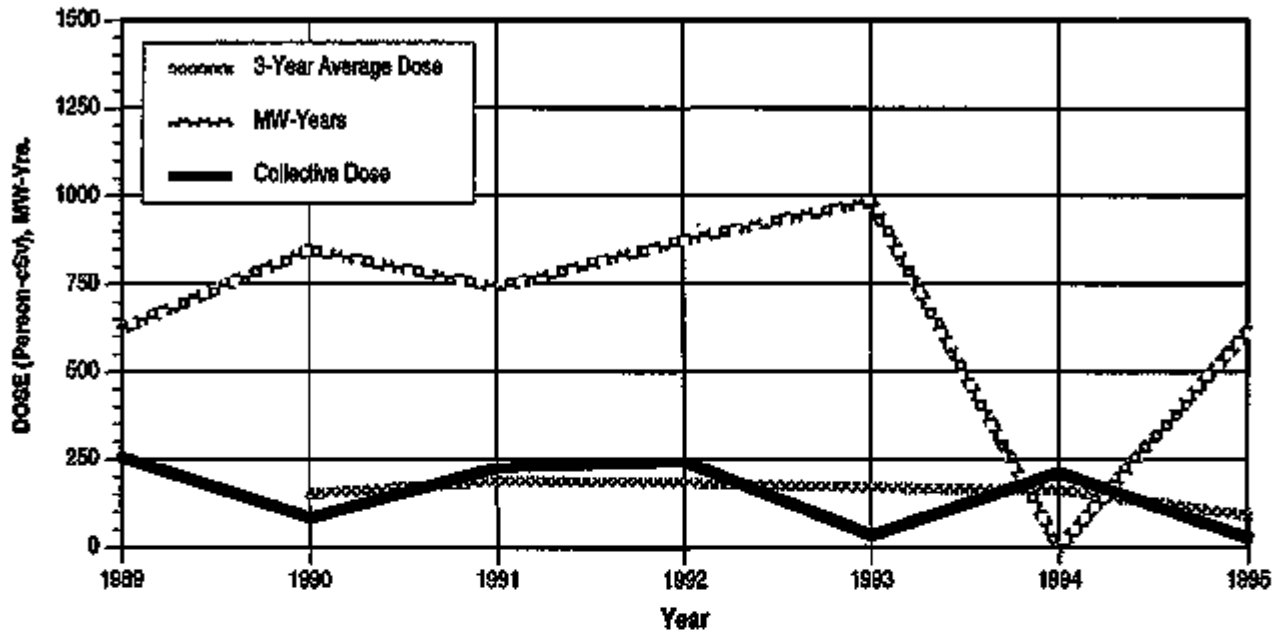


APPENDIX E (continued)

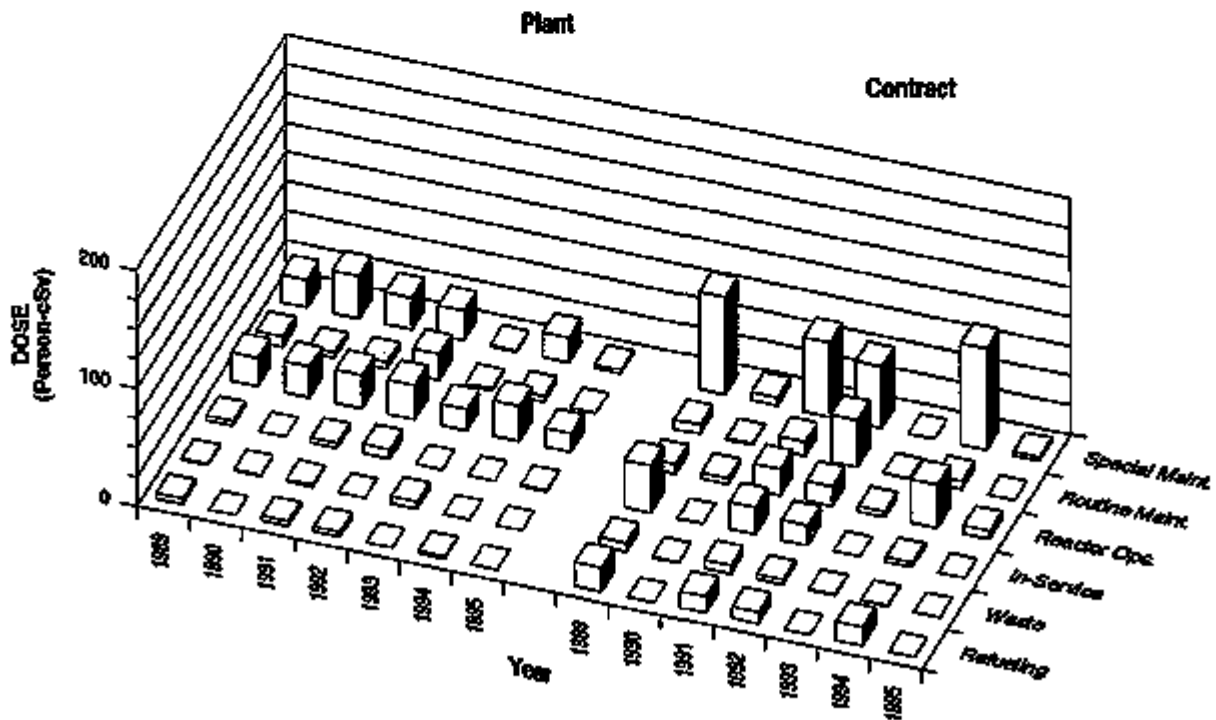
FERMI 2

Dose-Performance Indicators

BWR



Breakdown by Job Function

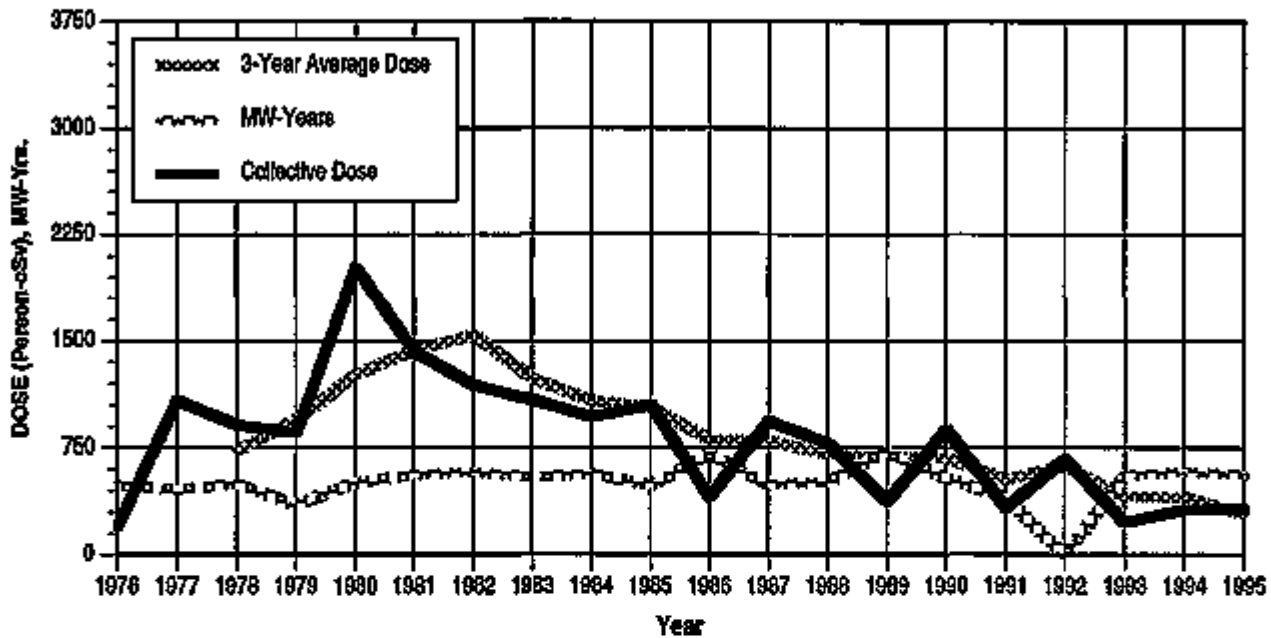


APPENDIX E (continued)

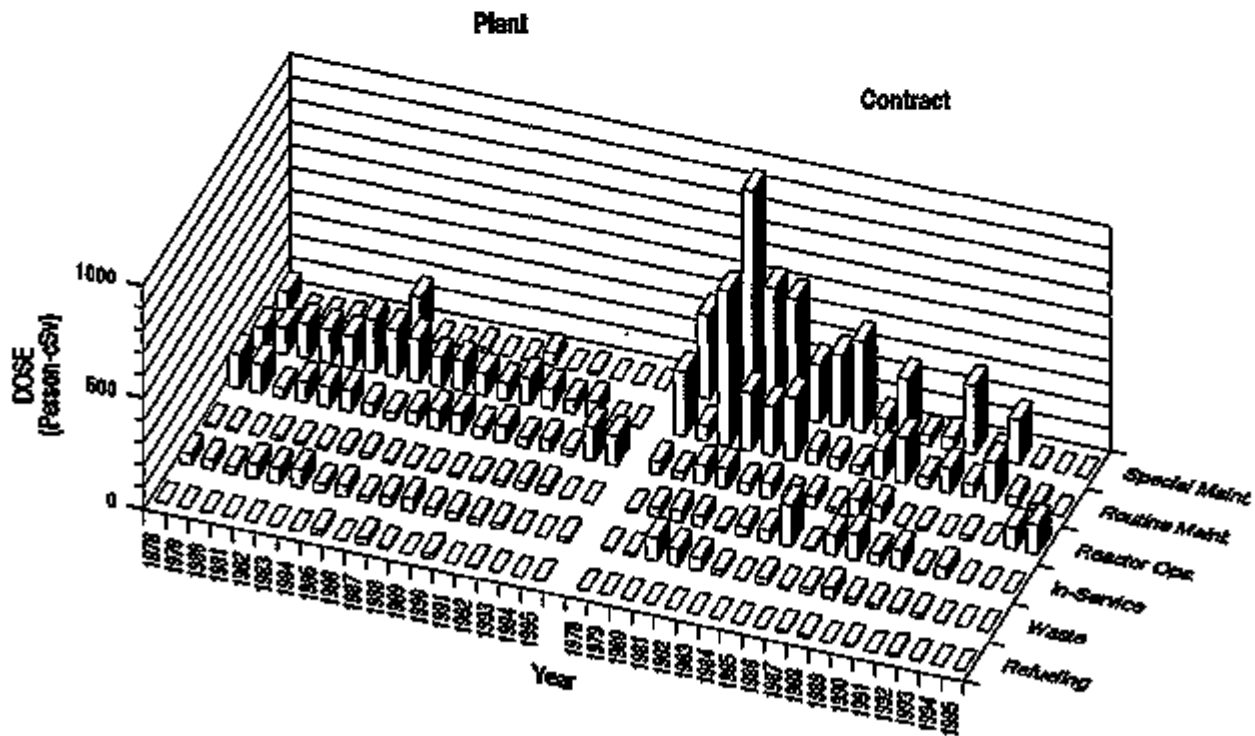
FITZPATRICK

Dose-Performance Indicators

BWR



Breakdown by Job Function

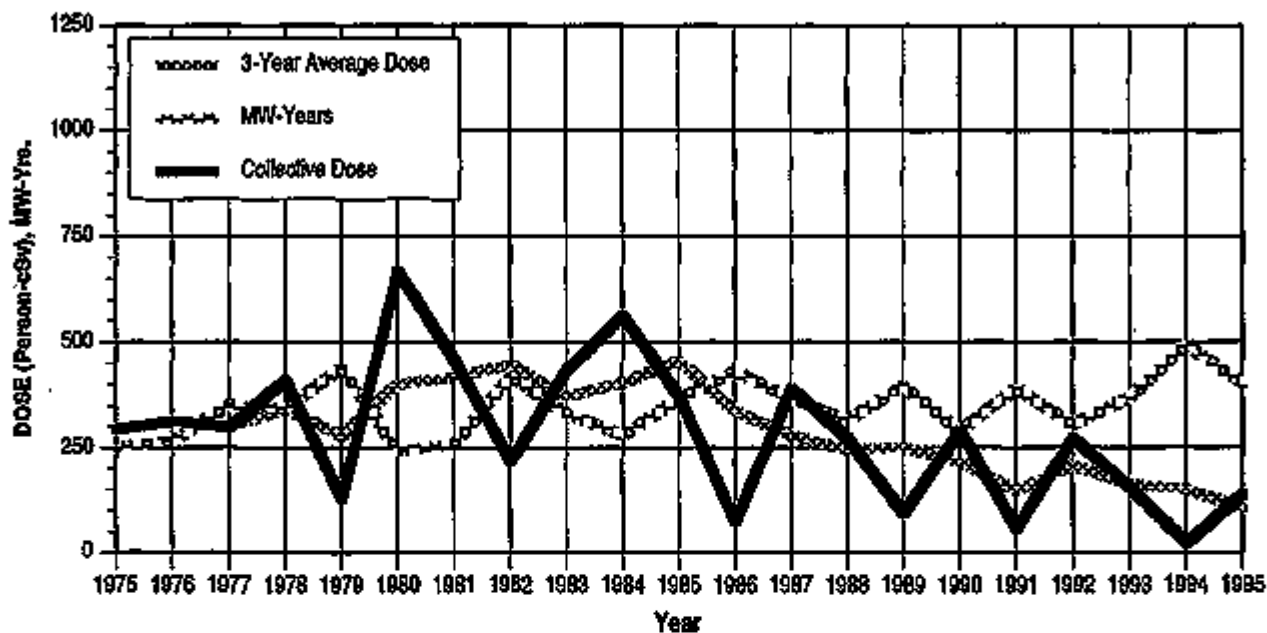


APPENDIX E (continued)

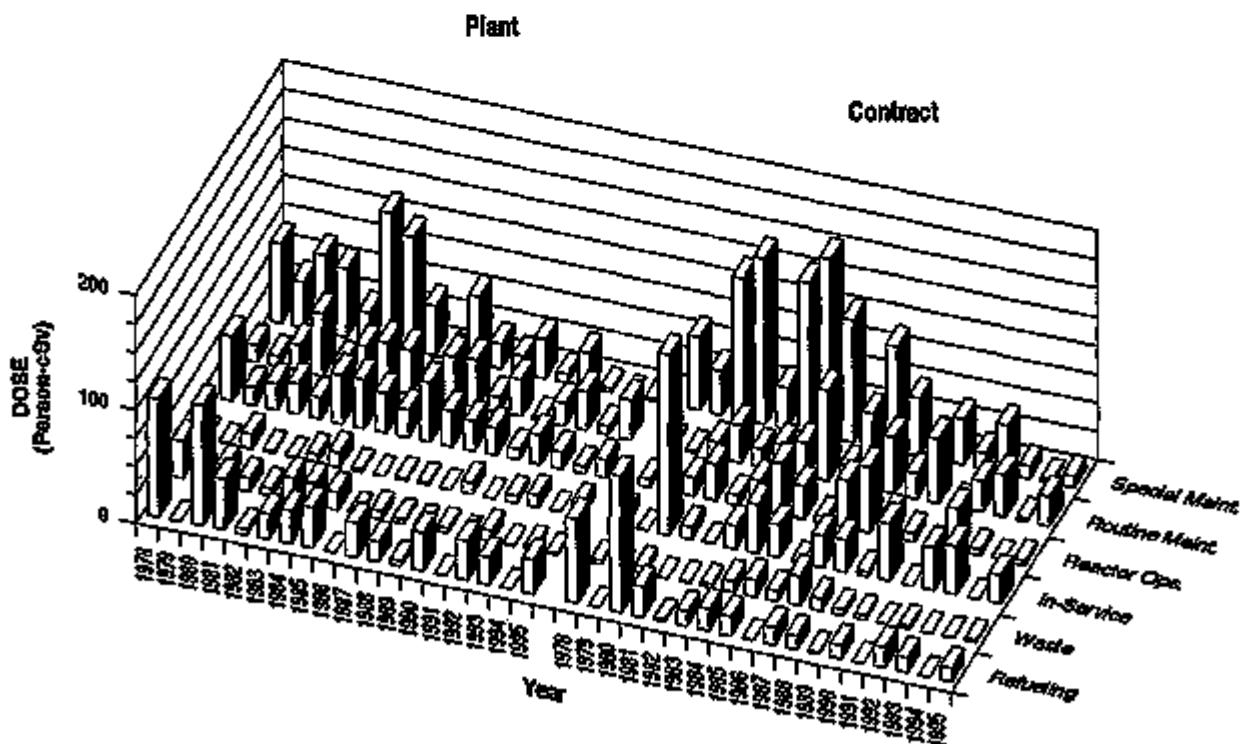
FORT CALHOUN

Dose-Performance Indicators

PWR



Breakdown by Job Function

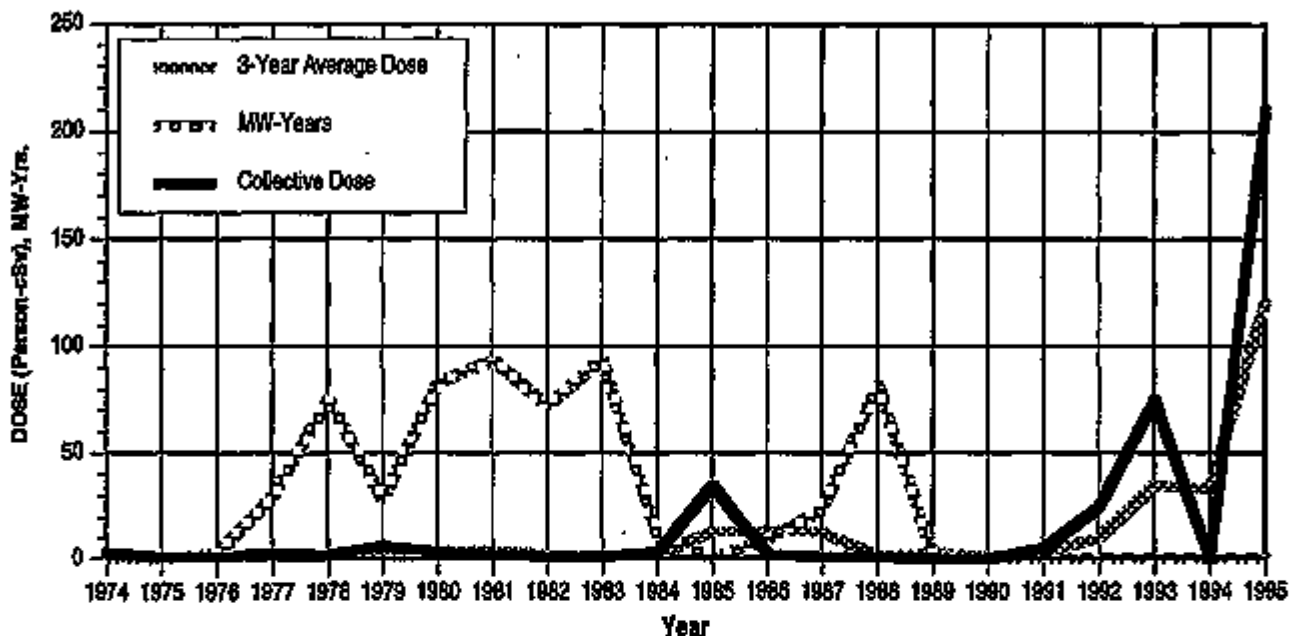


APPENDIX E (continued)

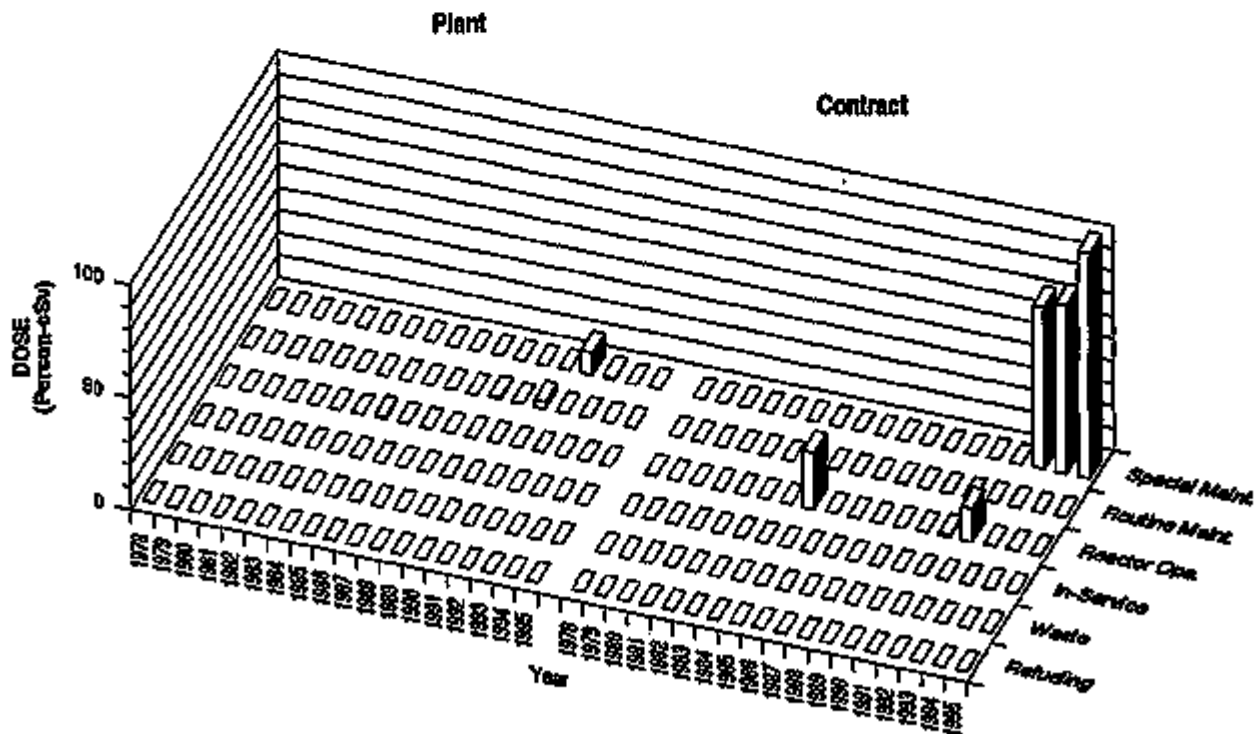
FORT ST. VRAIN

Dose-Performance Indicators

HTGR



Breakdown by Job Function

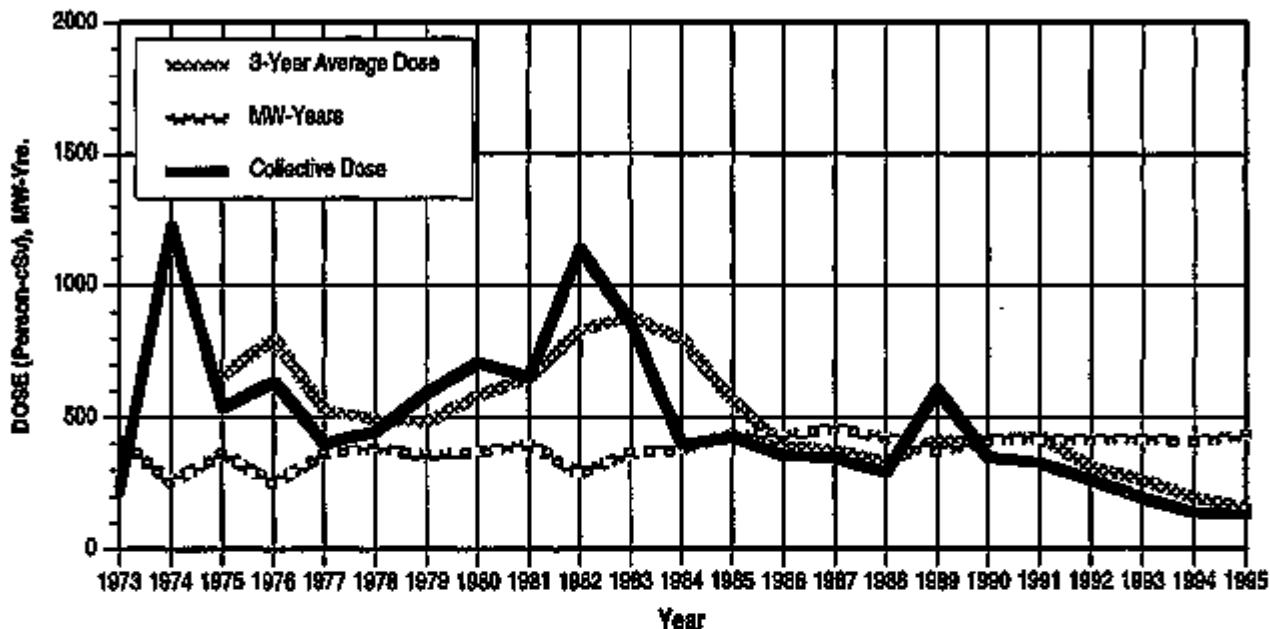


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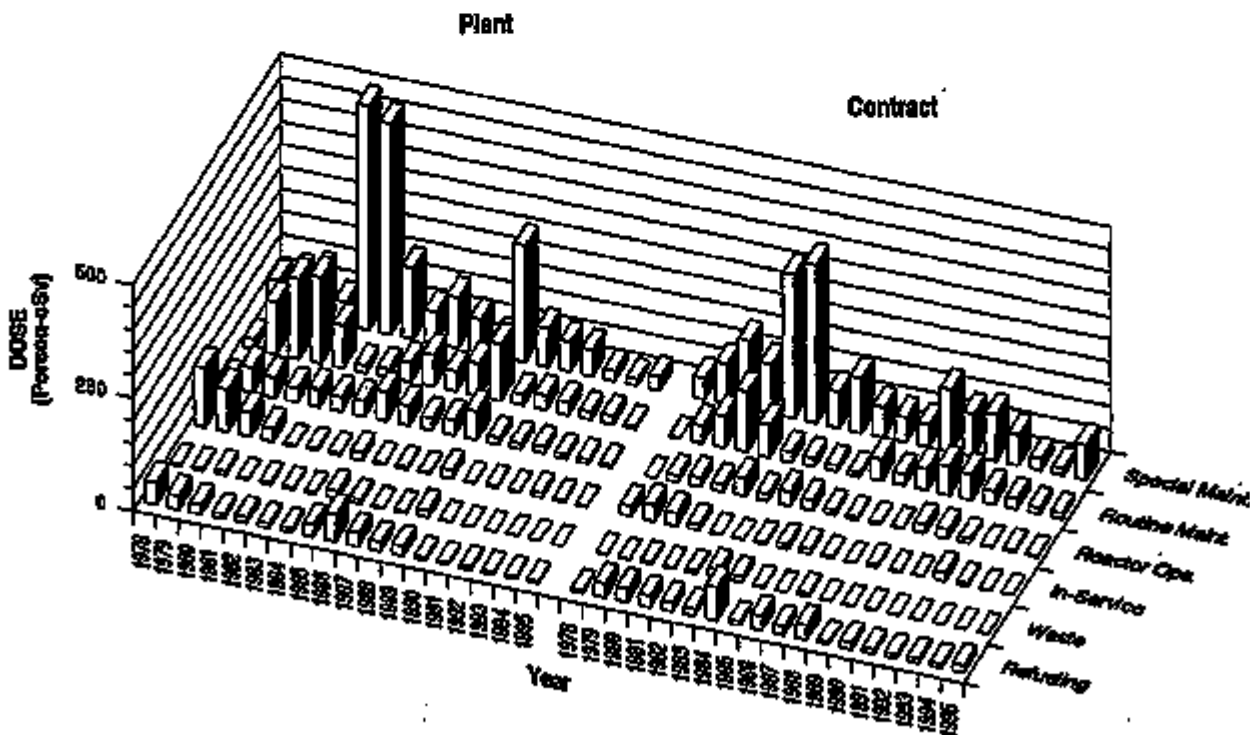
GINNA

Dose-Performance Indicators

PWR



Breakdown by Job Function

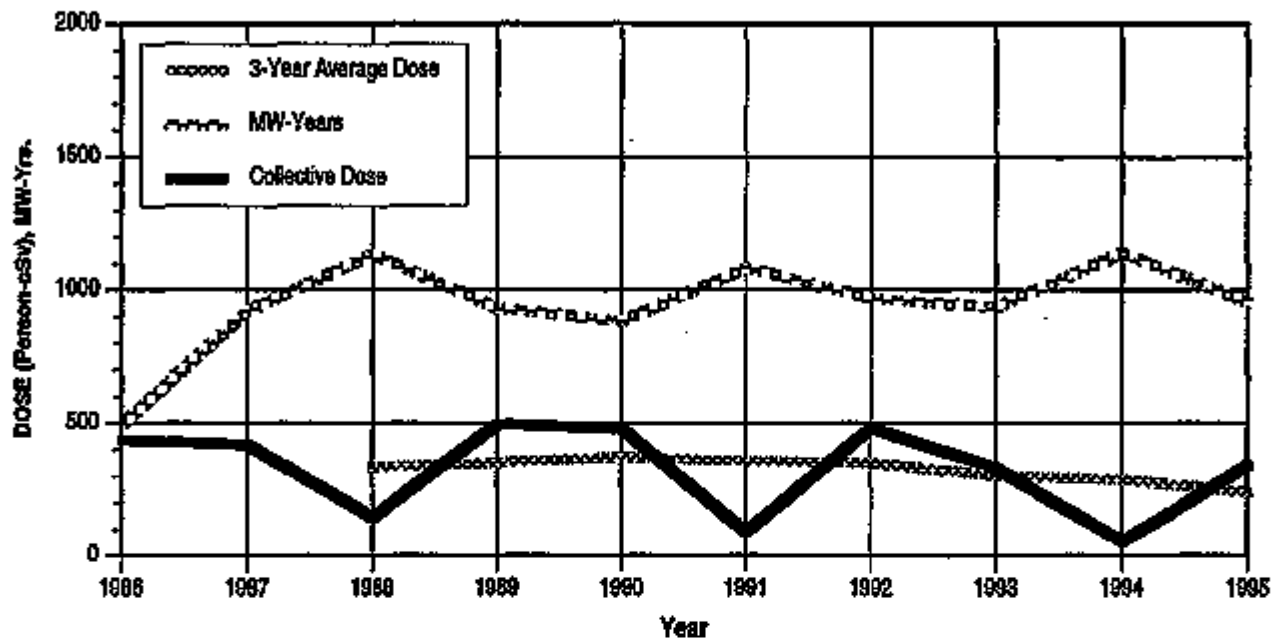


APPENDIX E (continued)

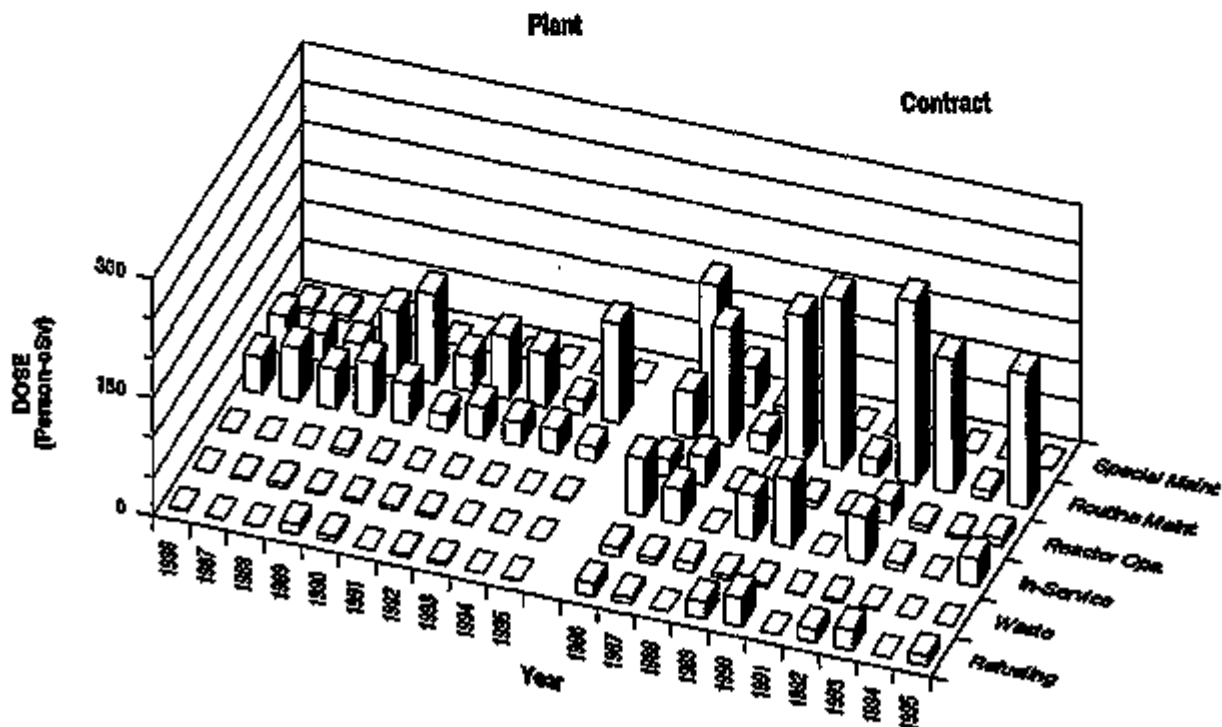
GRAND GULF

Dose-Performance Indicators

BWR



Breakdown by Job Function

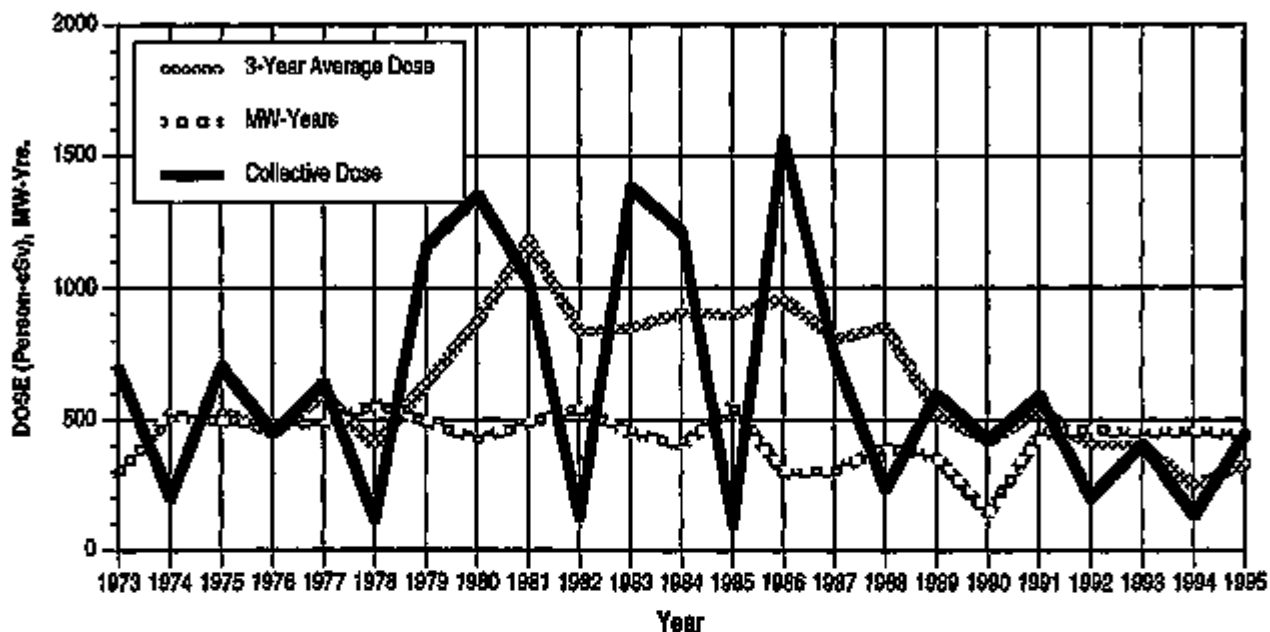


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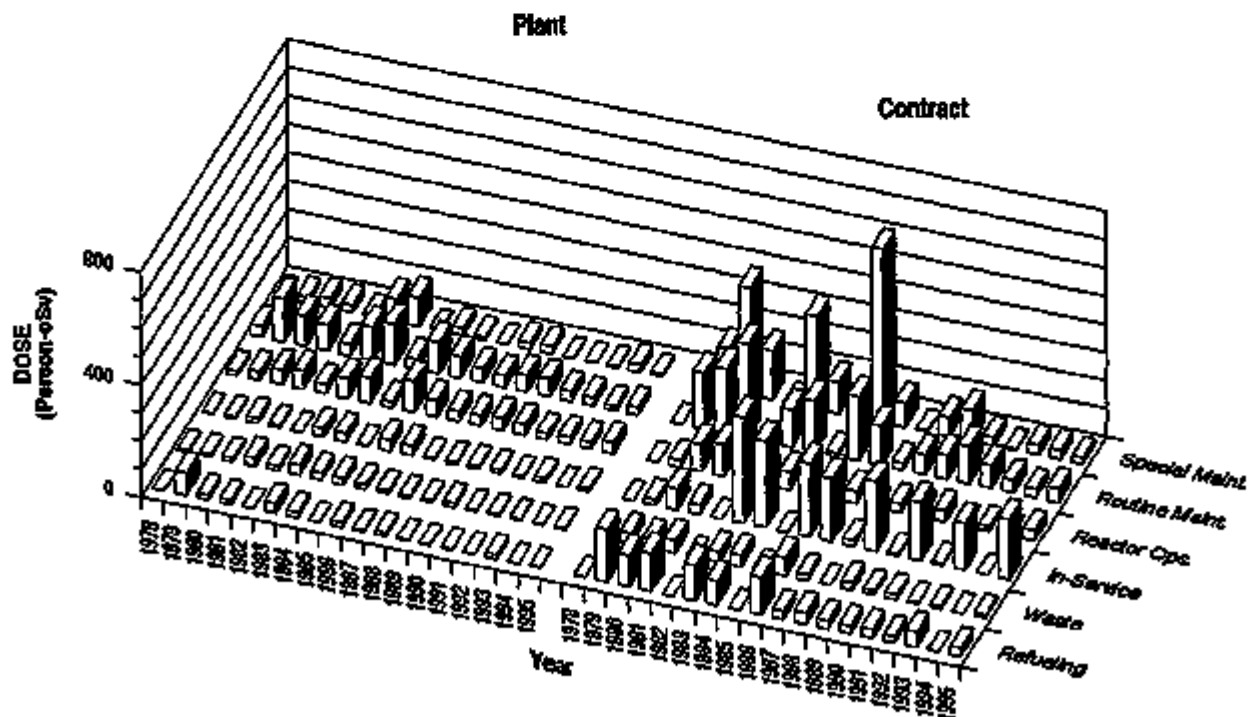
HADDAM NECK

Dose-Performance Indicators

PWR



Breakdown by Job Function

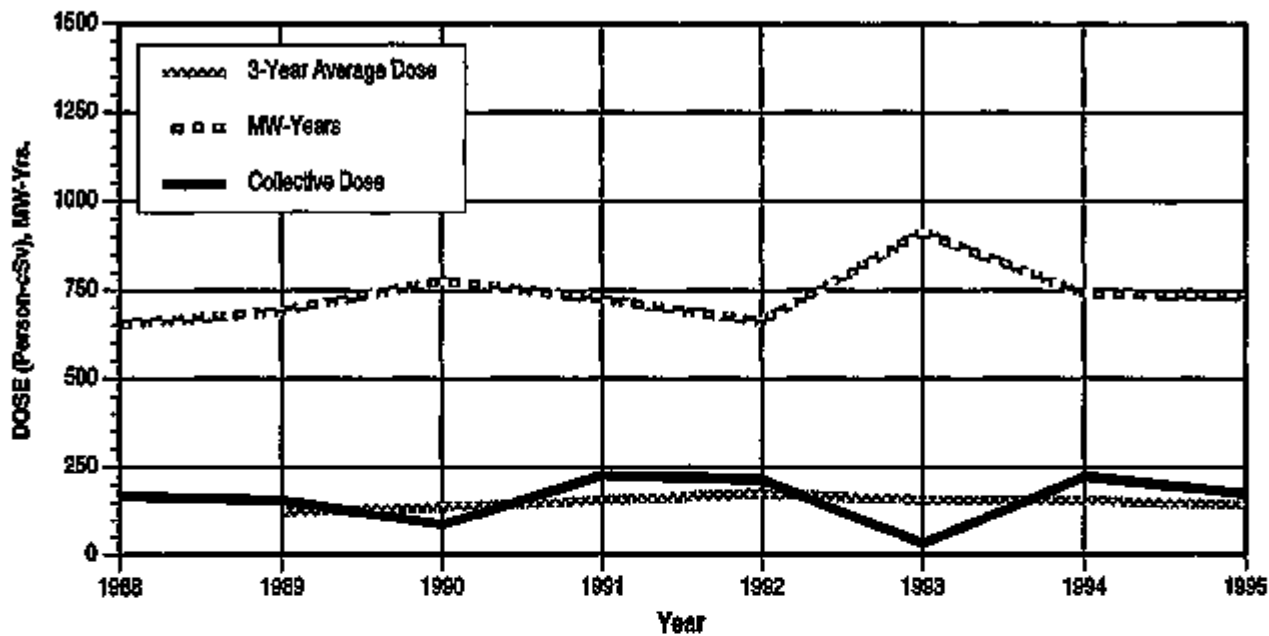


APPENDIX E (continued)

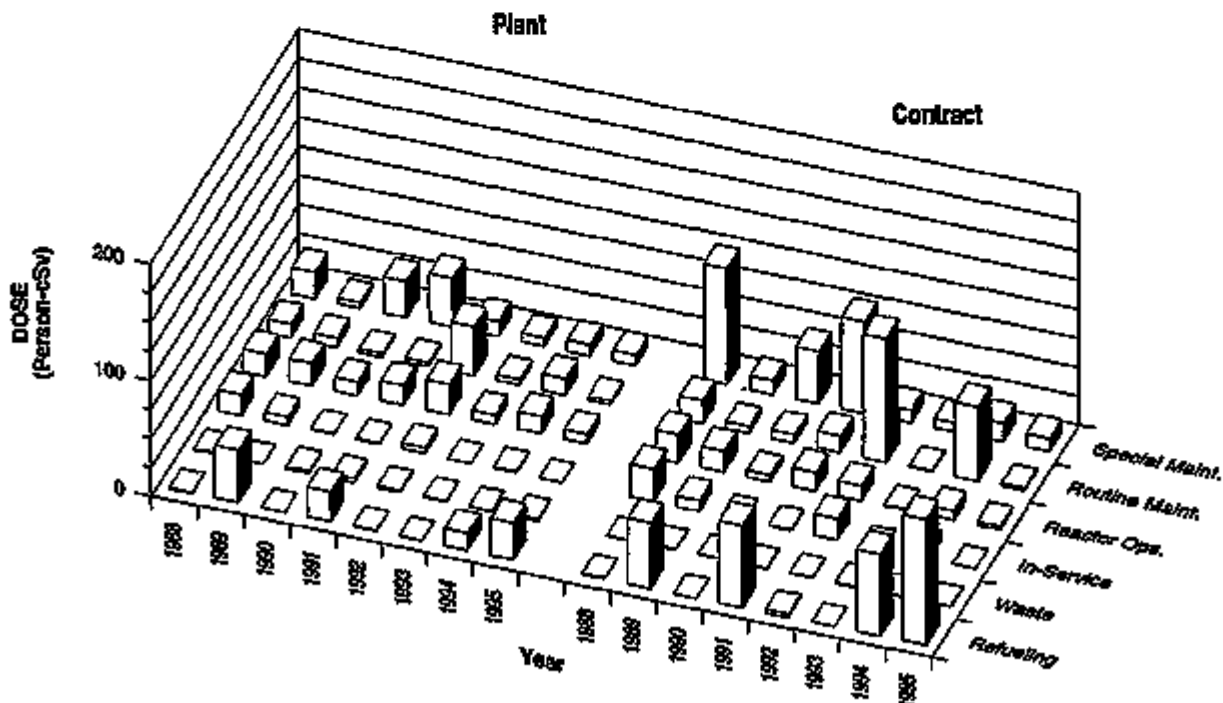
HARRIS

Dose-Performance Indicators

PWR



Breakdown by Job Function

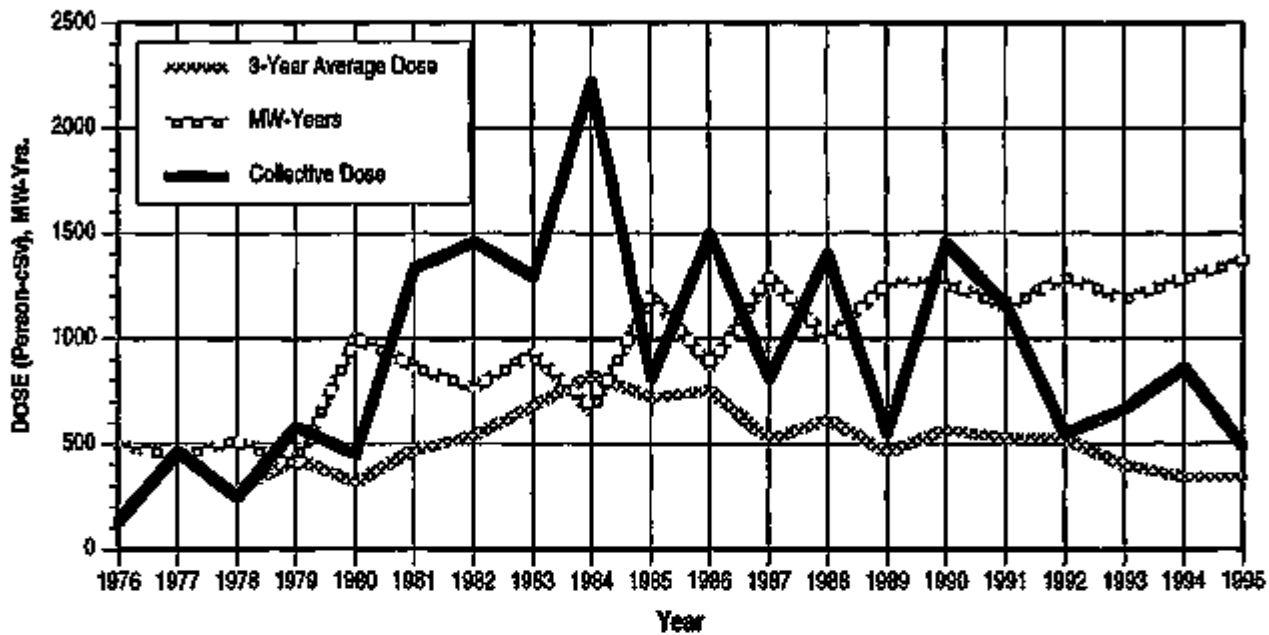


APPENDIX E (continued)

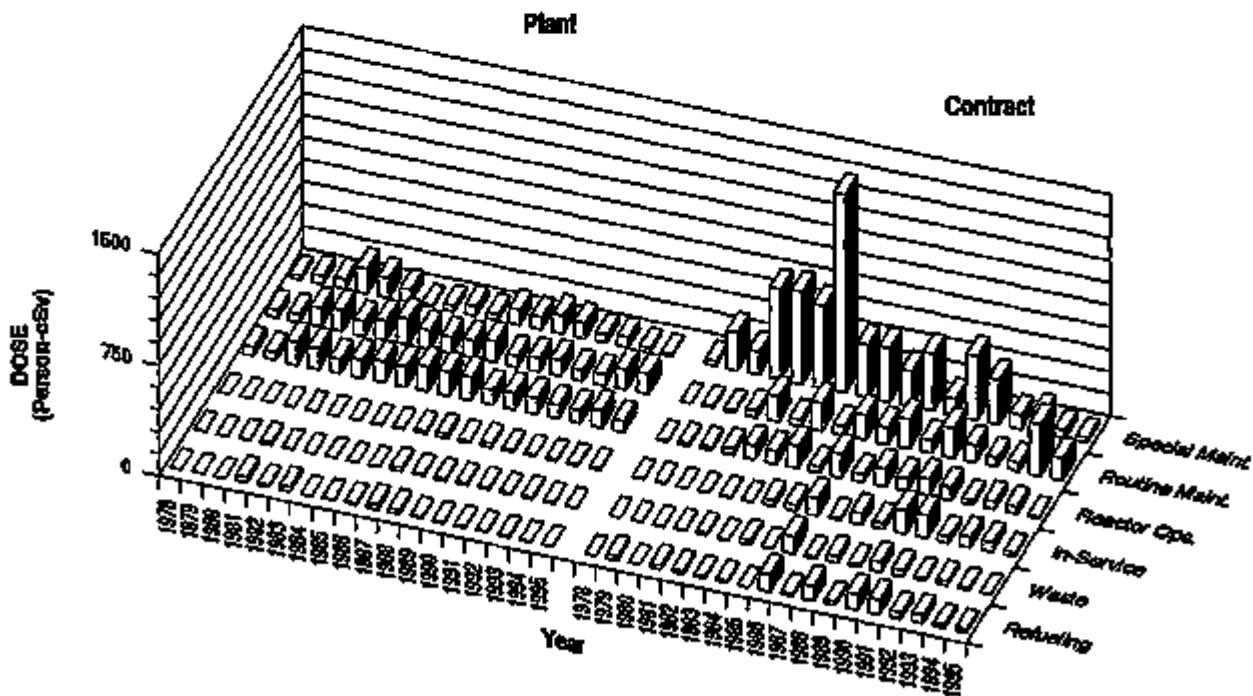
HATCH 1,2

Dose-Performance Indicators

BWR



Breakdown by Job Function

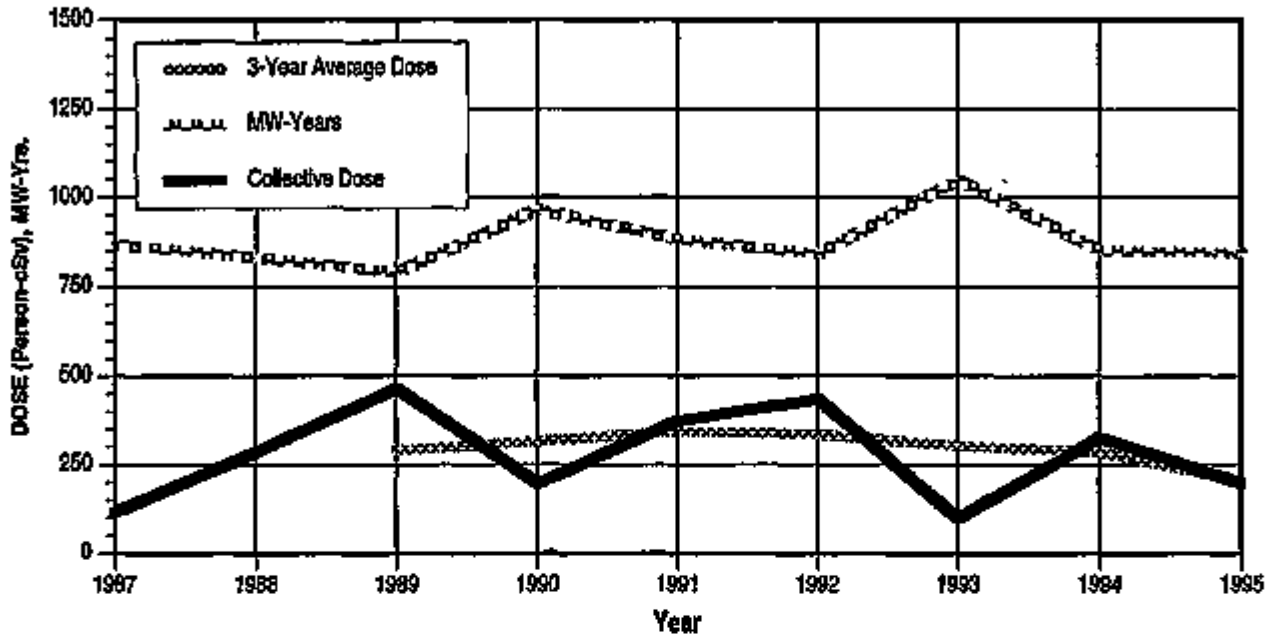


APPENDIX E (continued)

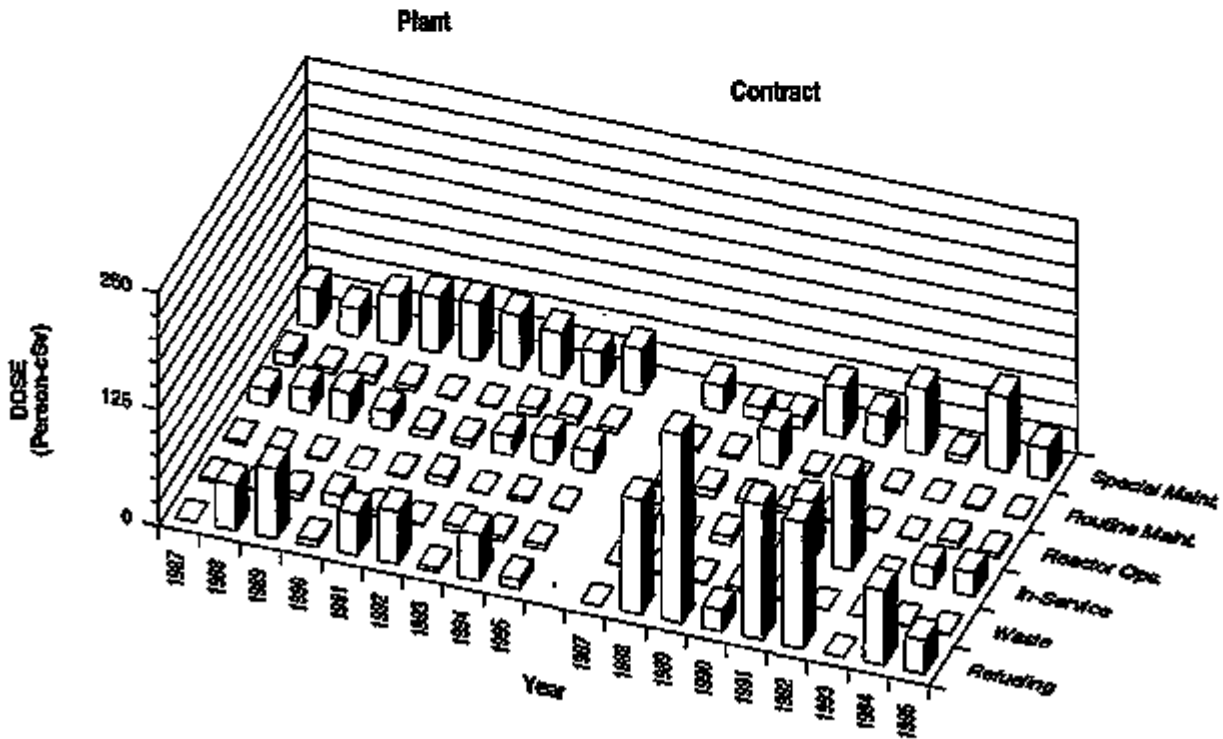
HOPE CREEK 1

Dose-Performance Indicators

BWR



Breakdown by Job Function

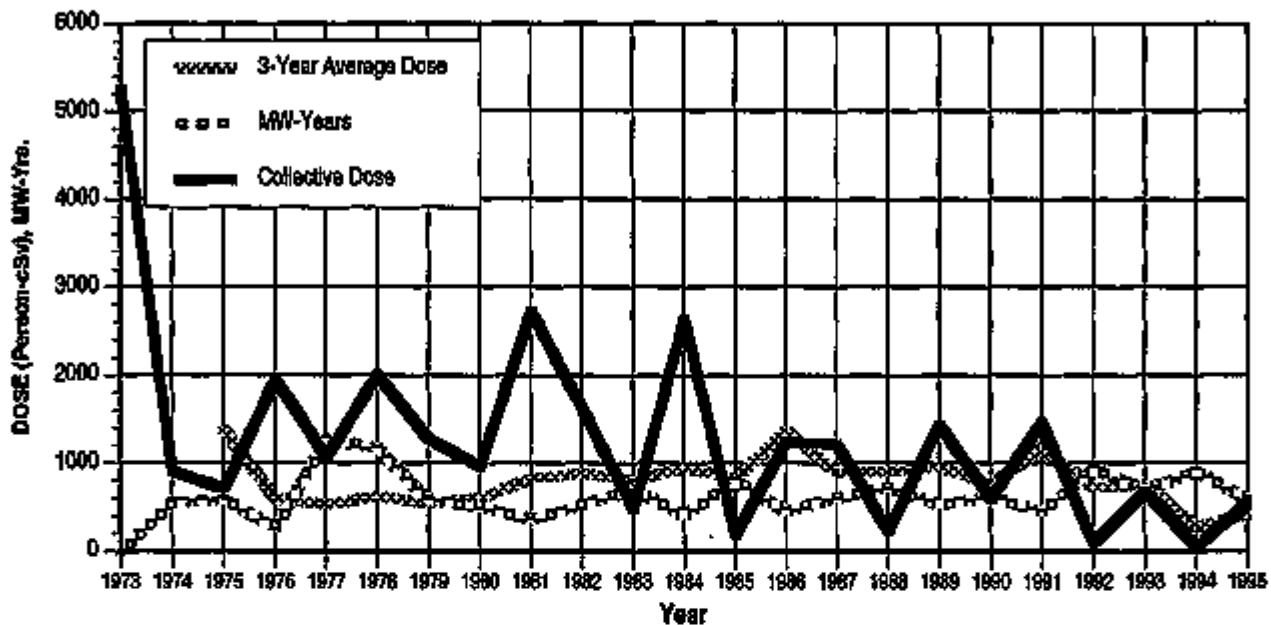


APPENDIX E (continued)

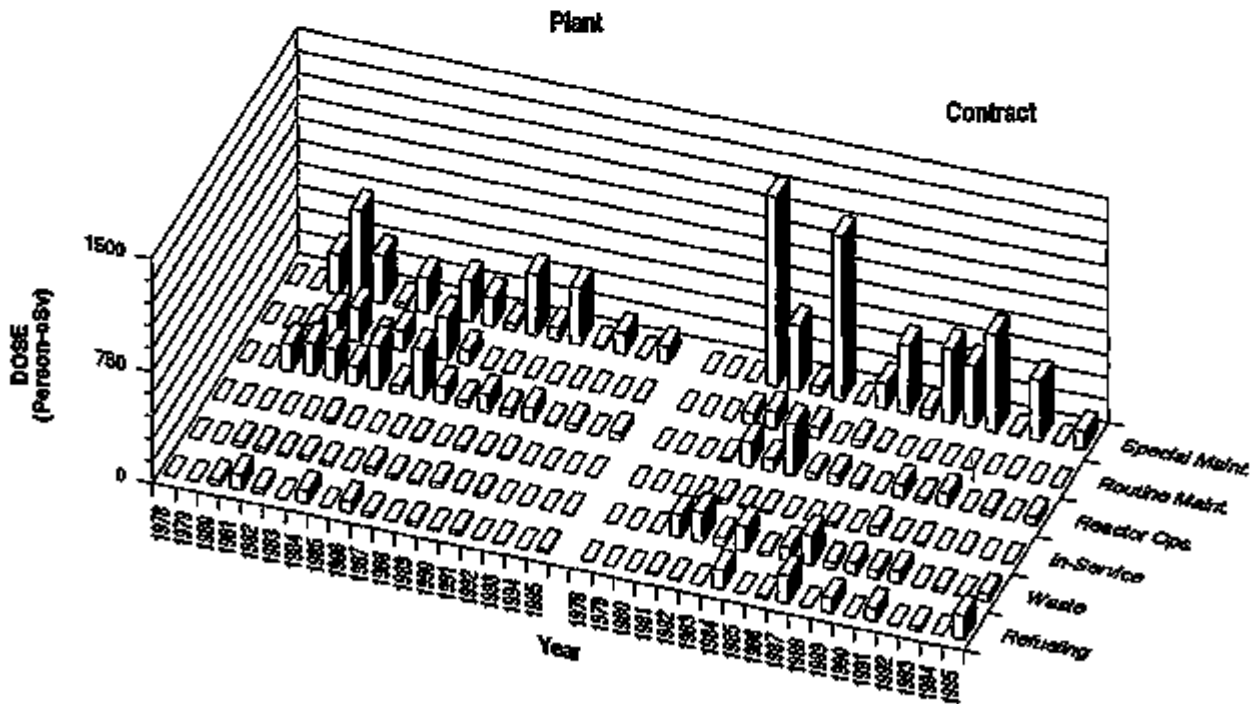
INDIAN POINT 2

Dose-Performance Indicators

PWR



Breakdown by Job Function

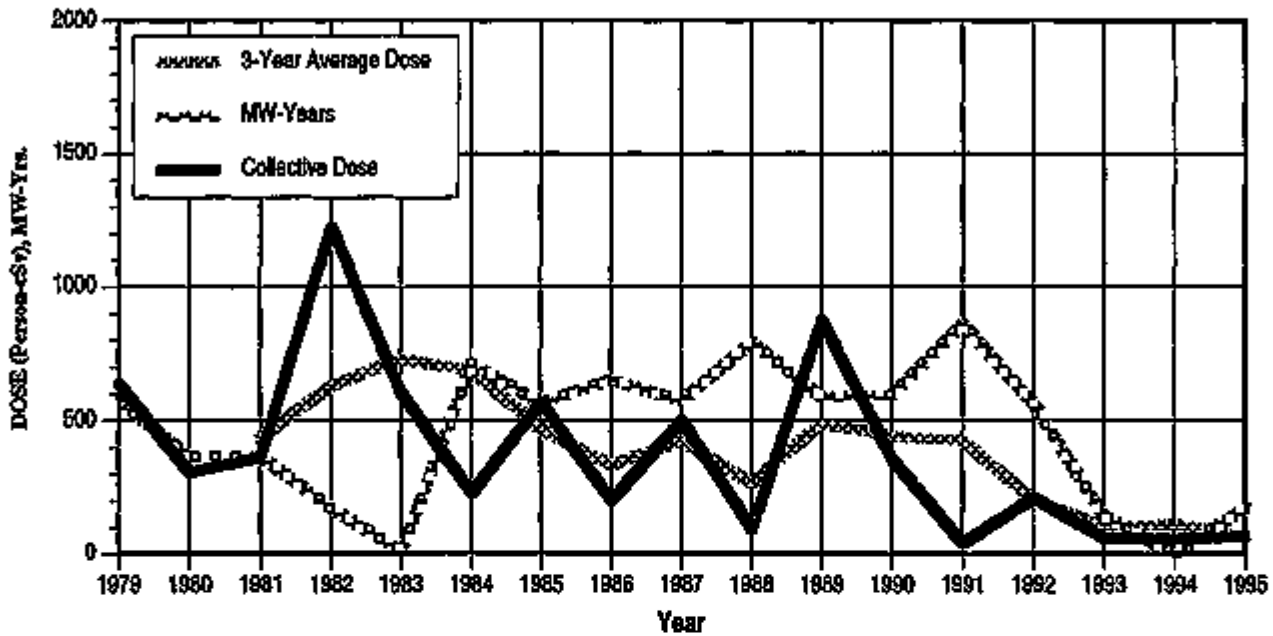


APPENDIX E (continued)

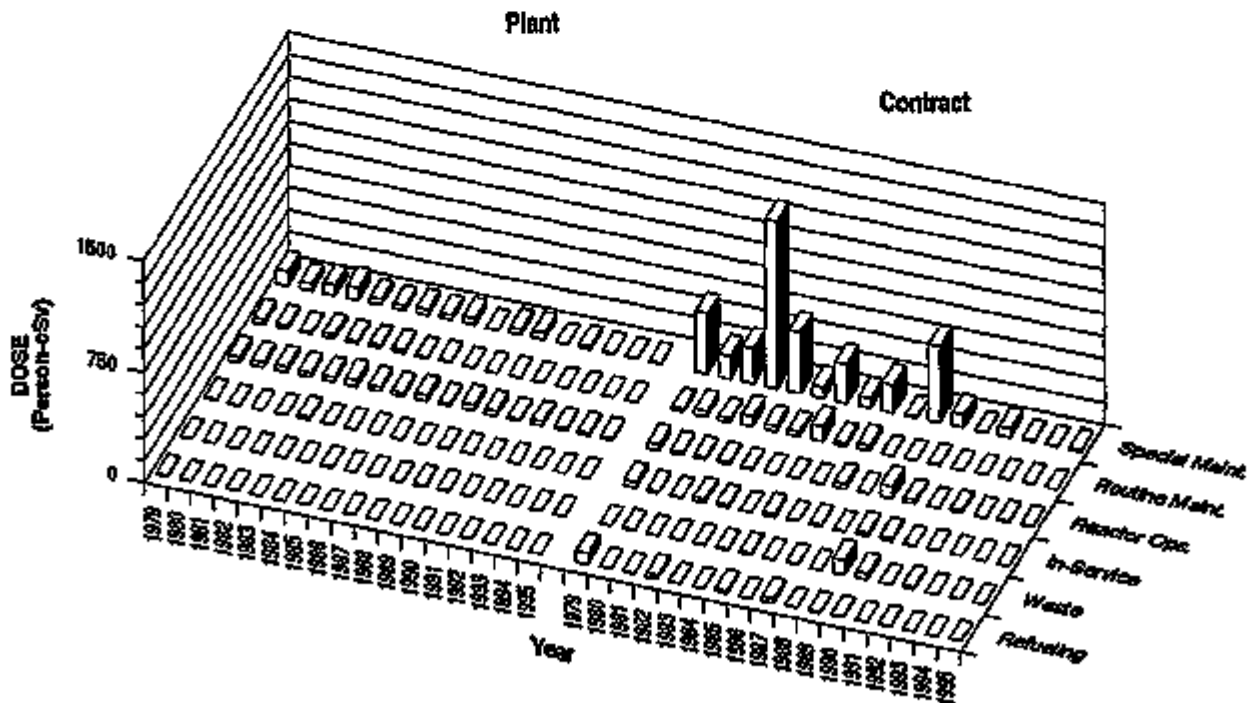
INDIAN POINT 3

Dose-Performance Indicators

PWR



Breakdown by Job Function

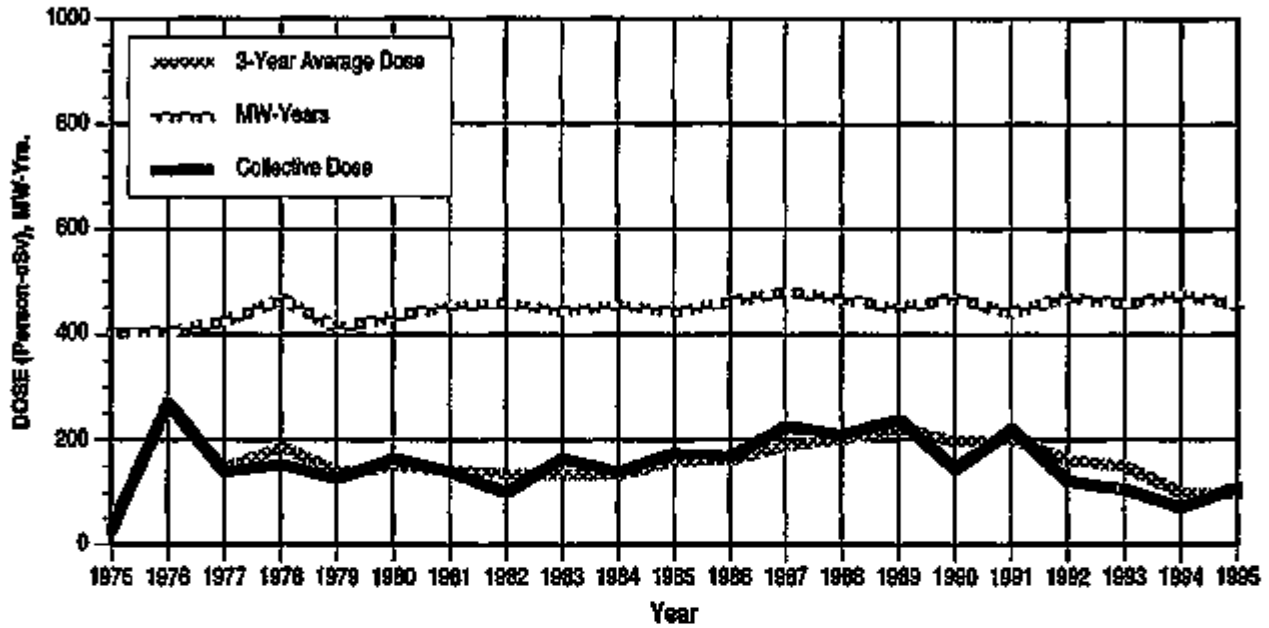


APPENDIX E (continued)

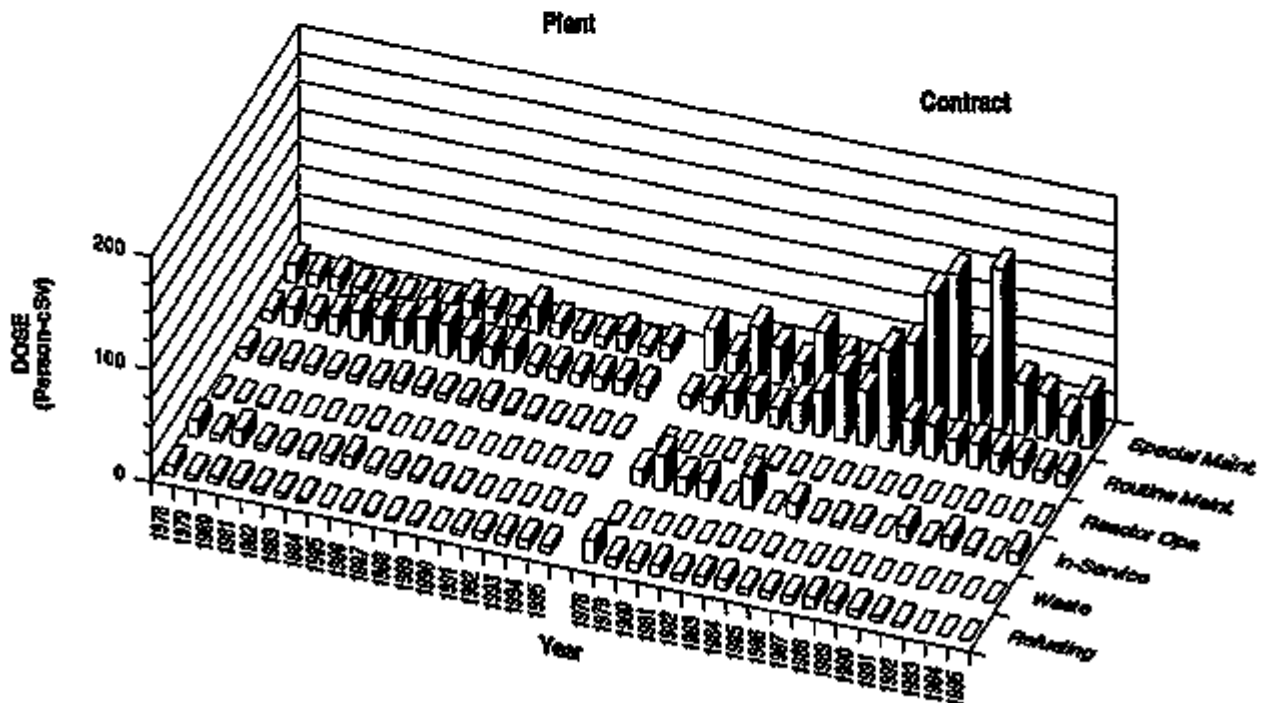
KEWAUNEE

Dose-Performance Indicators

PWR



Breakdown by Job Function

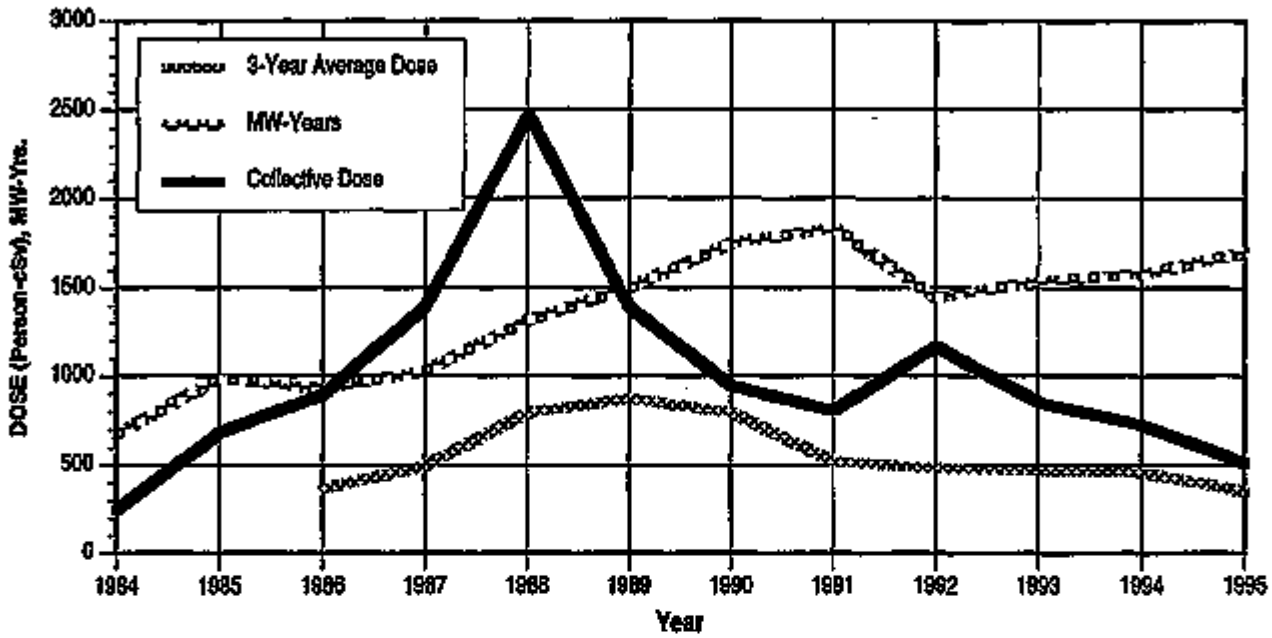


APPENDIX E (continued)

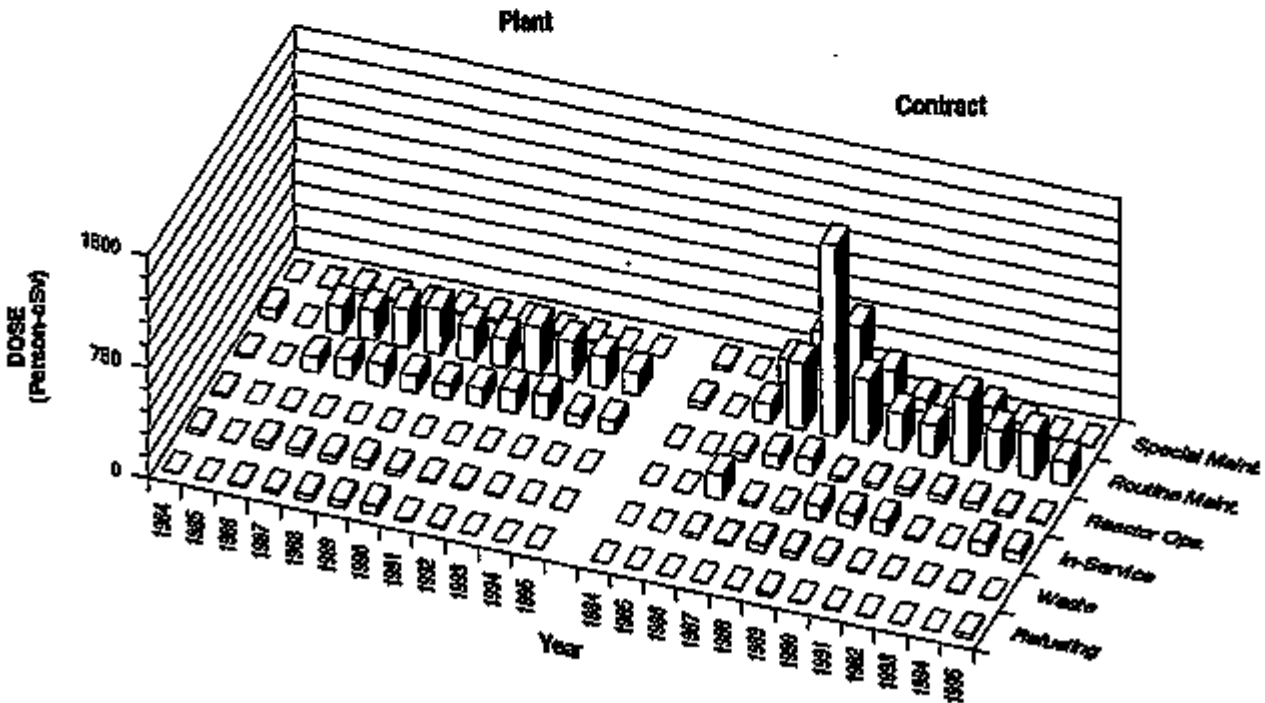
LASALLE 1, 2

Dose-Performance Indicators

BWR



Breakdown by Job Function

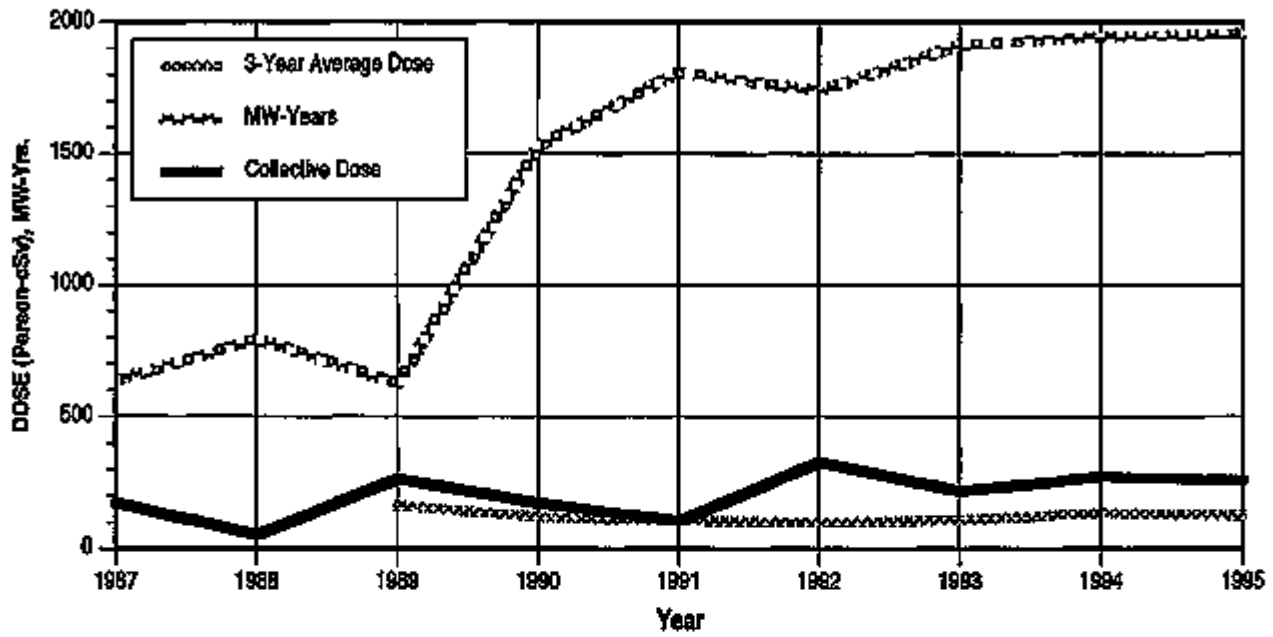


APPENDIX E (continued)

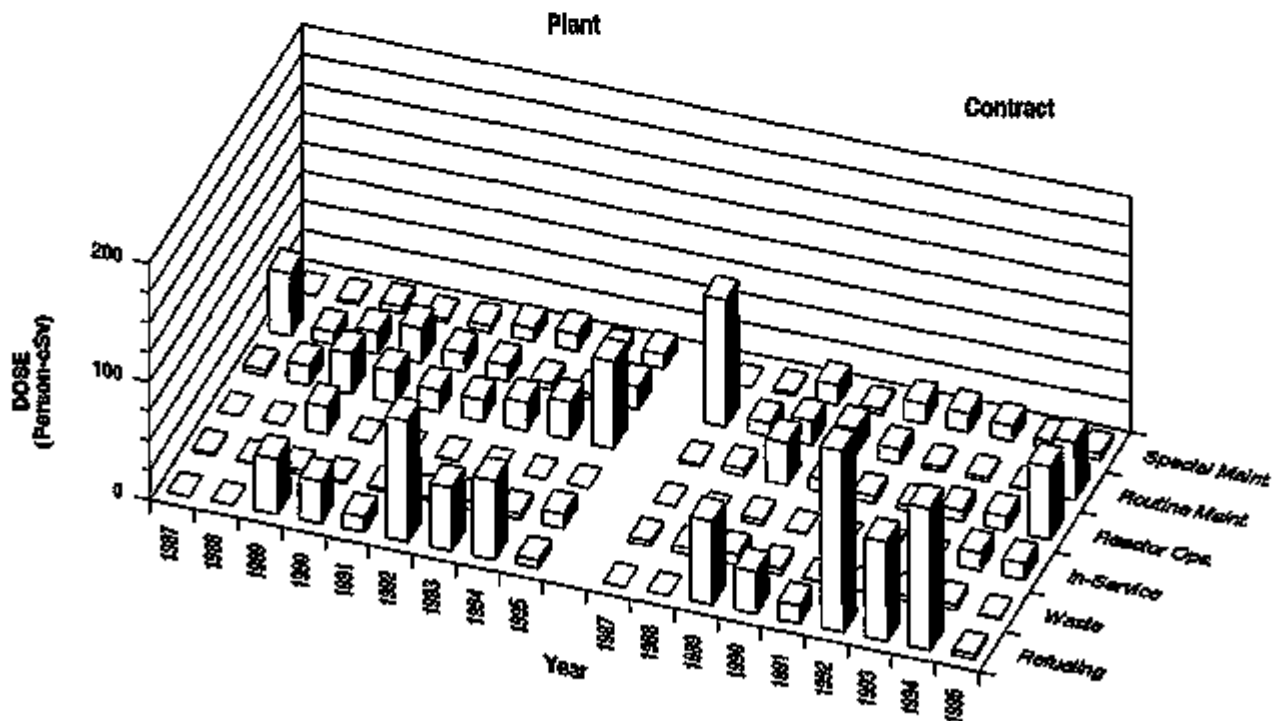
LIMERICK 1, 2

Dose-Performance Indicators

BWR



Breakdown by Job Function

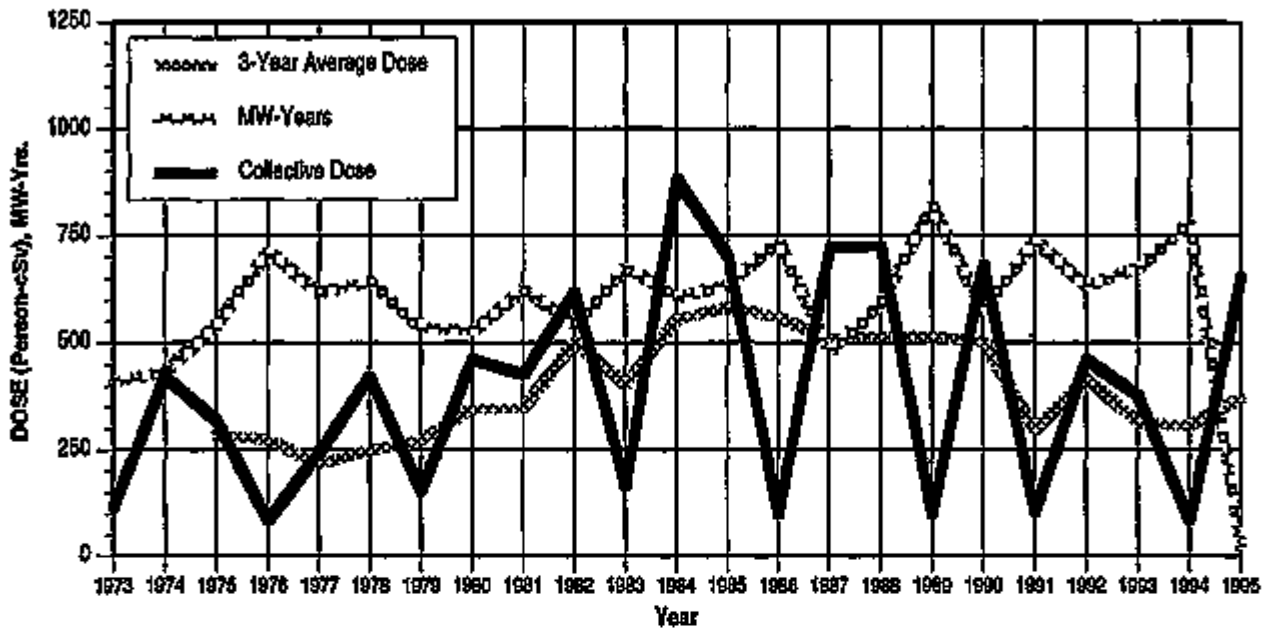


APPENDIX E (continued)

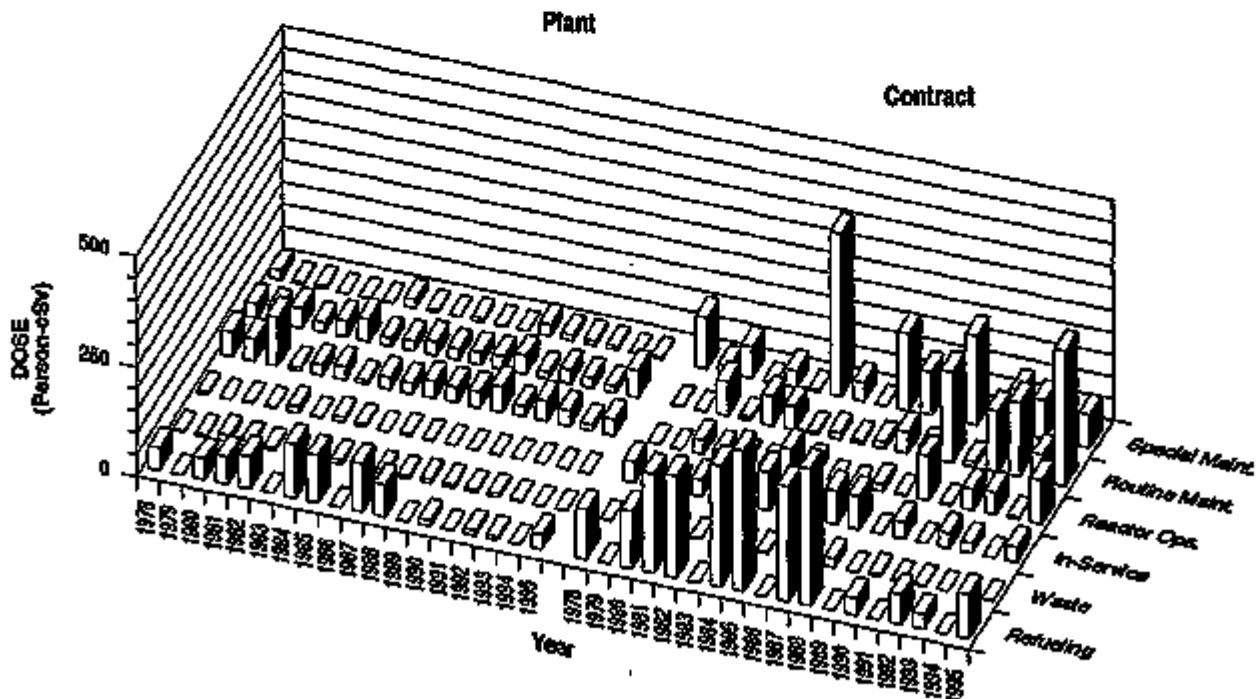
MAINE YANKEE

Dose-Performance Indicators

PWR



Breakdown by Job Function

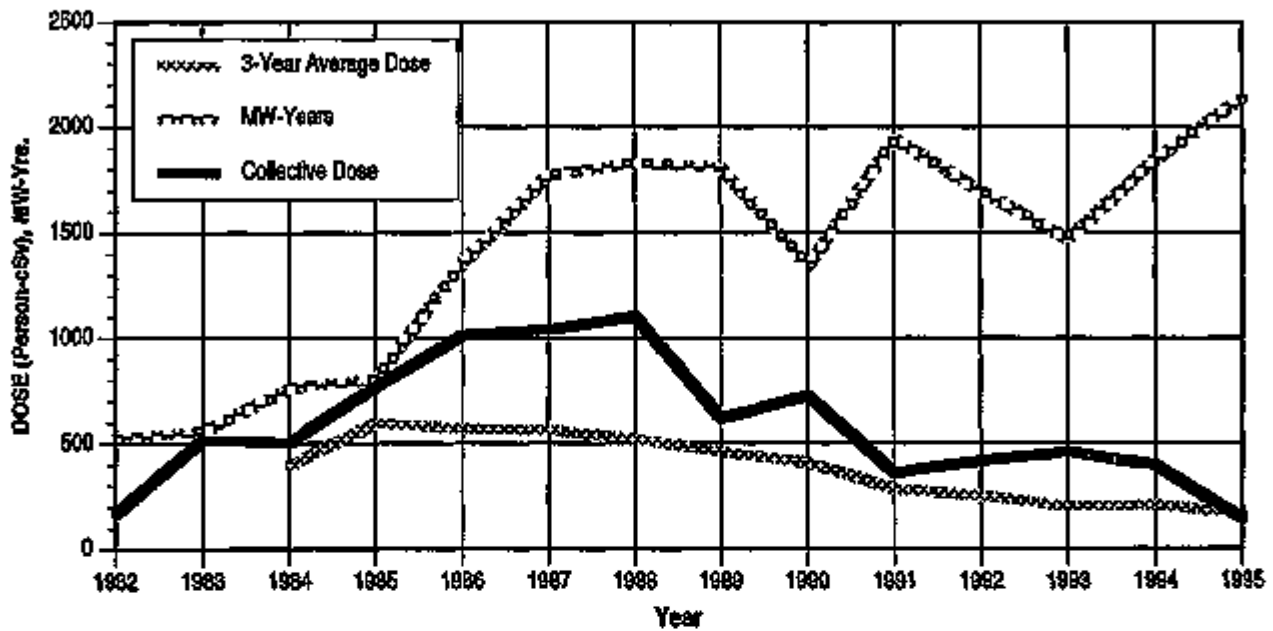


APPENDIX E (continued)

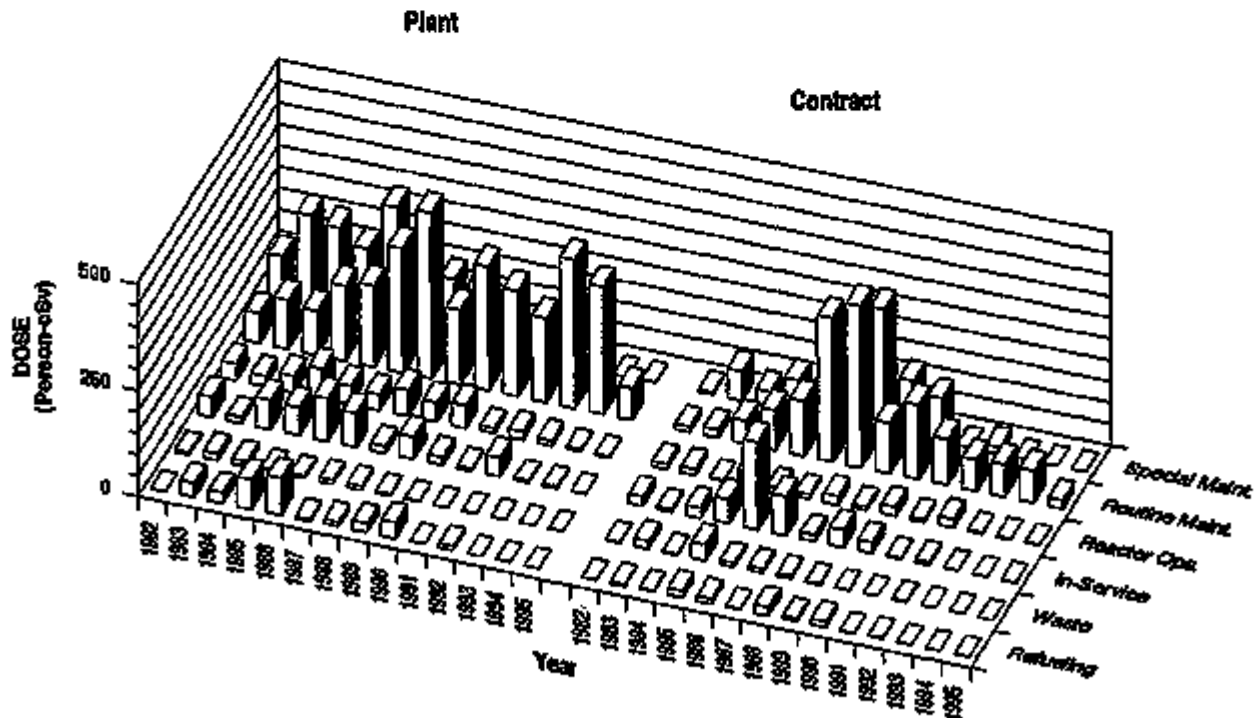
MCGUIRE 1, 2

Dose-Performance Indicators

PWR



Breakdown by Job Function

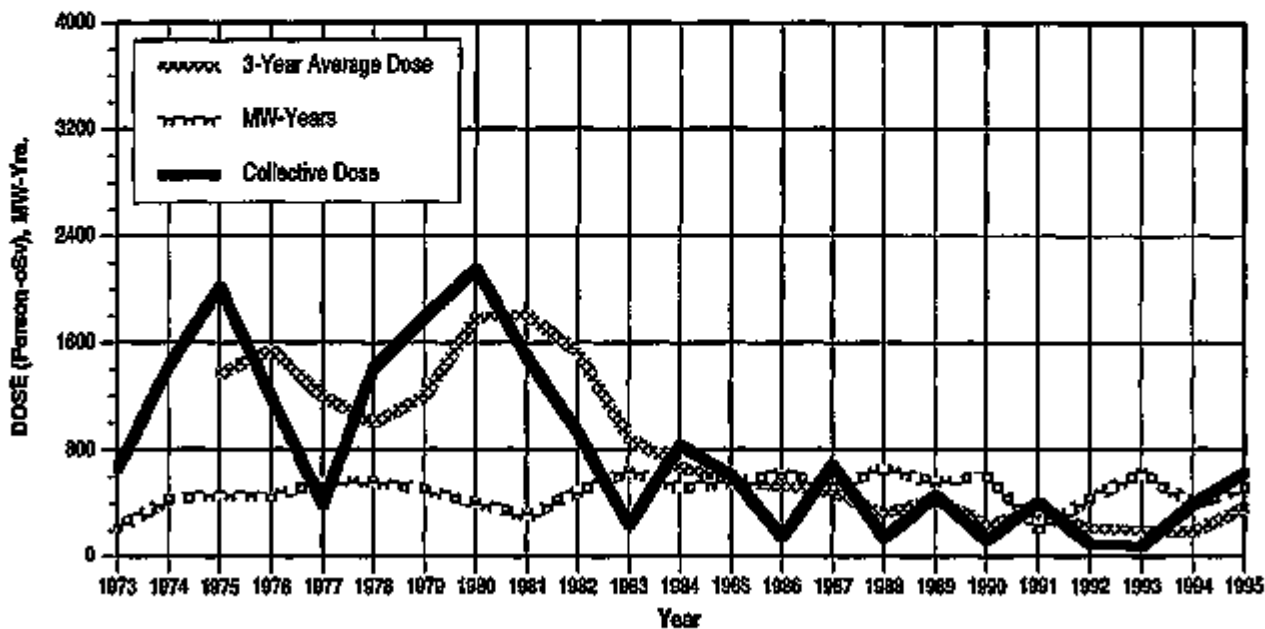


APPENDIX E (continued)

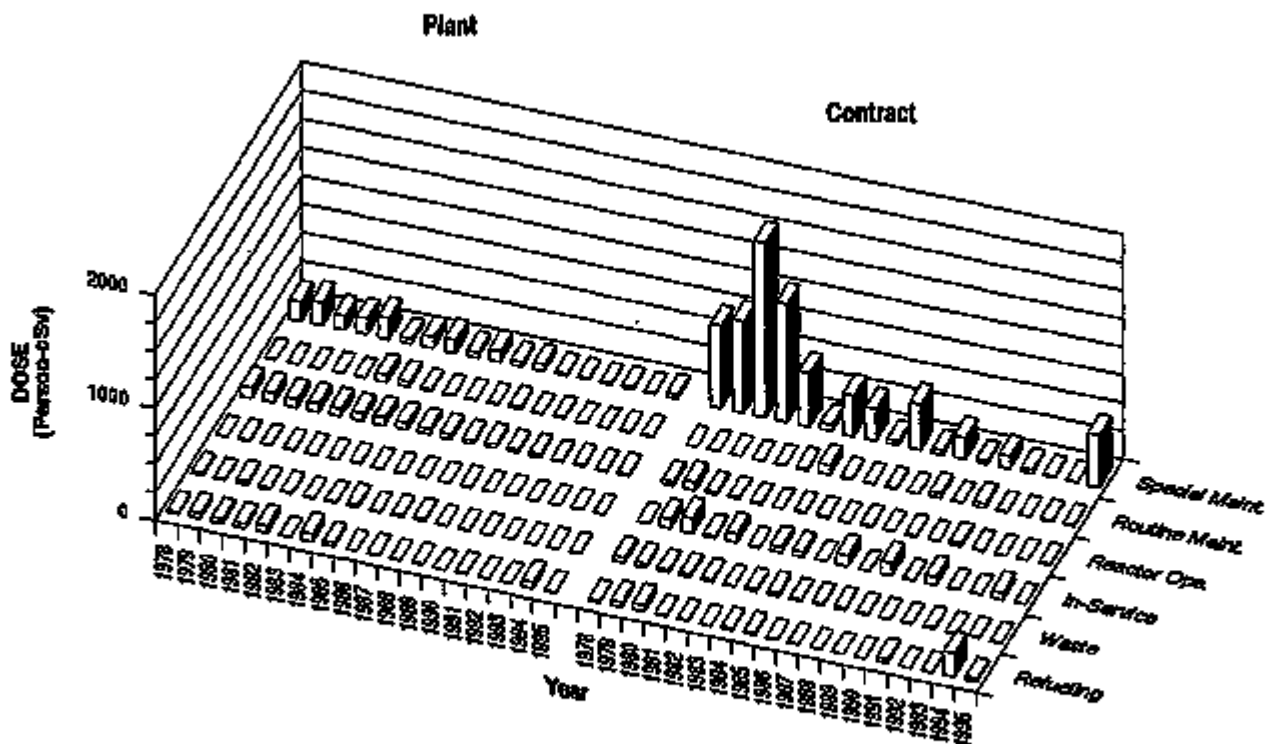
MILLSTONE POINT 1

Dose-Performance Indicators

BWR



Breakdown by Job Function

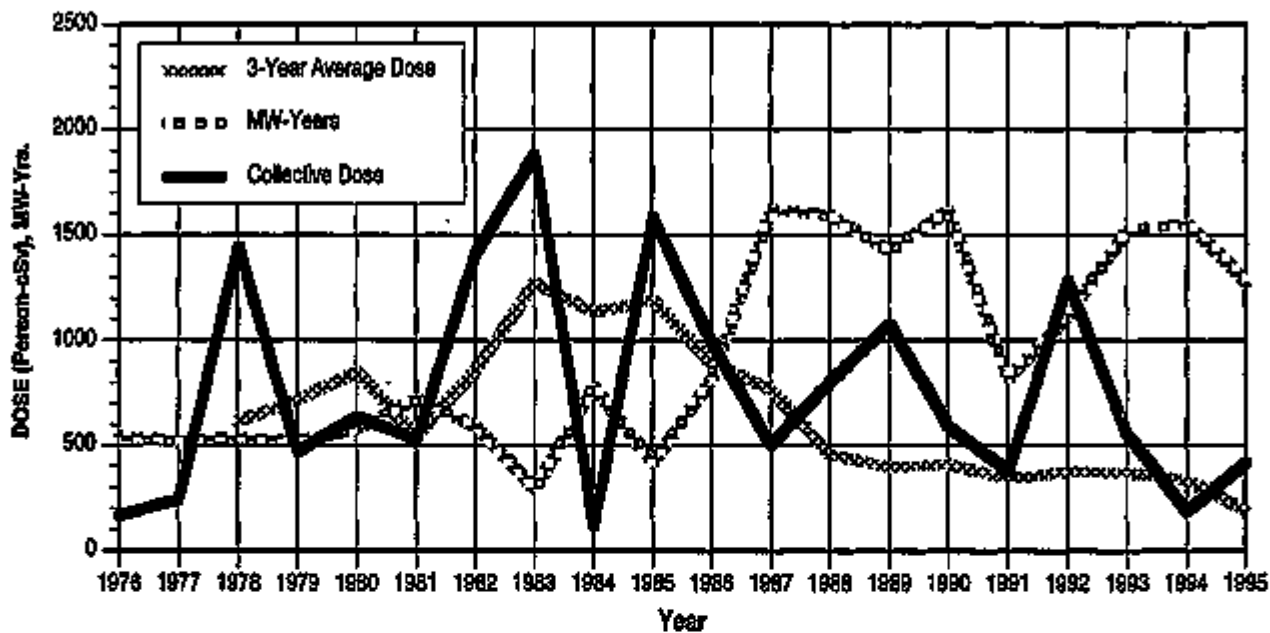


APPENDIX E (continued)

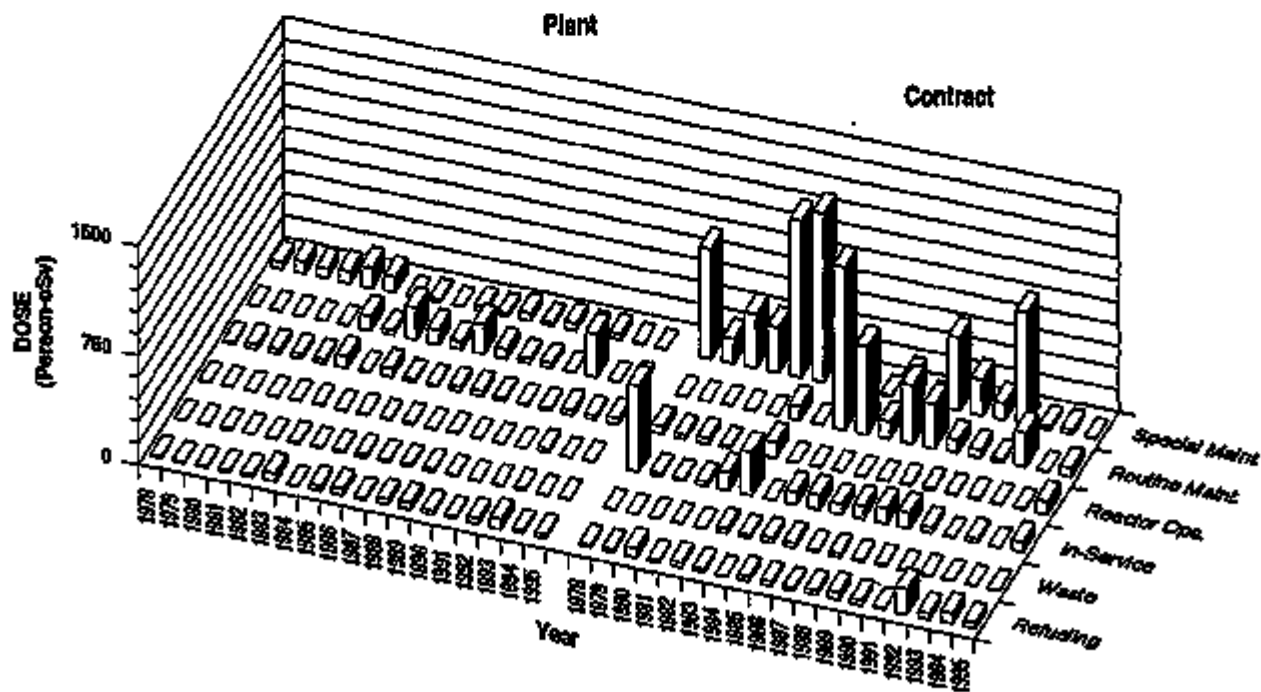
MILLSTONE POINT 2, 3

Dose-Performance Indicators

PWR



Breakdown by Job Function

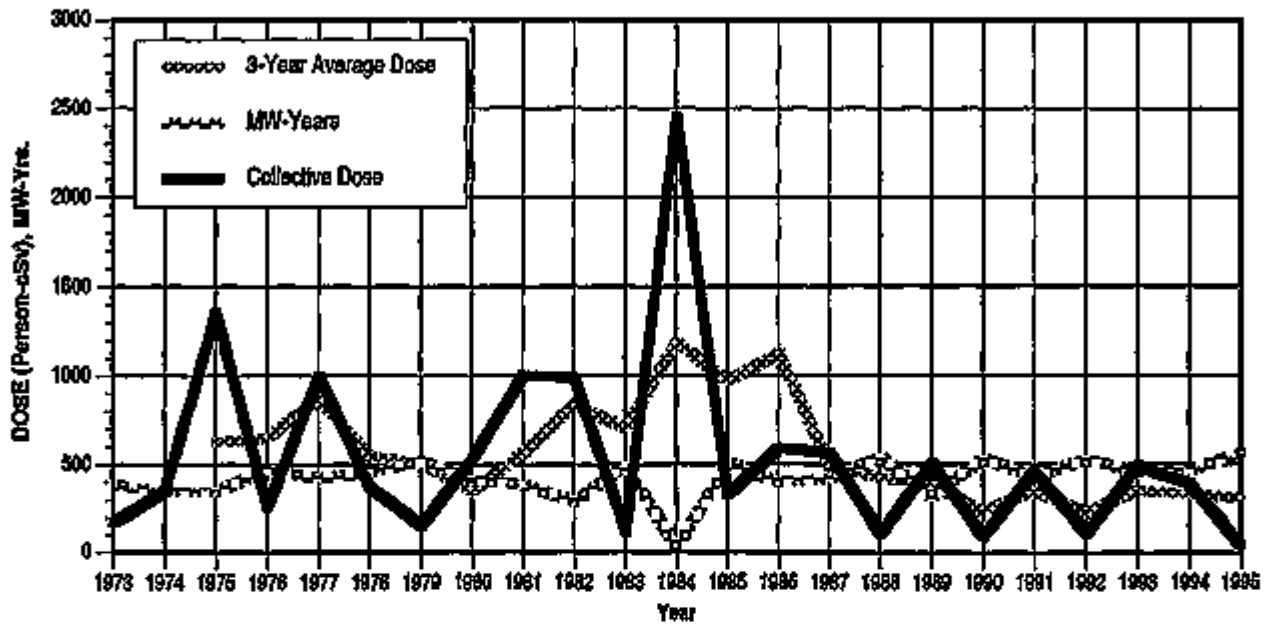


APPENDIX E (continued)

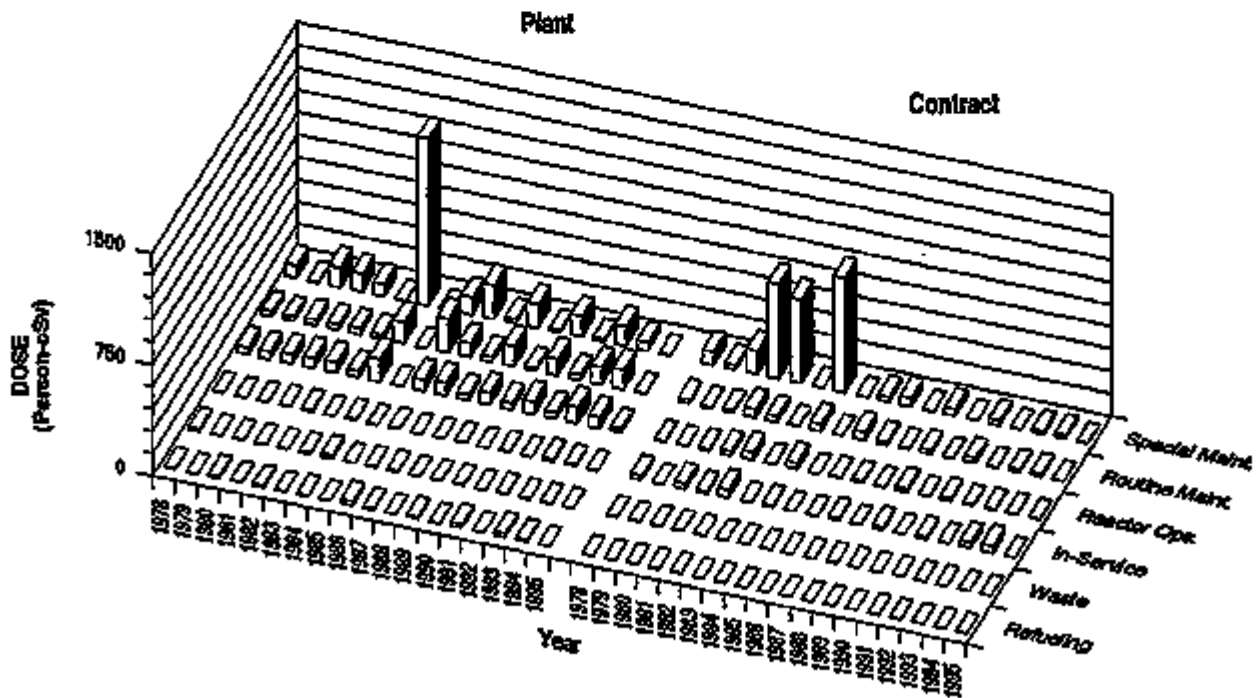
MONTICELLO

Dose-Performance Indicators

BWR



Breakdown by Job Function

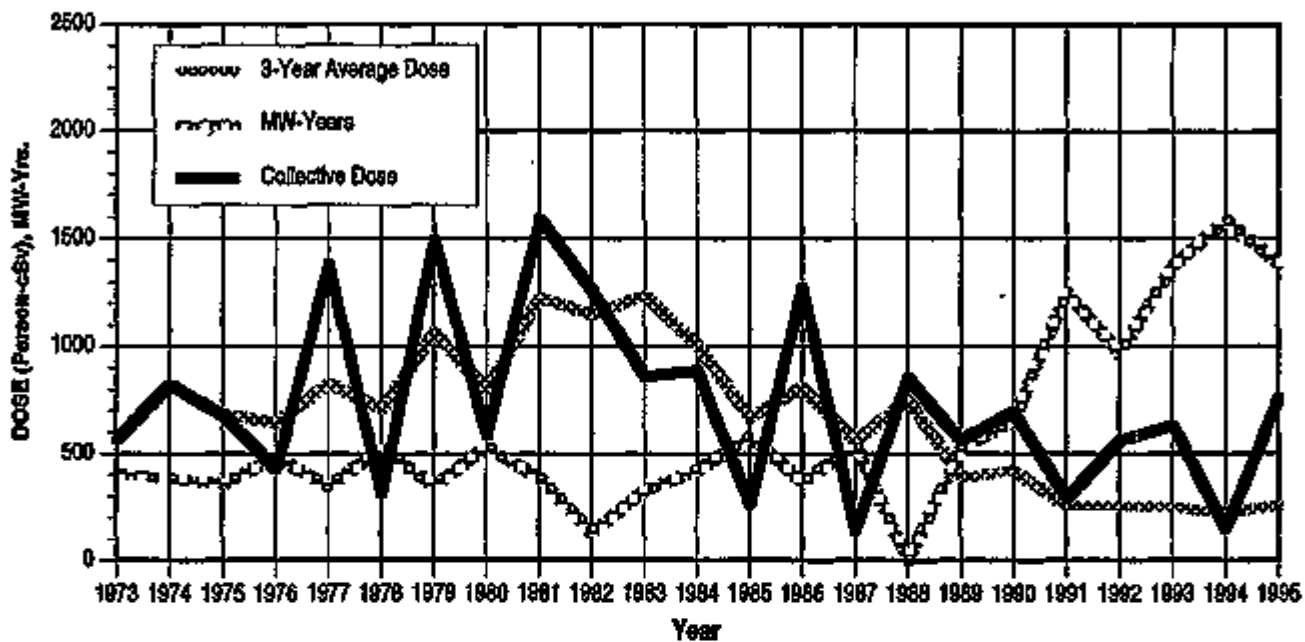


APPENDIX E (continued)

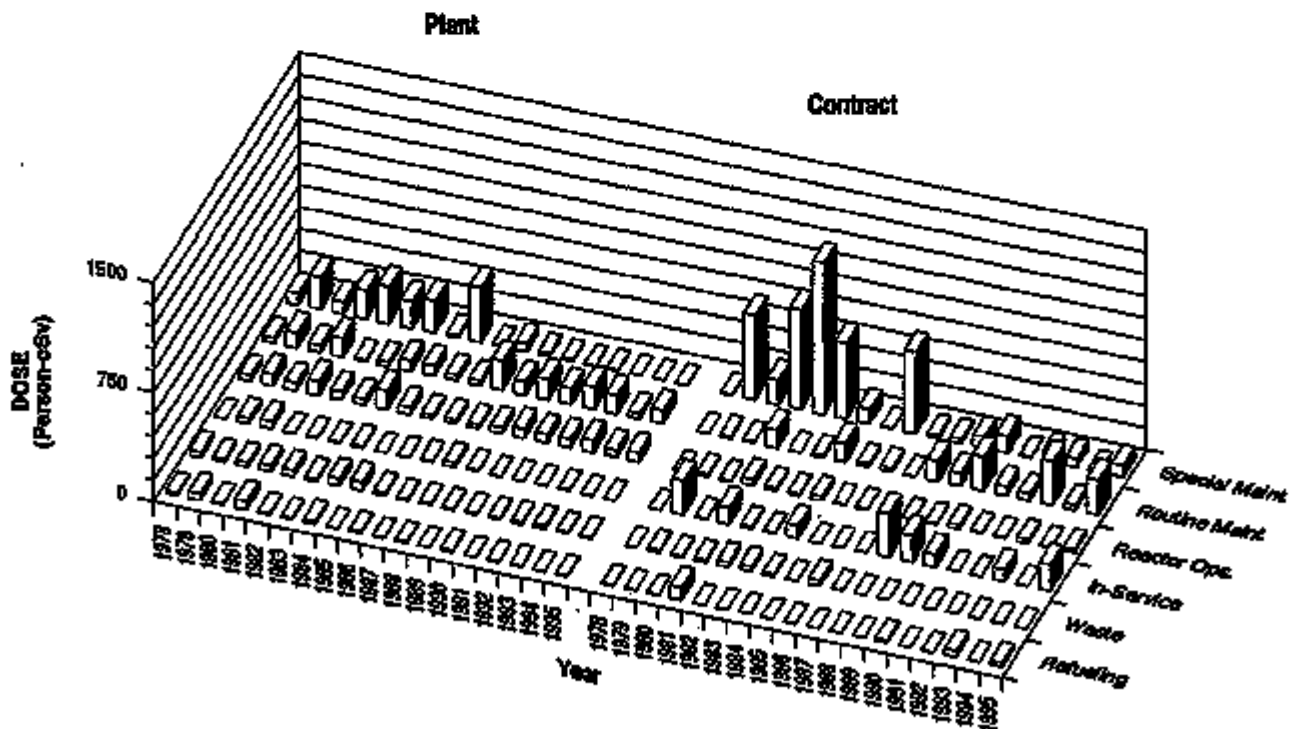
NINE MILE POINT 1, 2

Dose-Performance Indicators

BWR



Breakdown by Job Function

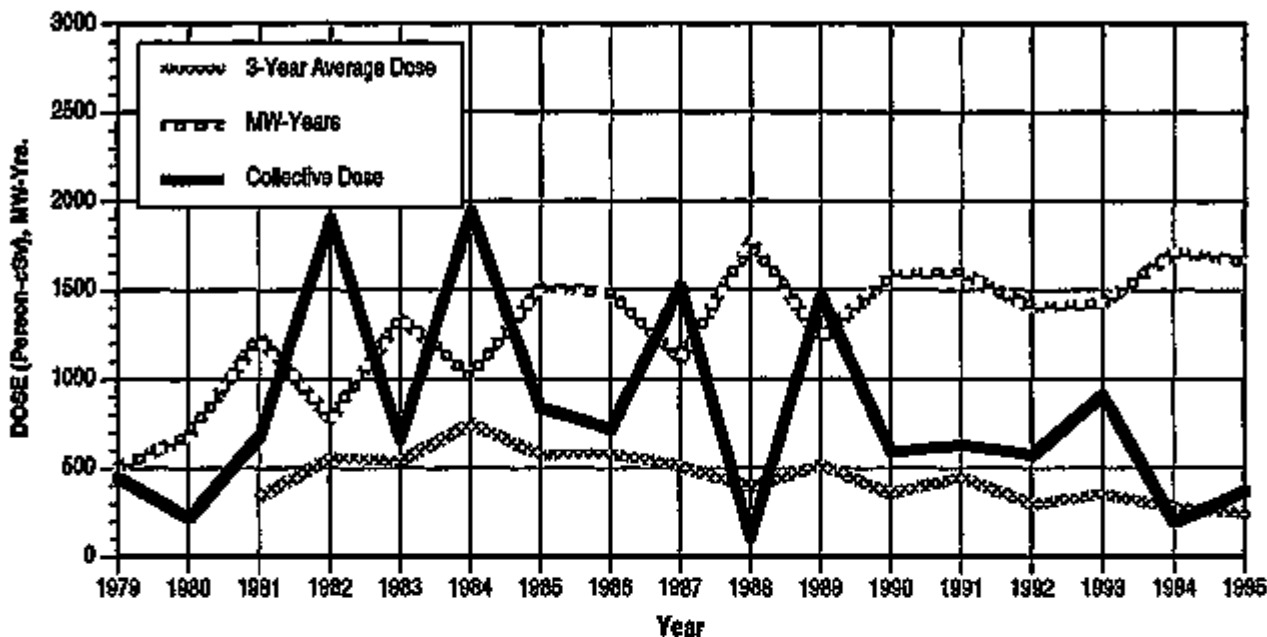


APPENDIX E (continued)

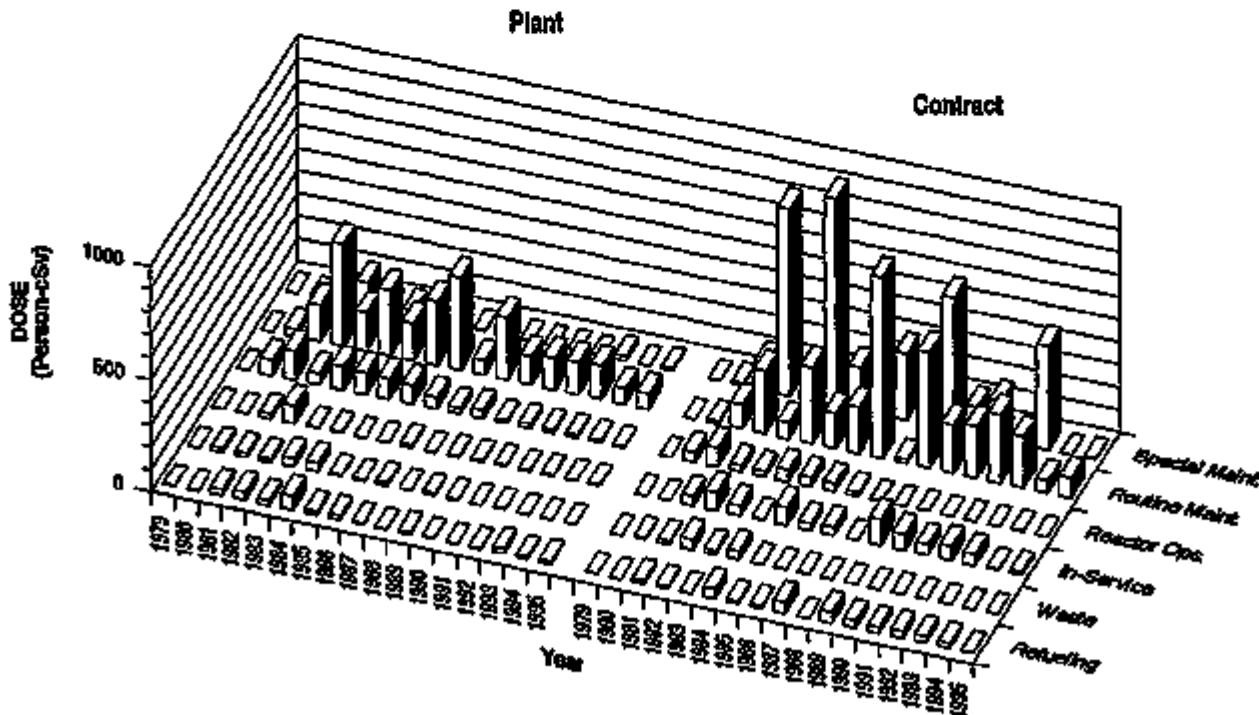
NORTH ANNA 1, 2

Dose-Performance Indicators

PWR



Breakdown by Job Function

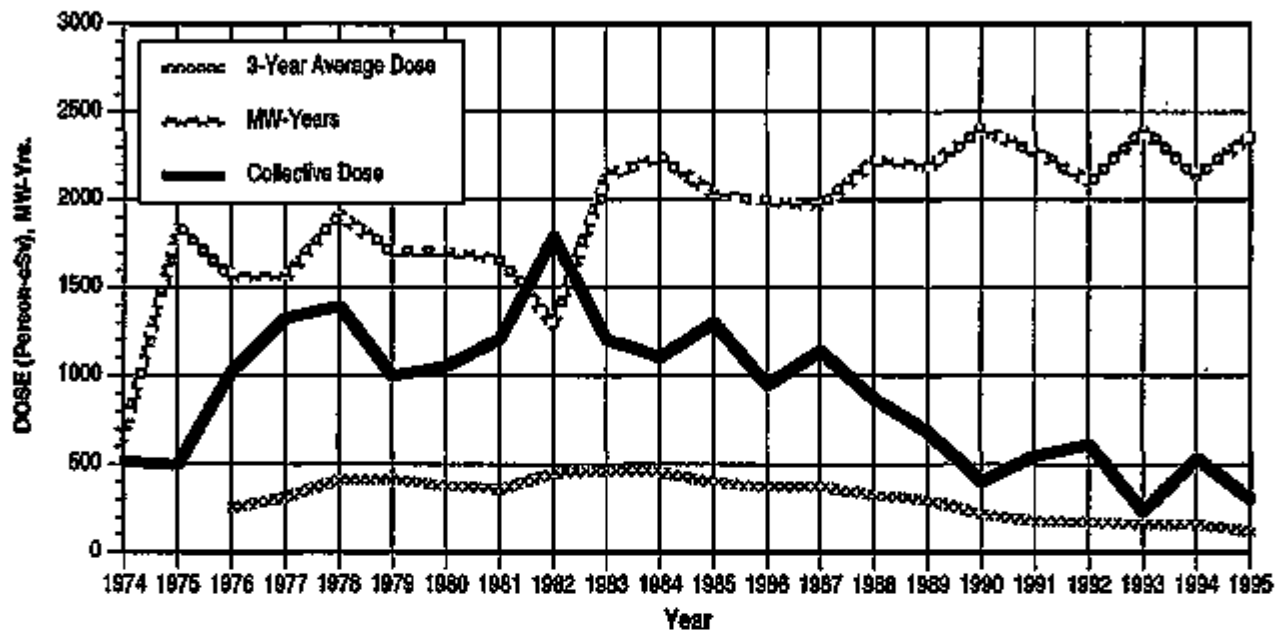


APPENDIX E (continued)

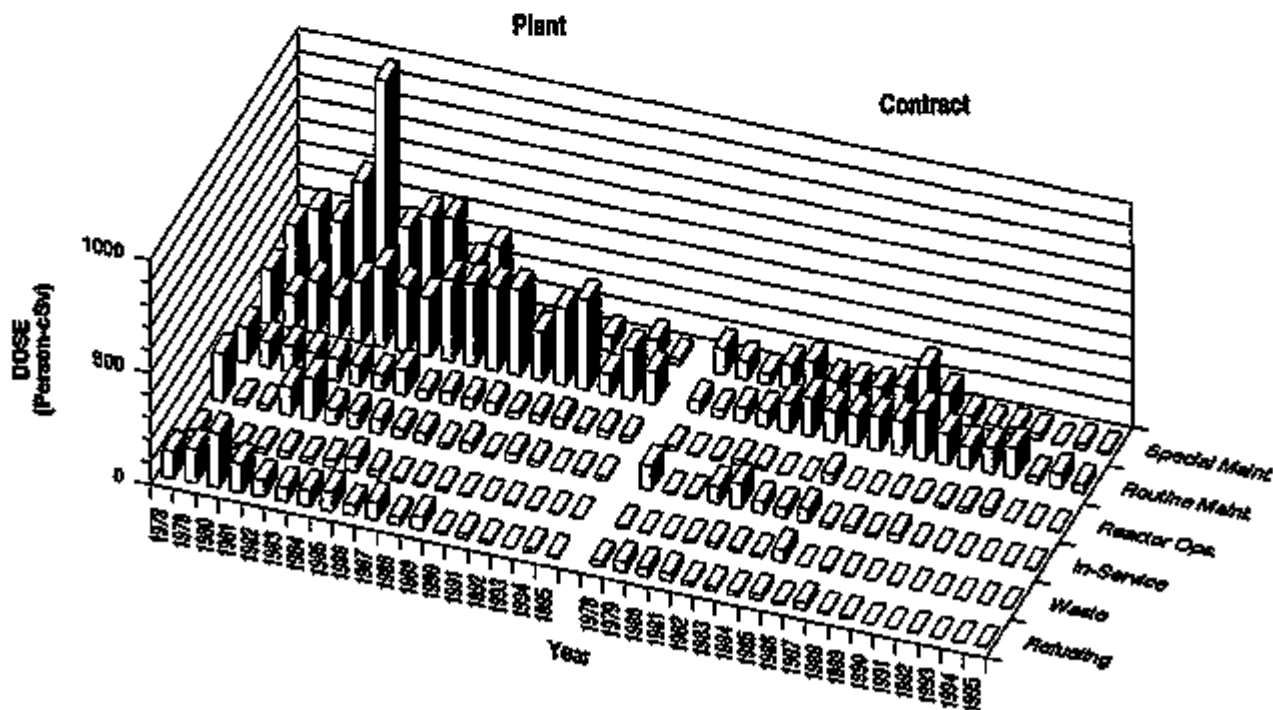
OCONEE 1, 2, 3

Dose-Performance Indicators

PWR



Breakdown by Job Function

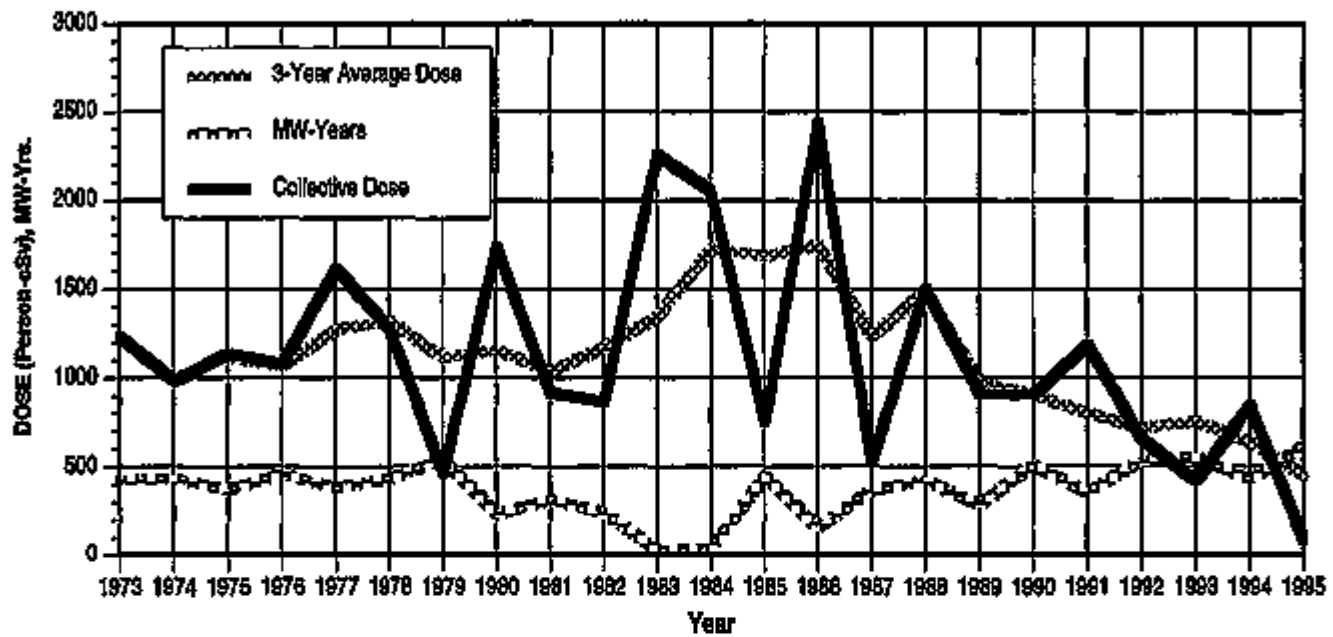


APPENDIX E (continued)

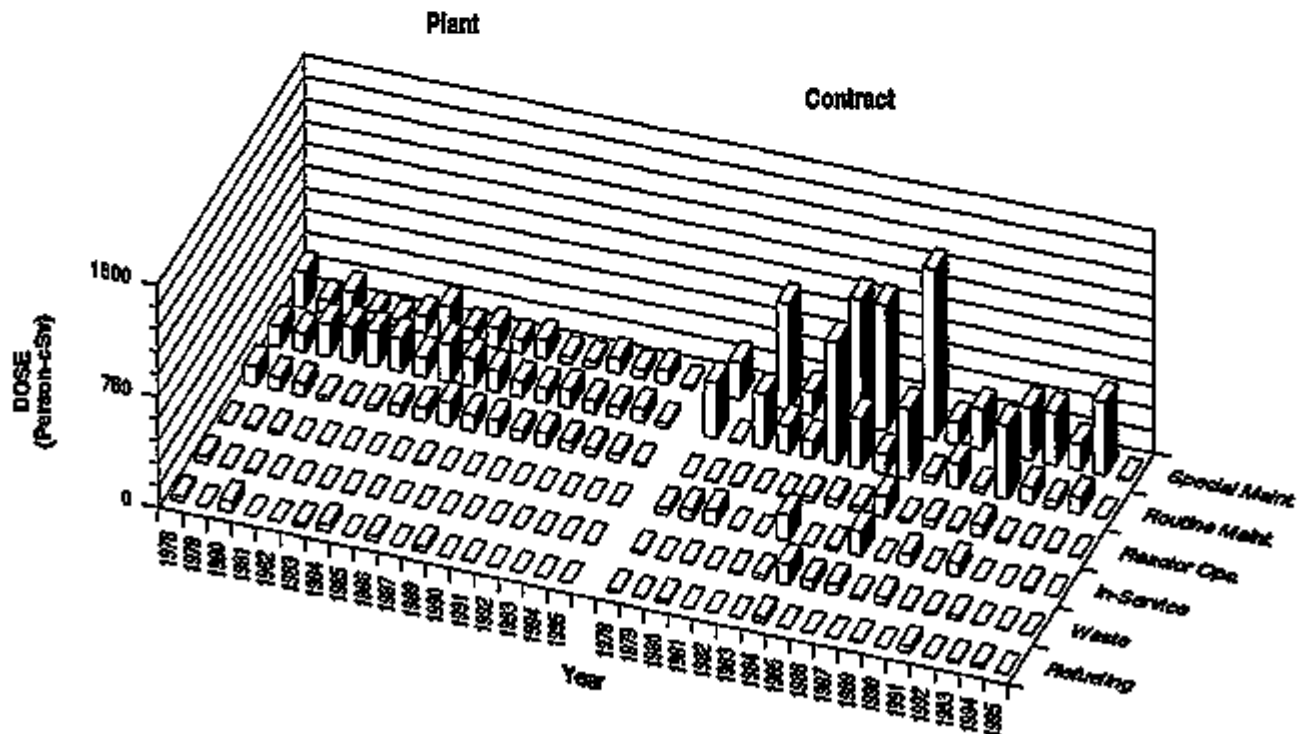
OYSTER CREEK

Dose-Performance Indicators

BWR



Breakdown by Job Function

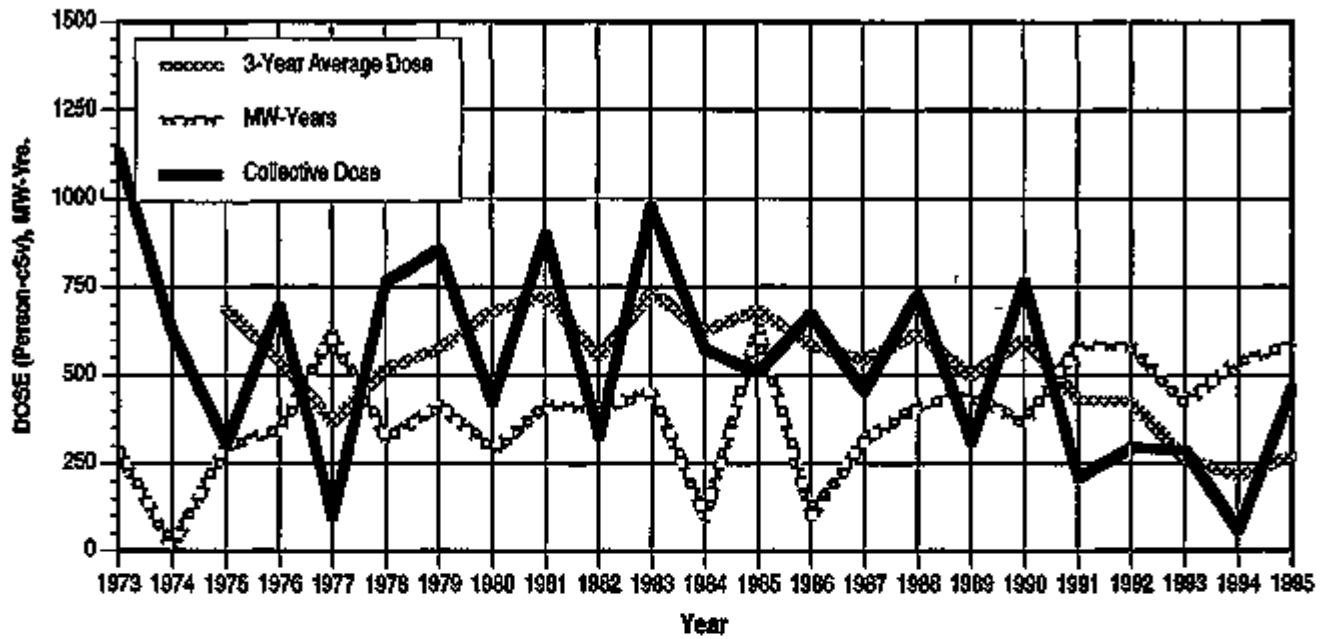


APPENDIX E (continued)

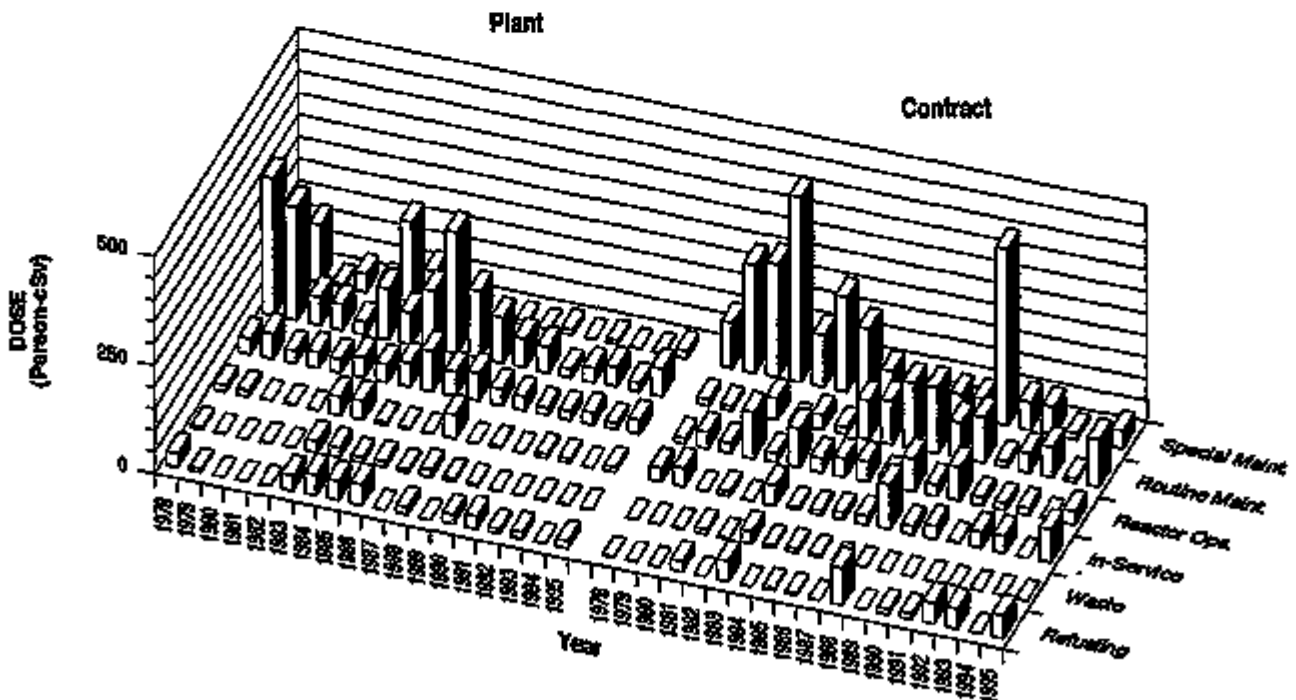
PALISADES

Dose-Performance Indicators

PWR



Breakdown by Job Function

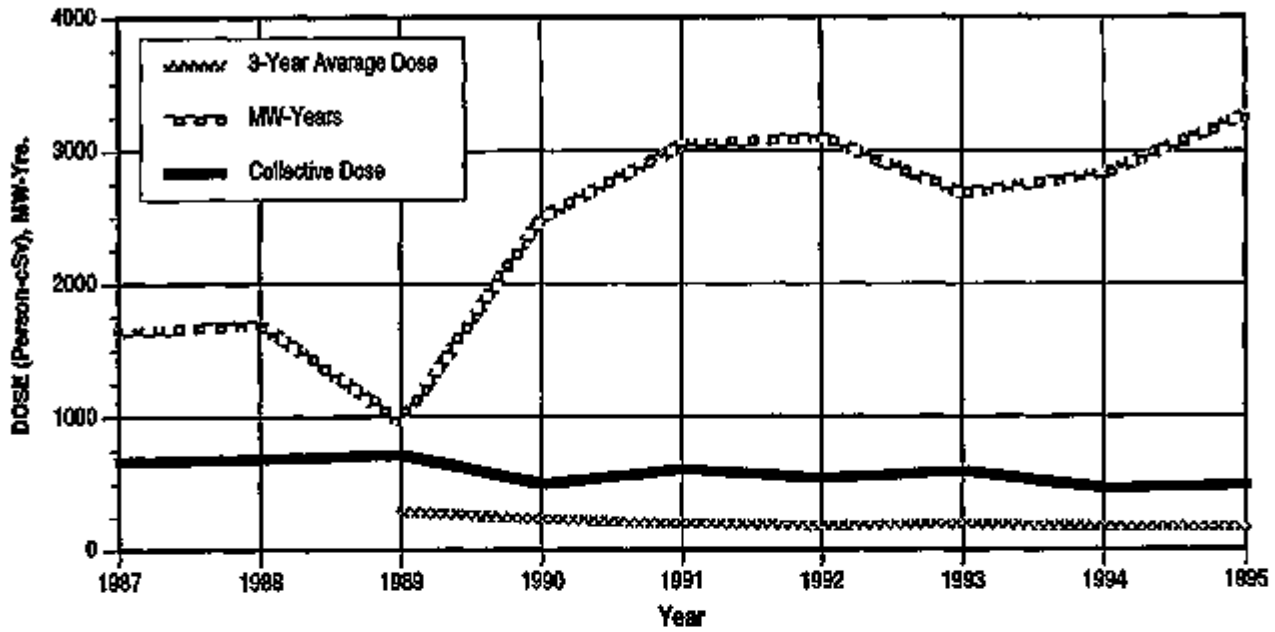


APPENDIX E (continued)

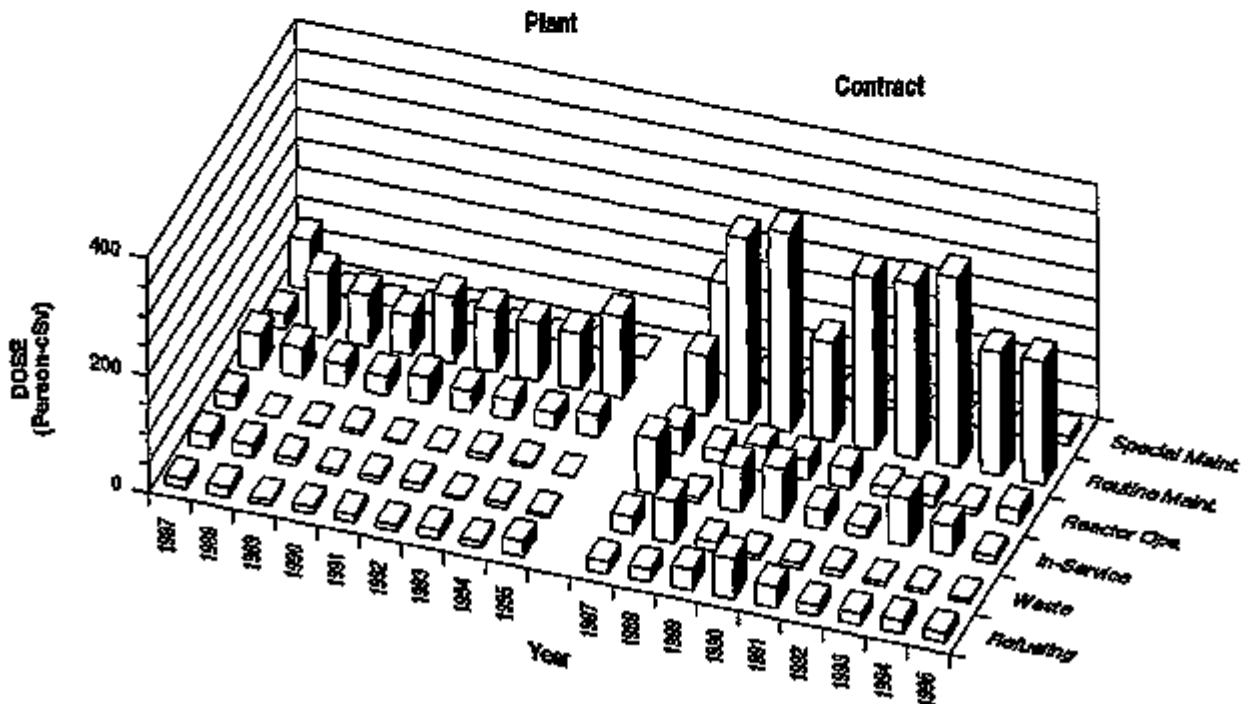
PALO VERDE 1, 2, 3

Dose-Performance Indicators

PWR



Breakdown by Job Function

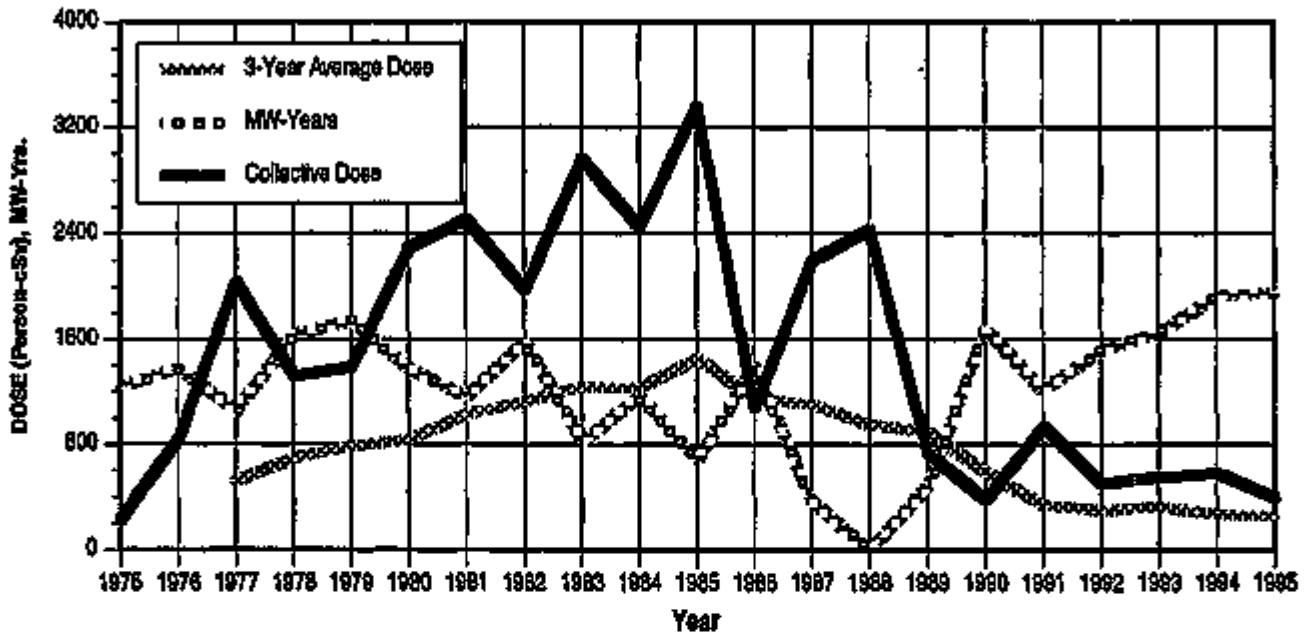


APPENDIX E (continued)

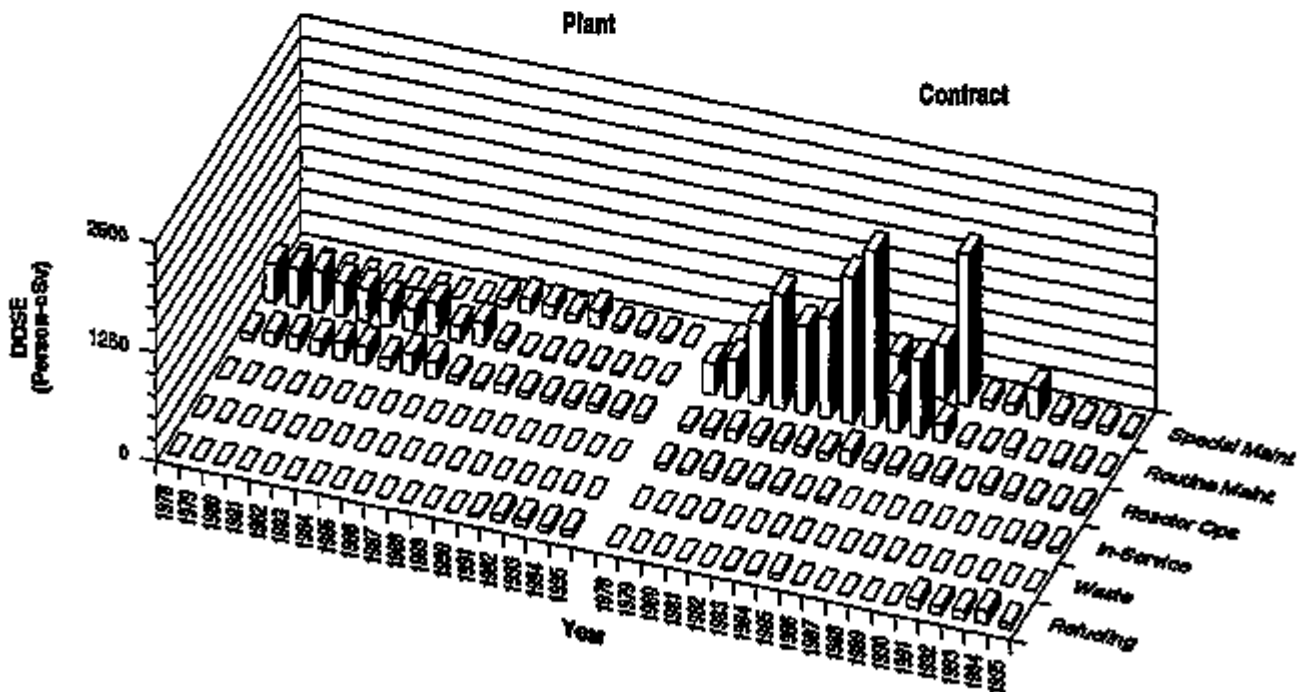
PEACH BOTTOM 2, 3

Dose-Performance Indicators

BWR



Breakdown by Job Function

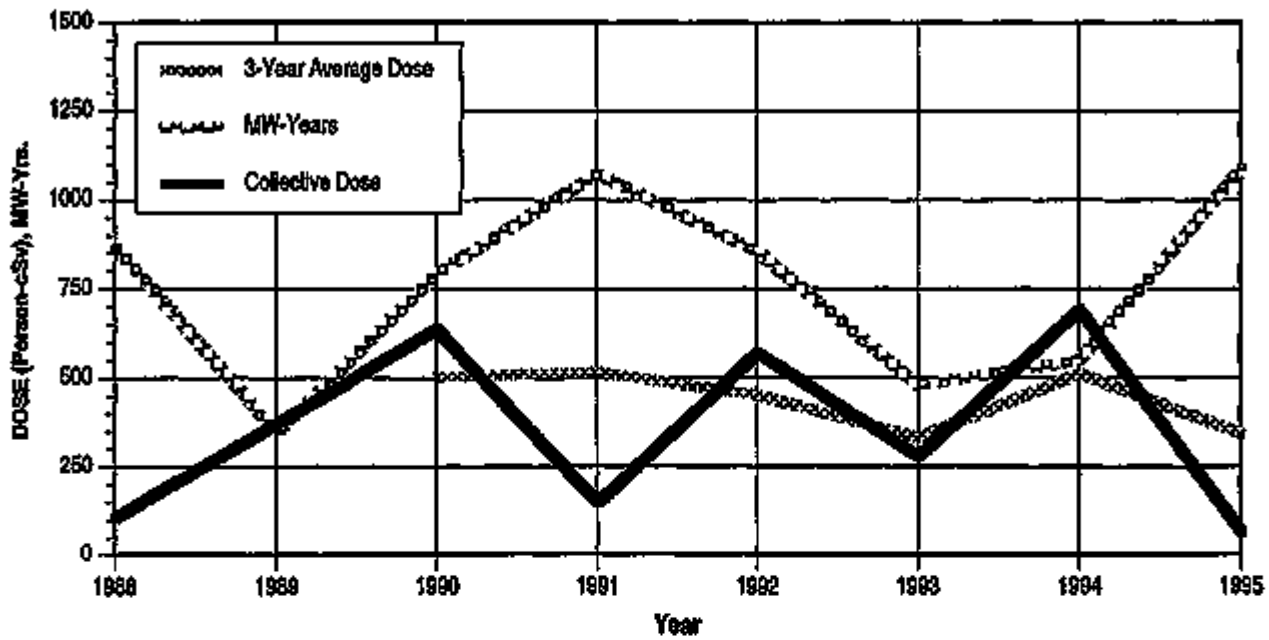


APPENDIX E (continued)

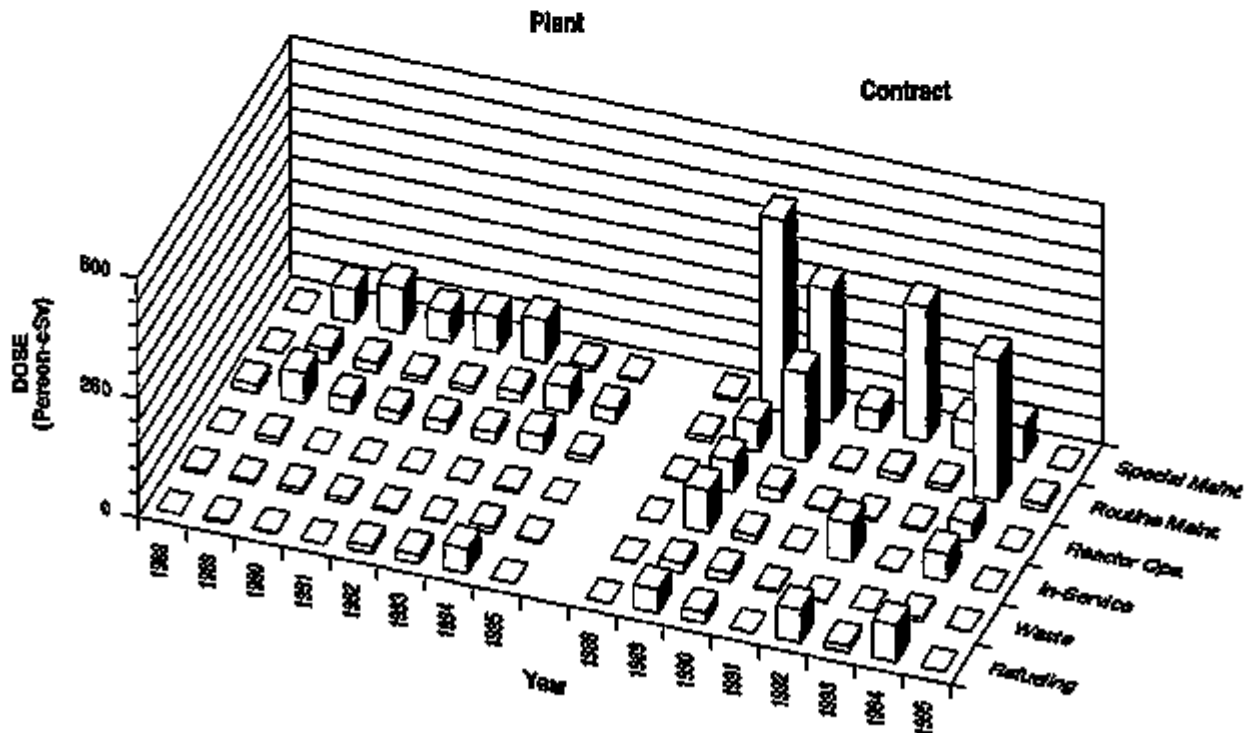
PERRY

Dose-Performance Indicators

BWR



Breakdown by Job Function

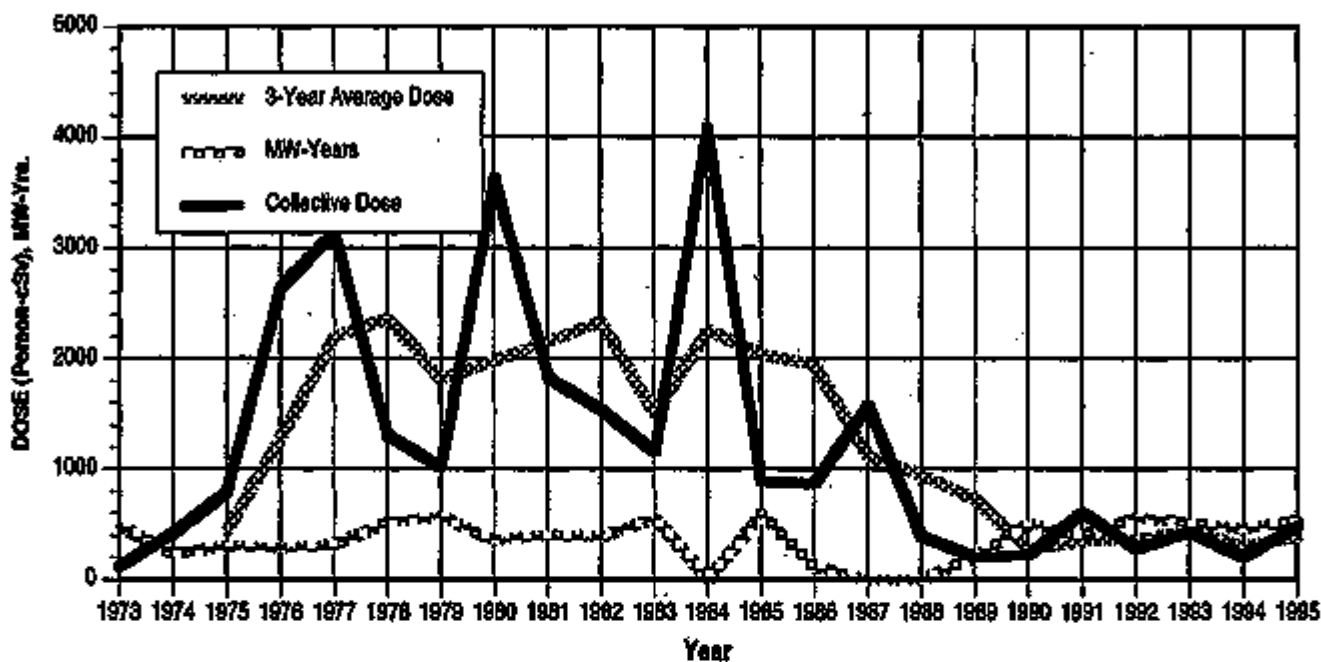


APPENDIX E (continued)

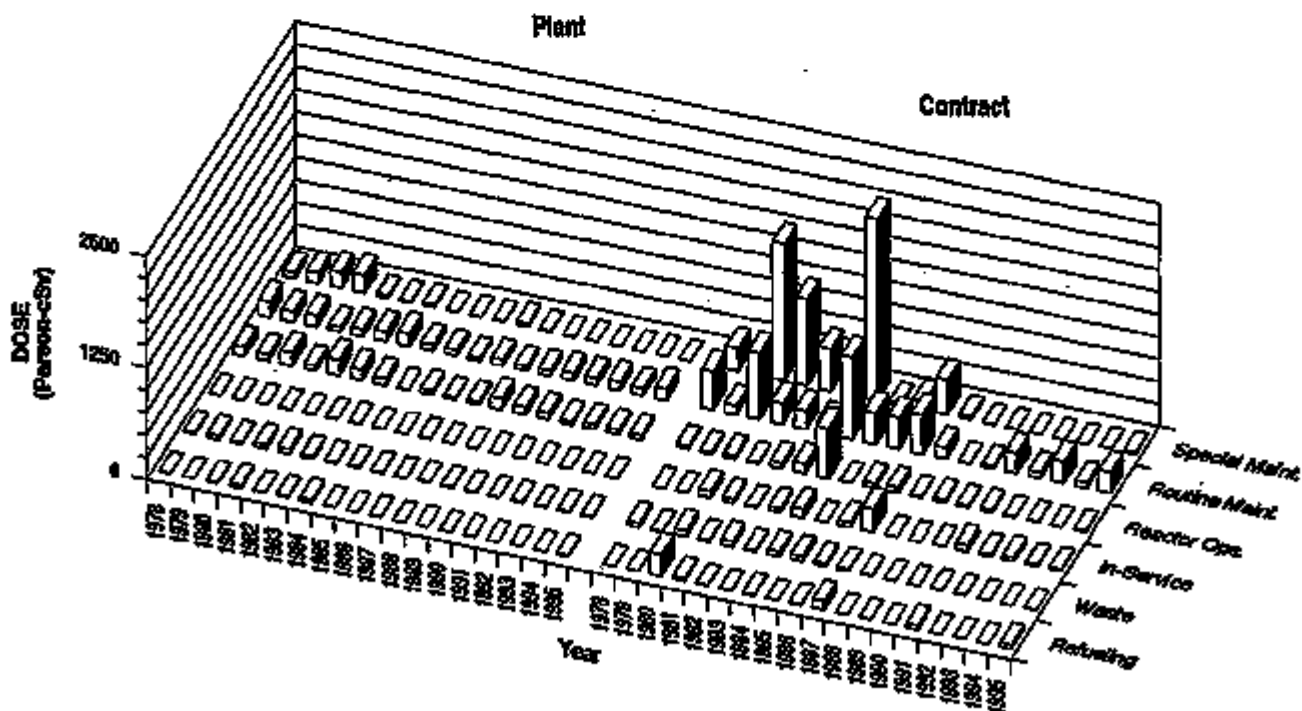
PILGRIM

Dose-Performance Indicators

BWR



Breakdown by Job Function

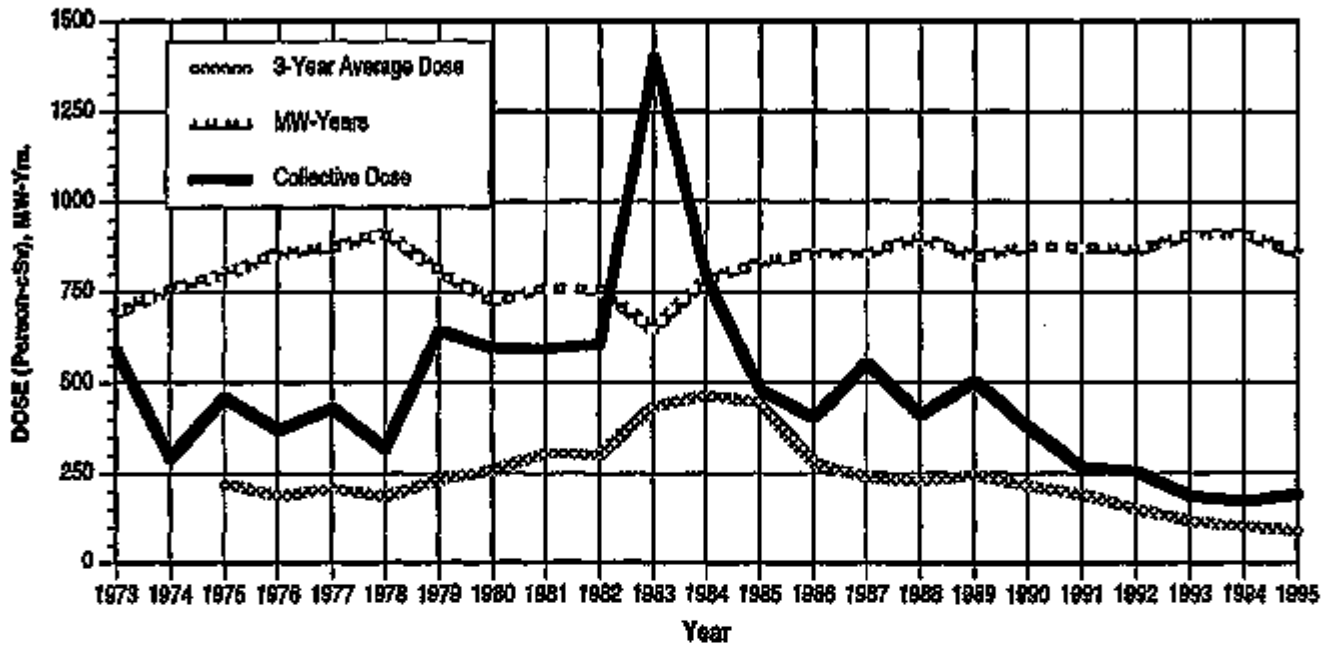


APPENDIX E (continued)

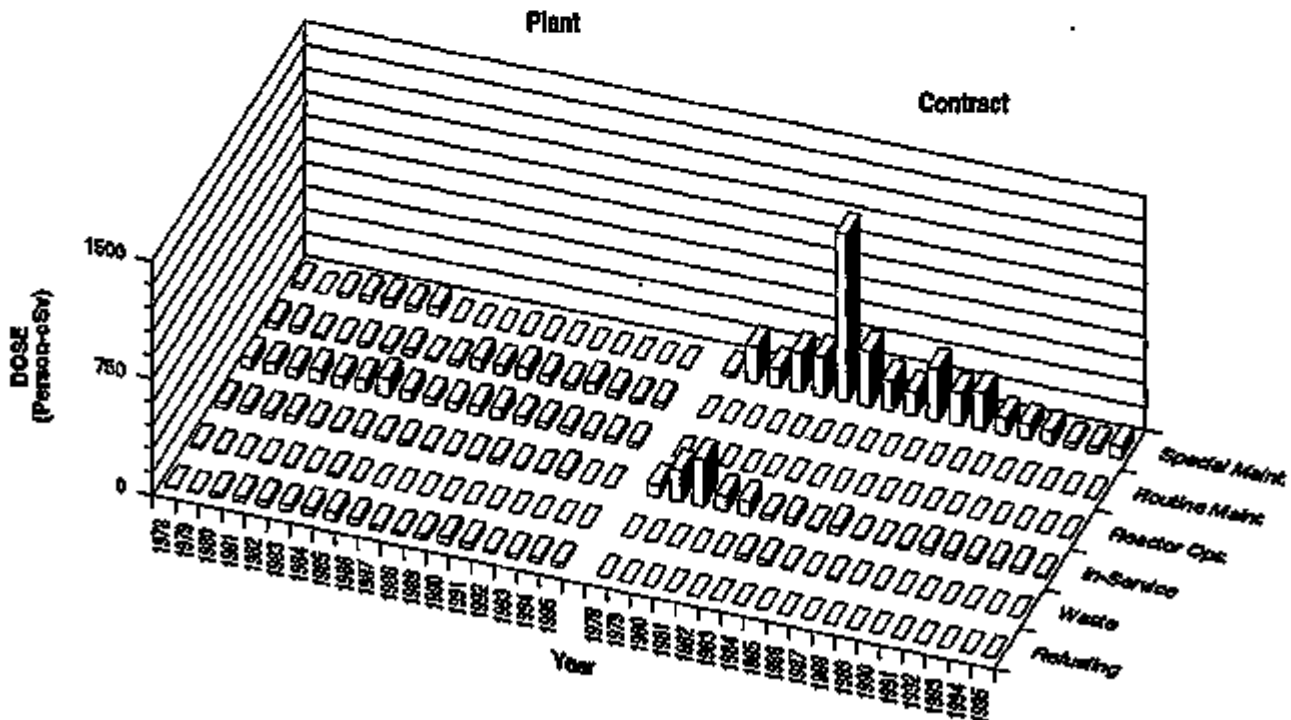
POINT BEACH 1, 2

Dose-Performance Indicators

PWR



Breakdown by Job Function

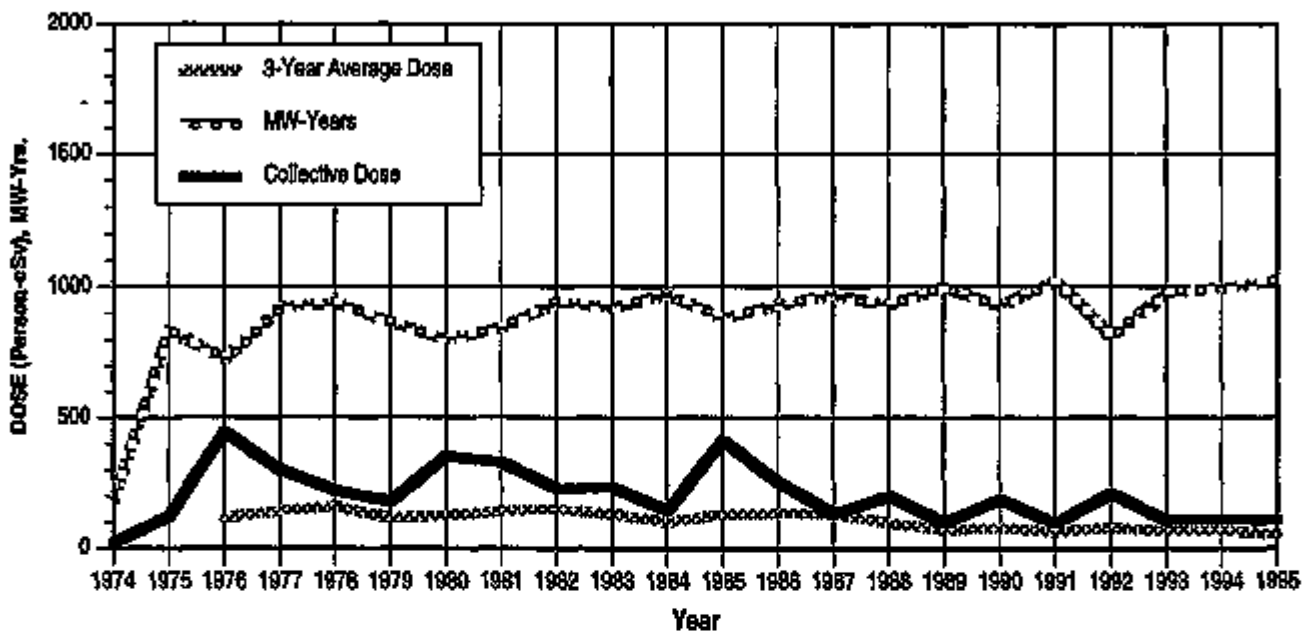


APPENDIX E (continued)

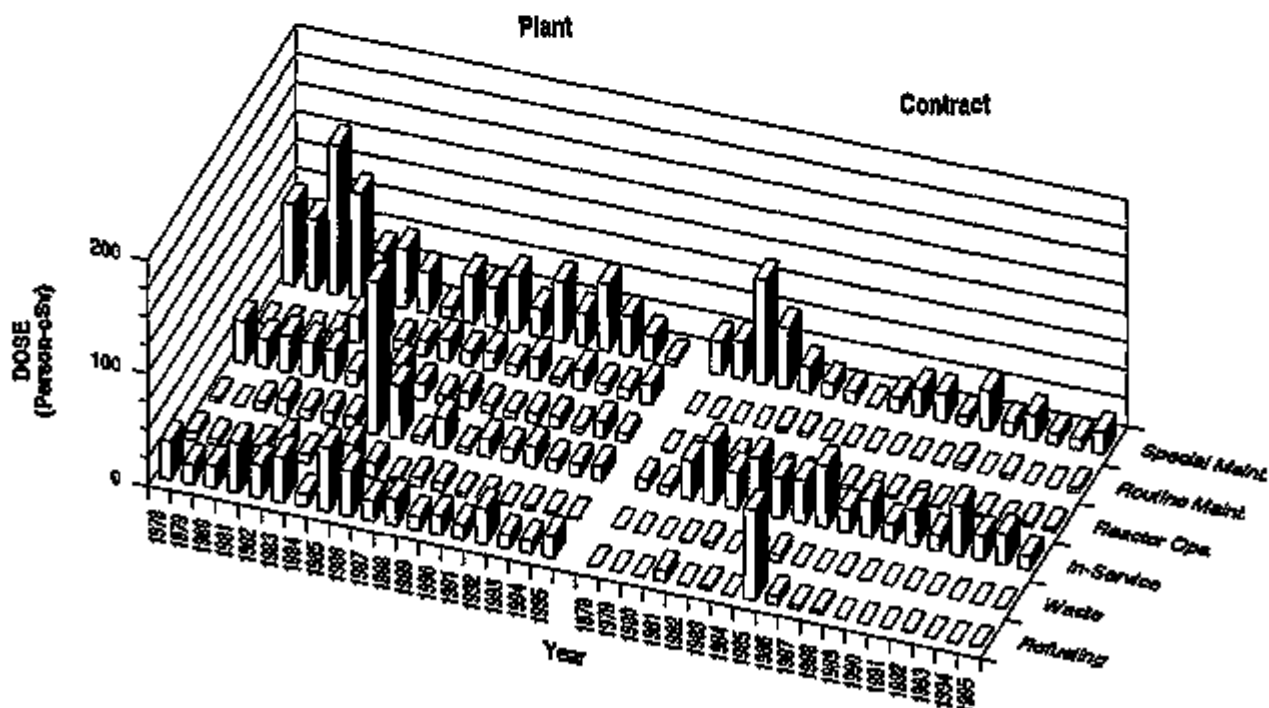
PRAIRIE ISLAND 1, 2

Dose-Performance Indicators

PWR



Breakdown by Job Function

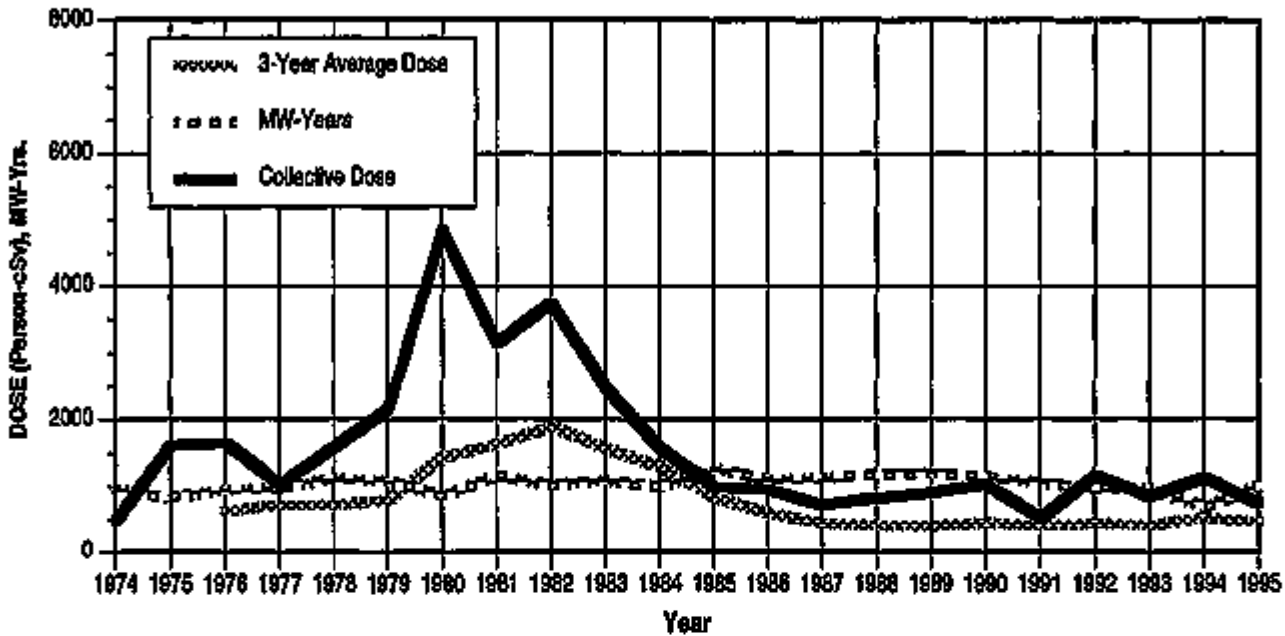


APPENDIX E (continued)

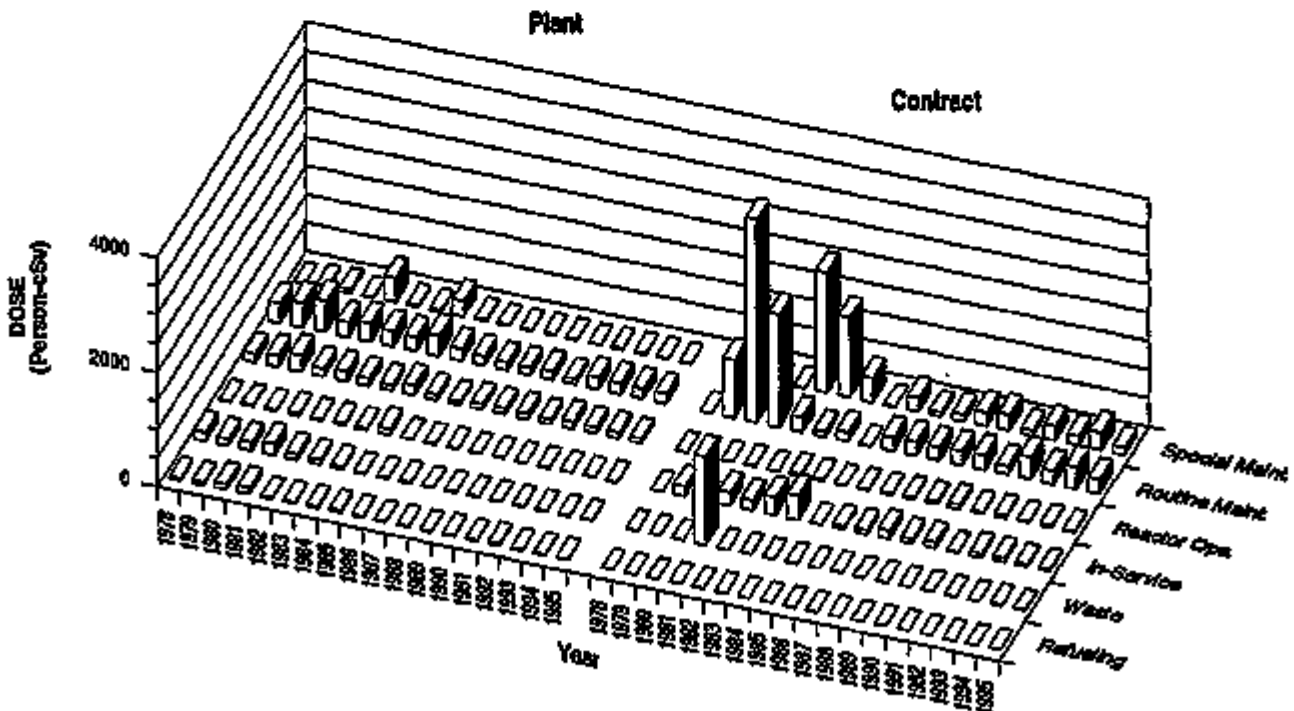
QUAD CITIES 1, 2

Dose-Performance Indicators

BWR



Breakdown by Job Function

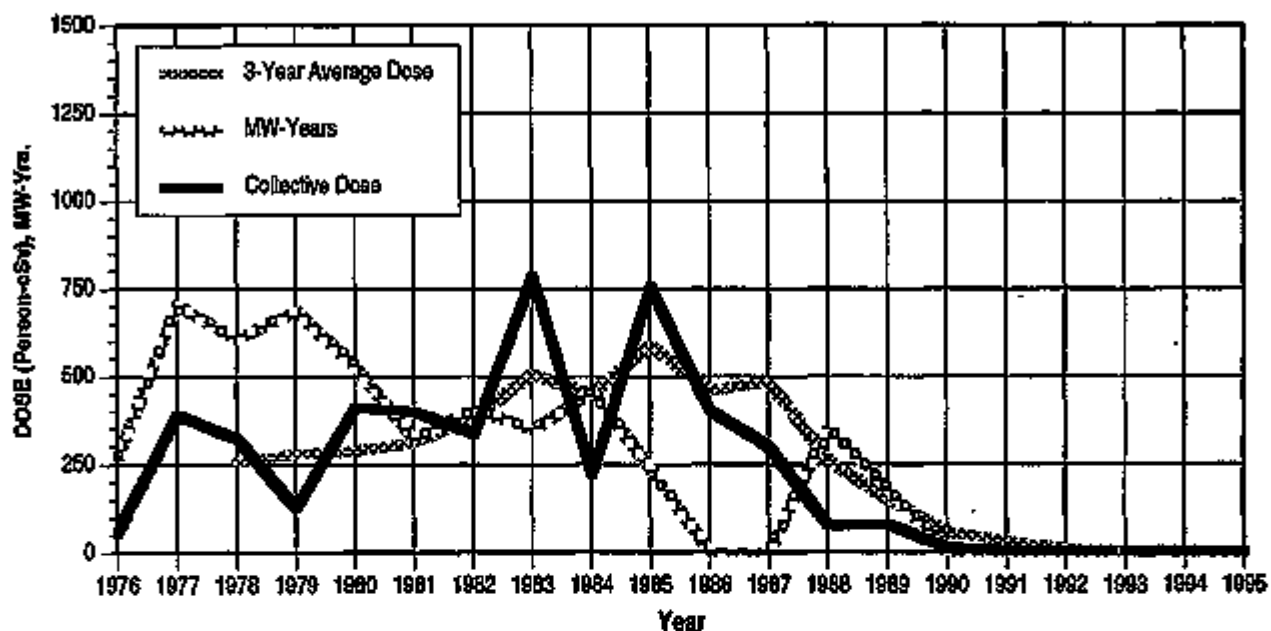


APPENDIX E (continued)

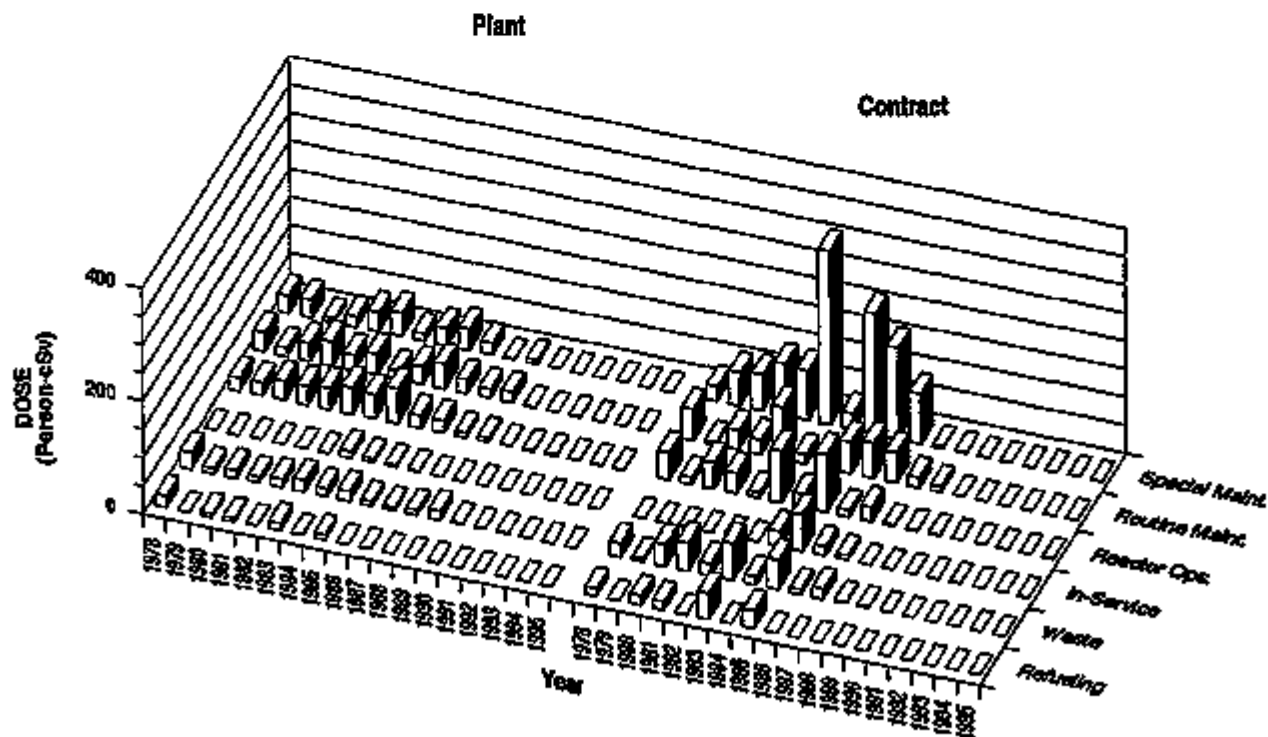
RANCHO SECO

Dose-Performance Indicators

PWR



Breakdown by Job Function

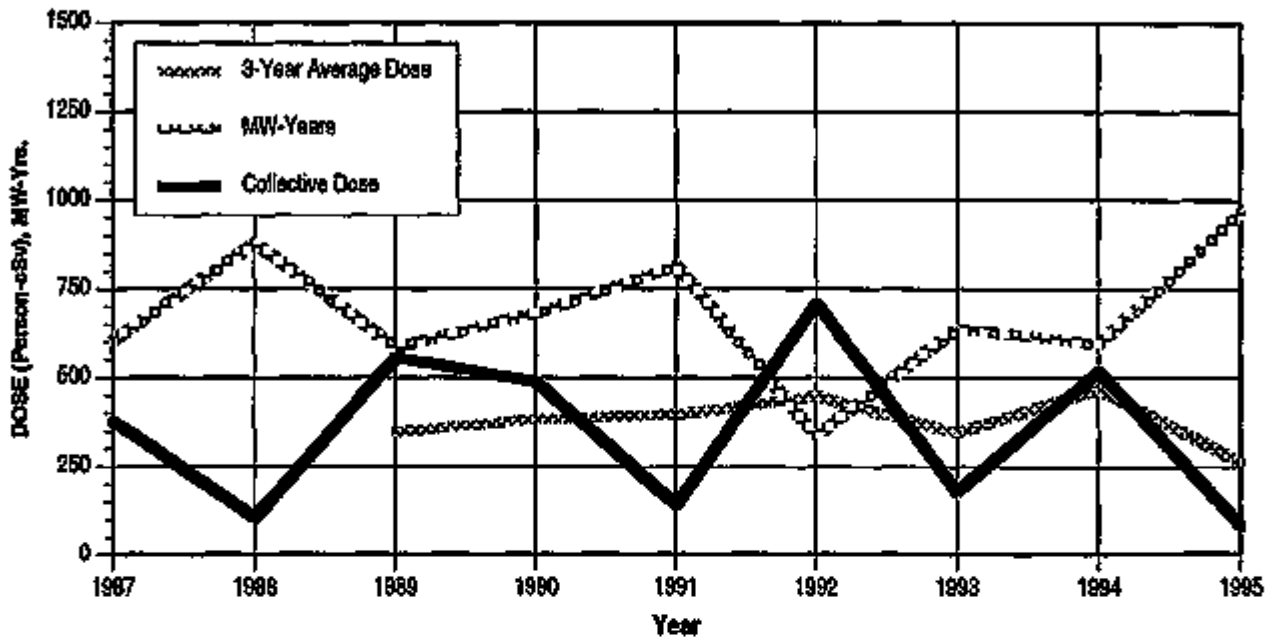


APPENDIX E (continued)

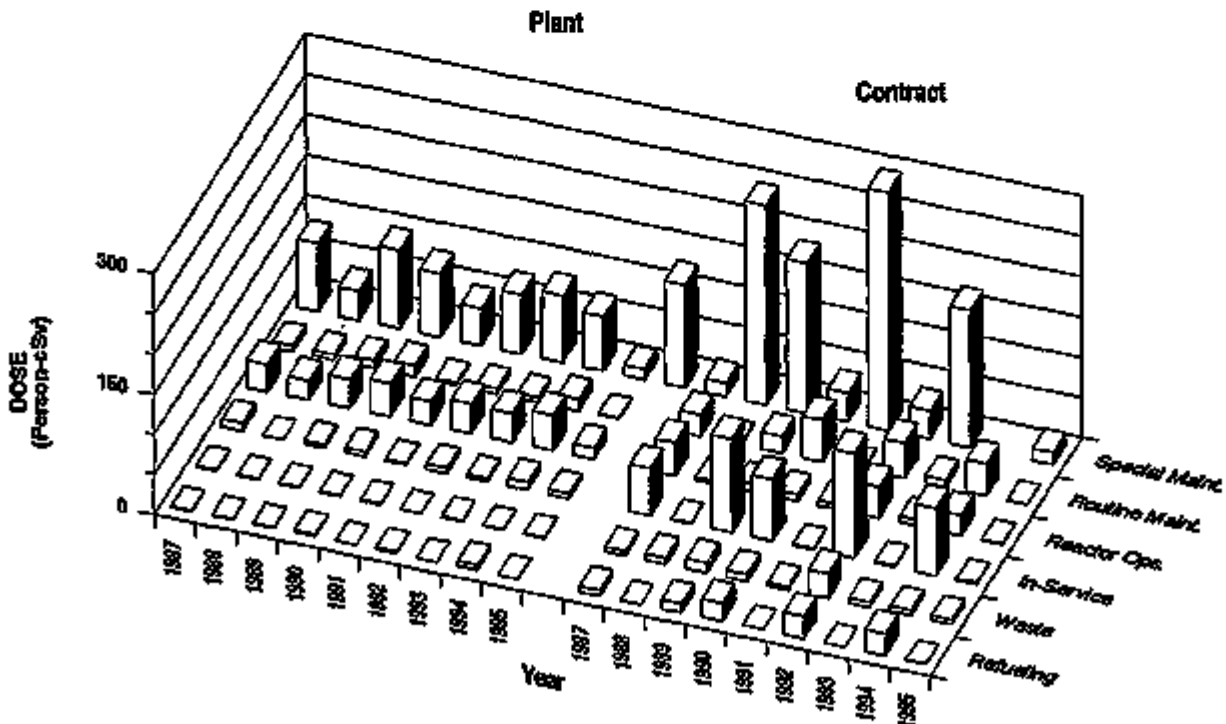
RIVER BEND 1

Dose-Performance Indicators

BWR



Breakdown by Job Function

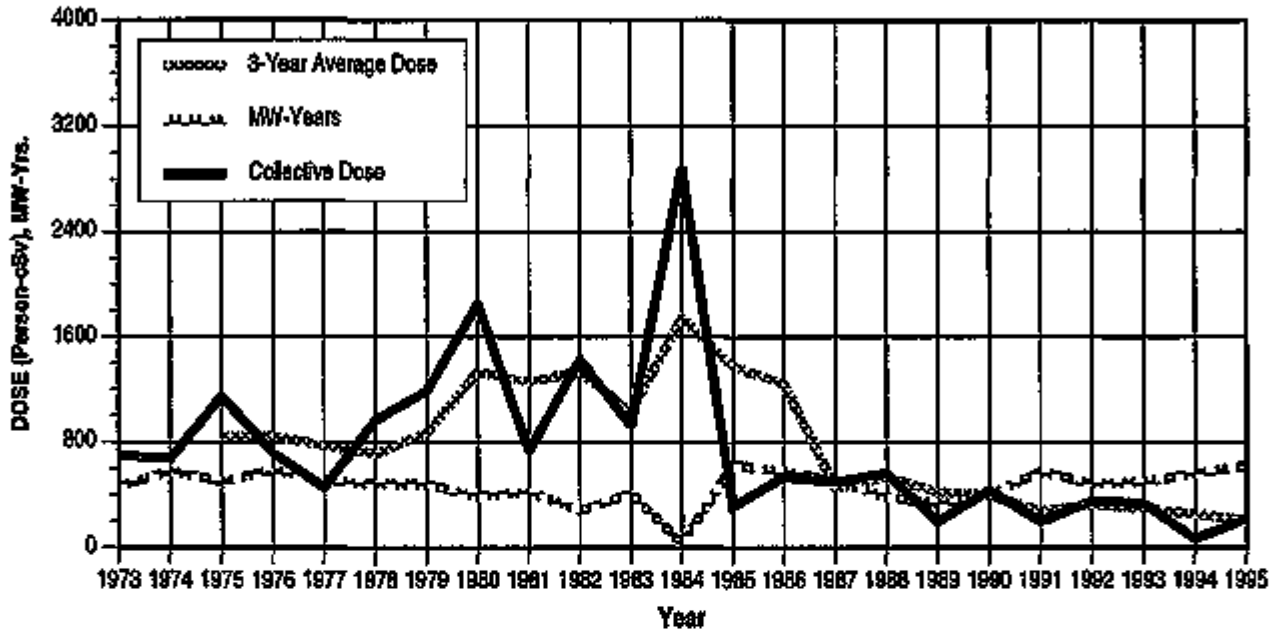


APPENDIX E (continued)

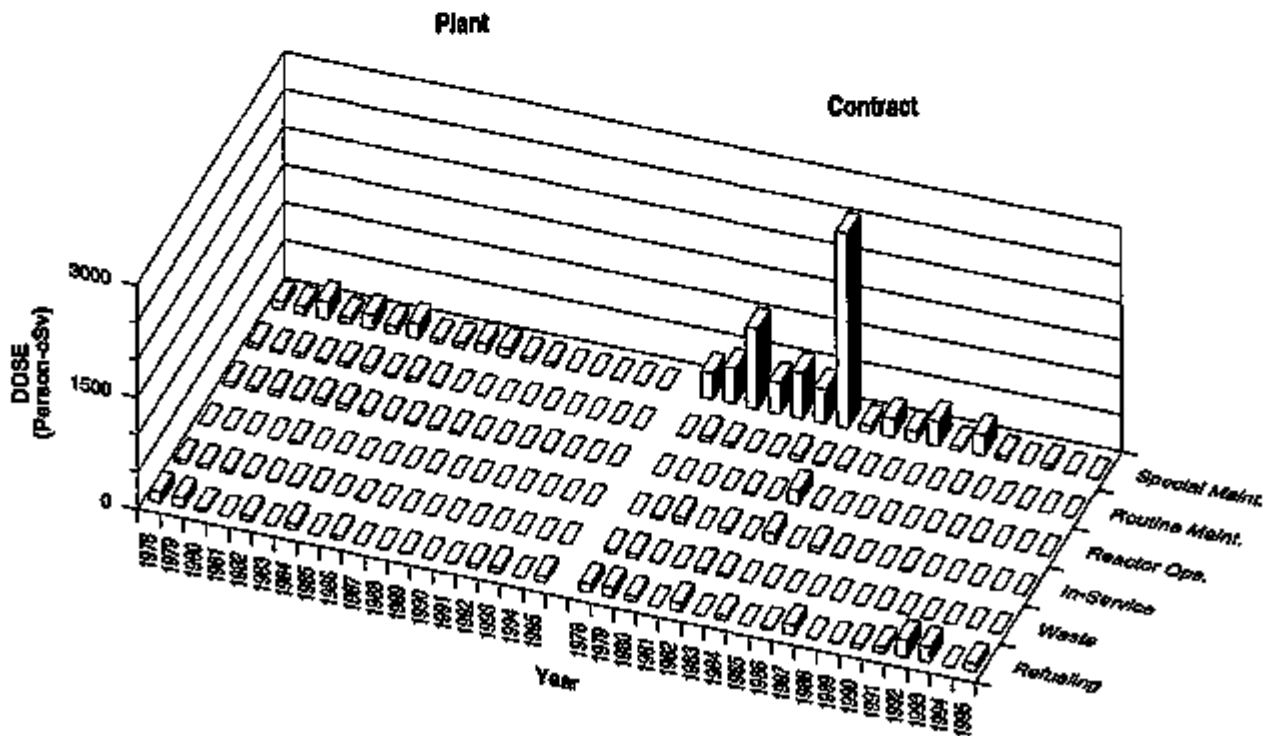
ROBINSON 2

Dose-Performance Indicators

PWR



Breakdown by Job Function

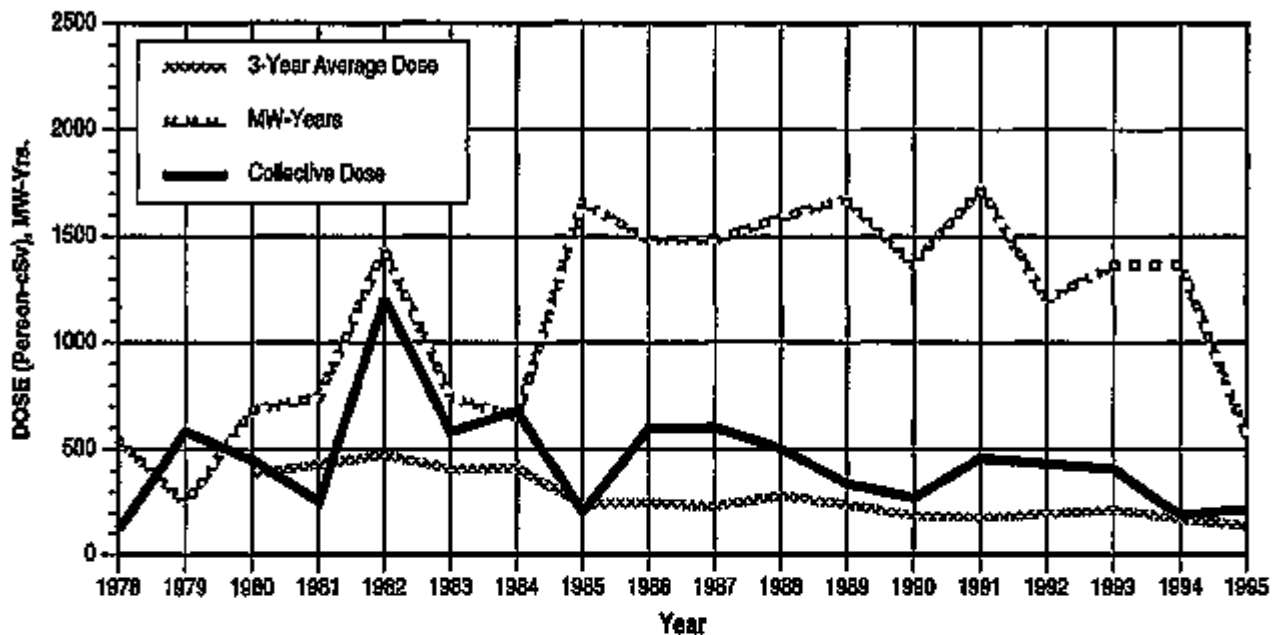


APPENDIX E (continued)

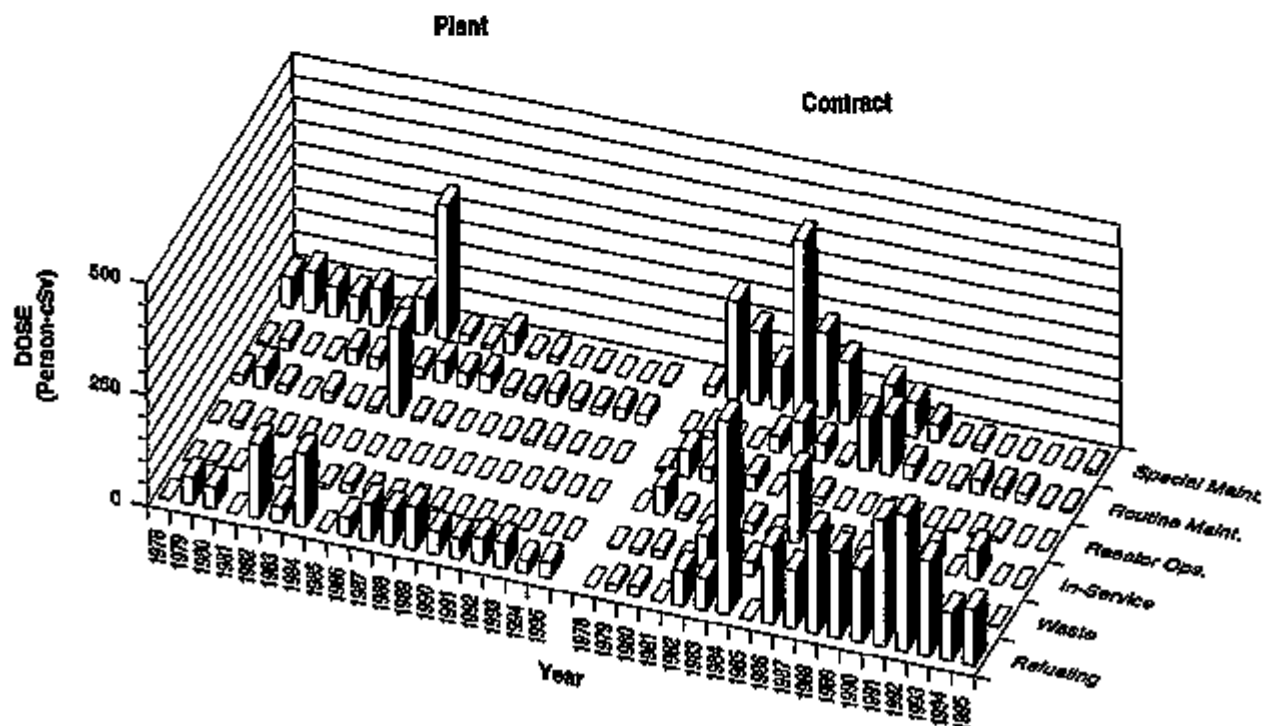
SALEM 1, 2

Dose-Performance Indicators

PWR



Breakdown by Job Function

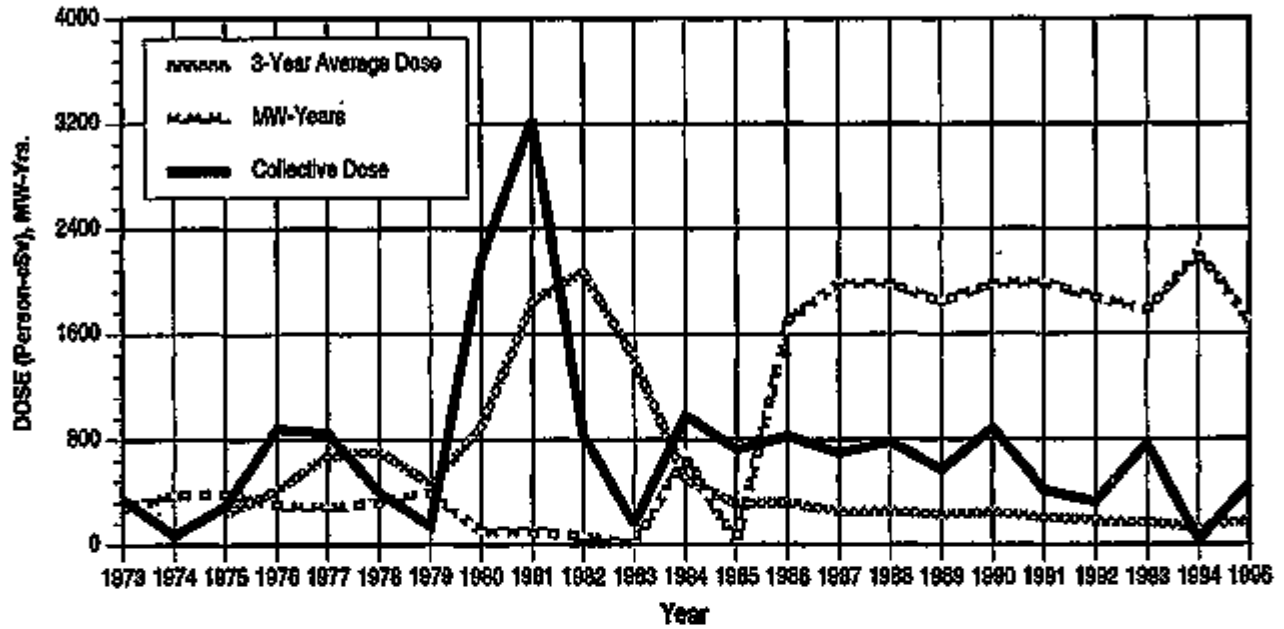


APPENDIX E (continued)

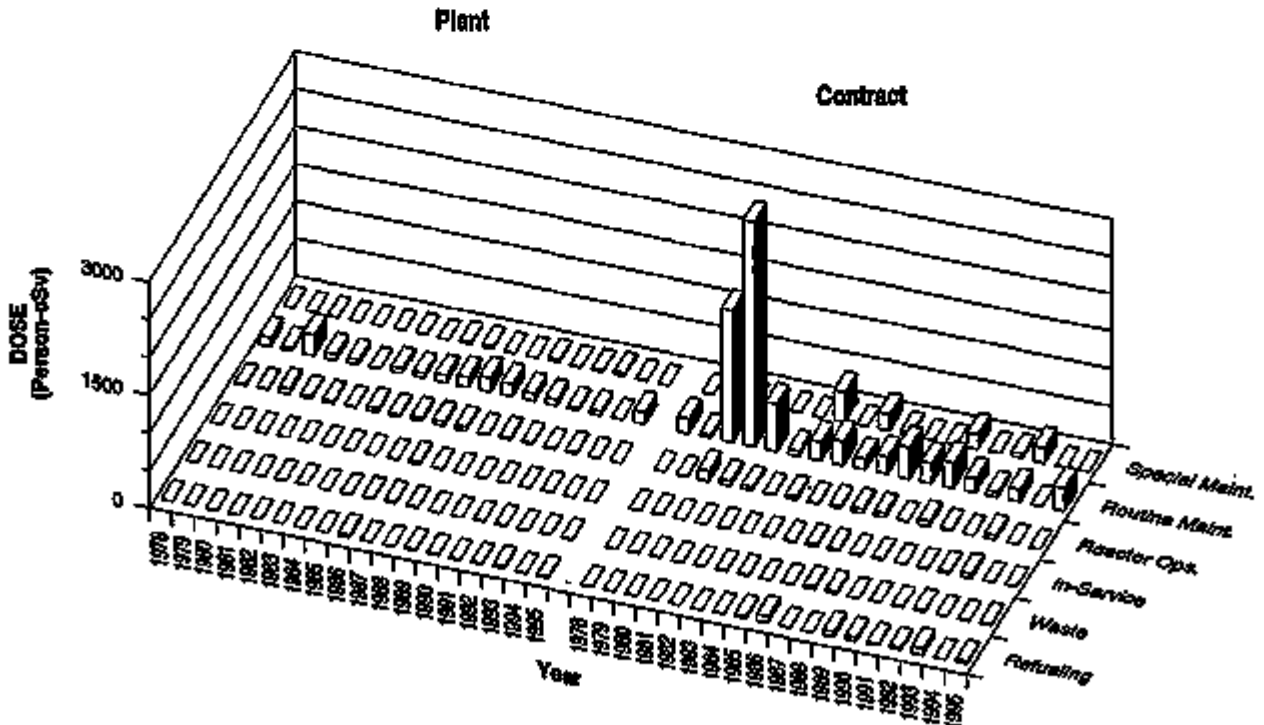
SAN ONOFRE 1, 2, 3

Dose-Performance Indicators

PWR



Breakdown by Job Function

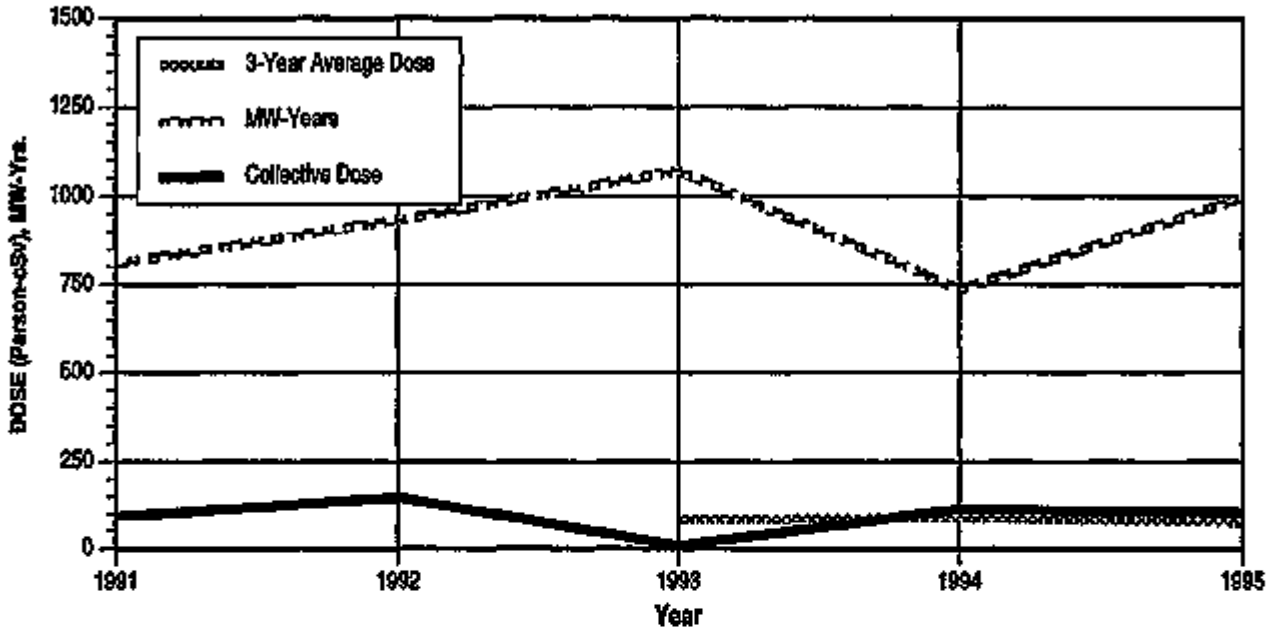


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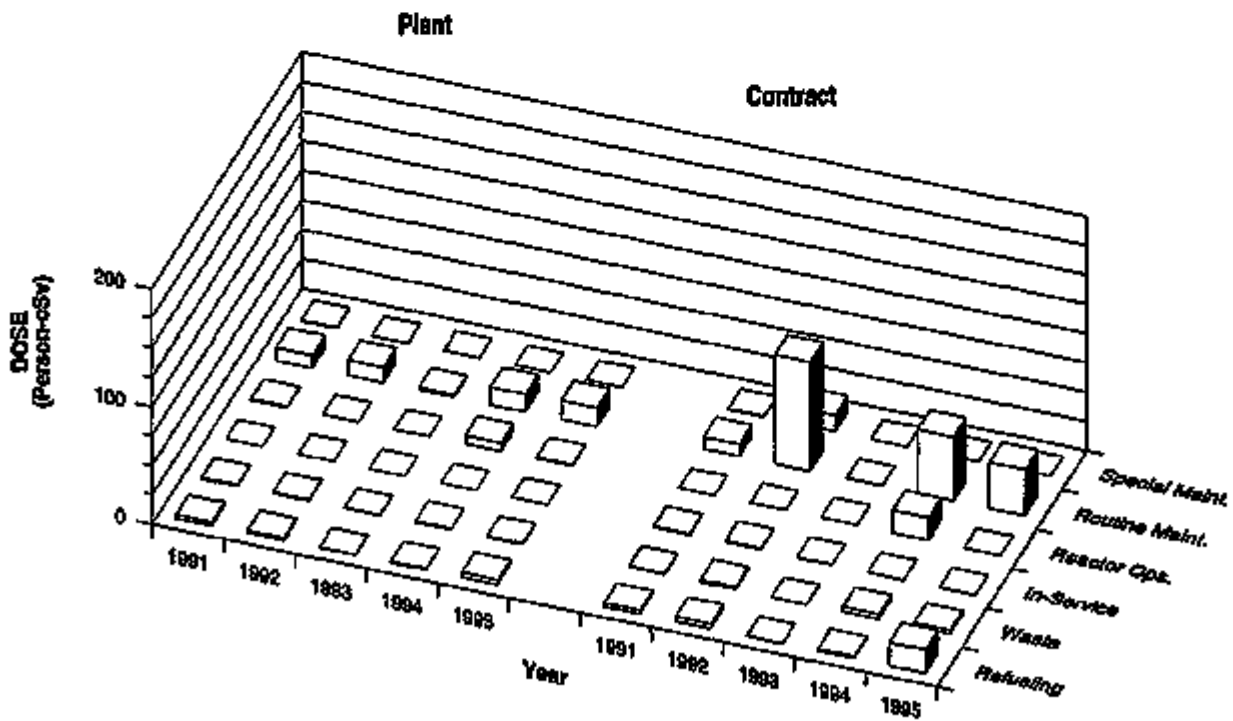
SEABROOK

Dose-Performance Indicators

PWR



Breakdown by Job Function

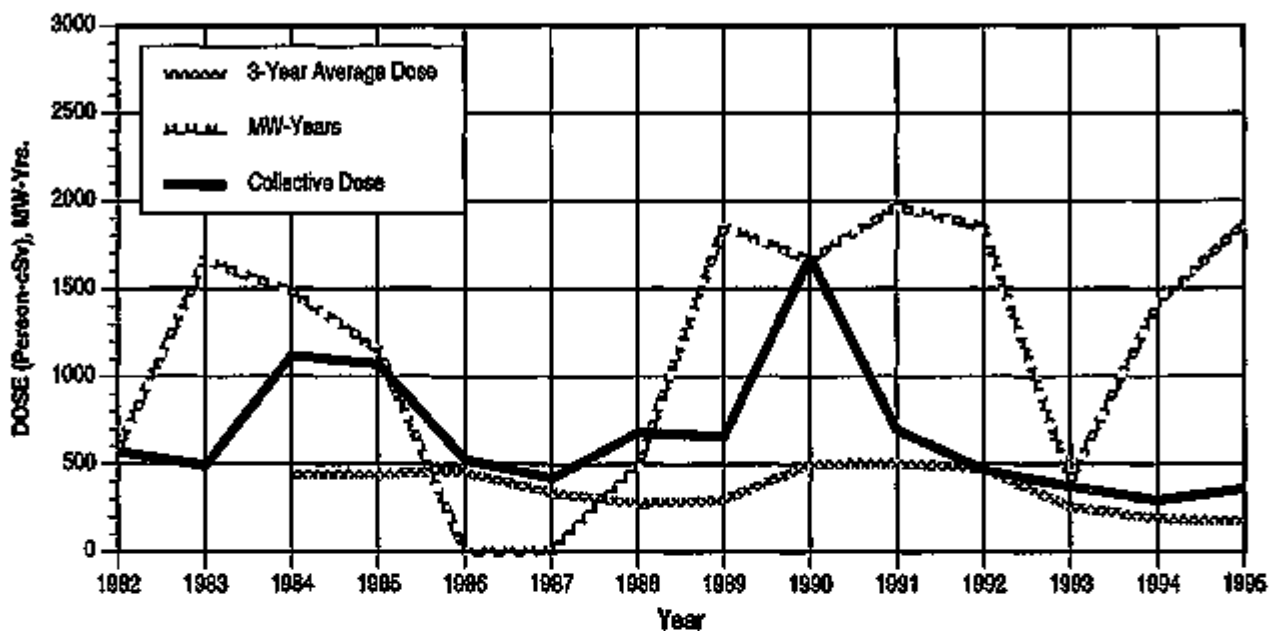


APPENDIX E (continued)

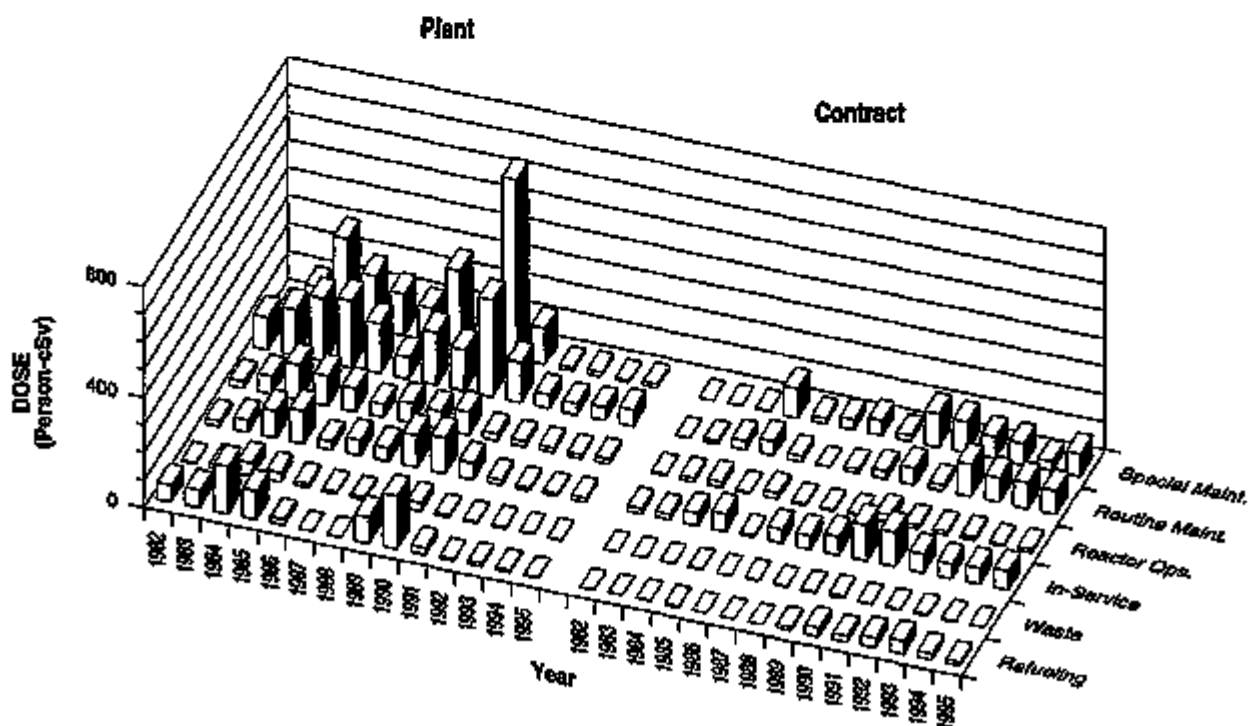
SEQUOYAH 1, 2

Dose-Performance Indicators

PWR



Breakdown by Job Function

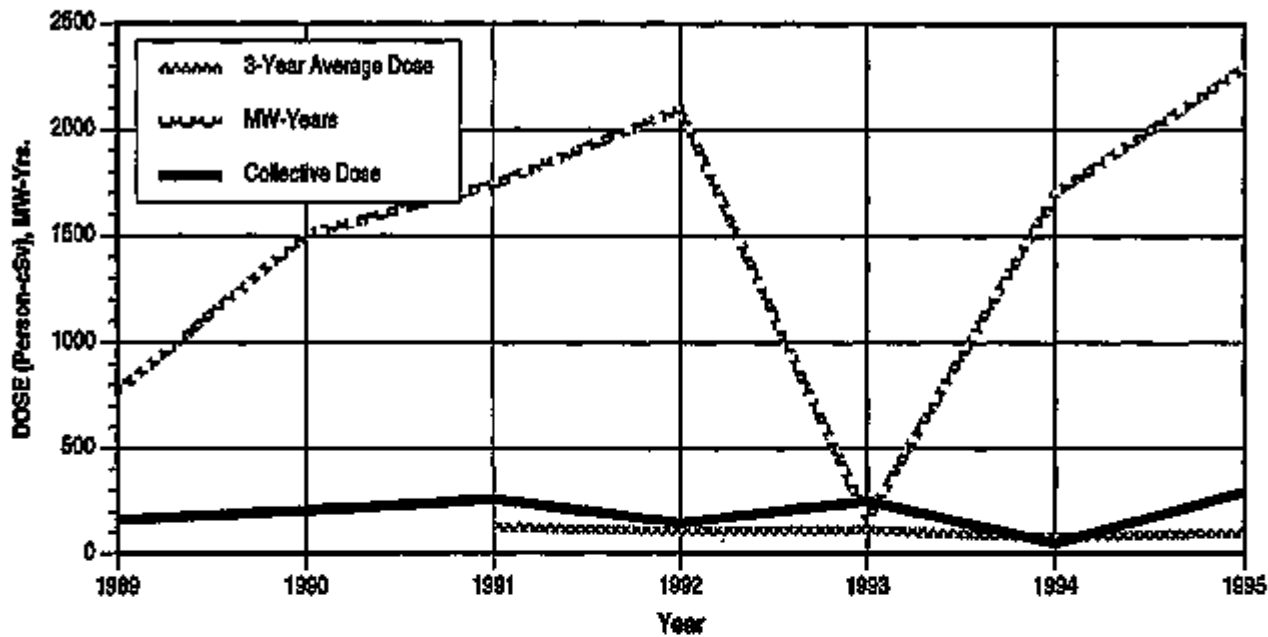


APPENDIX E (continued)

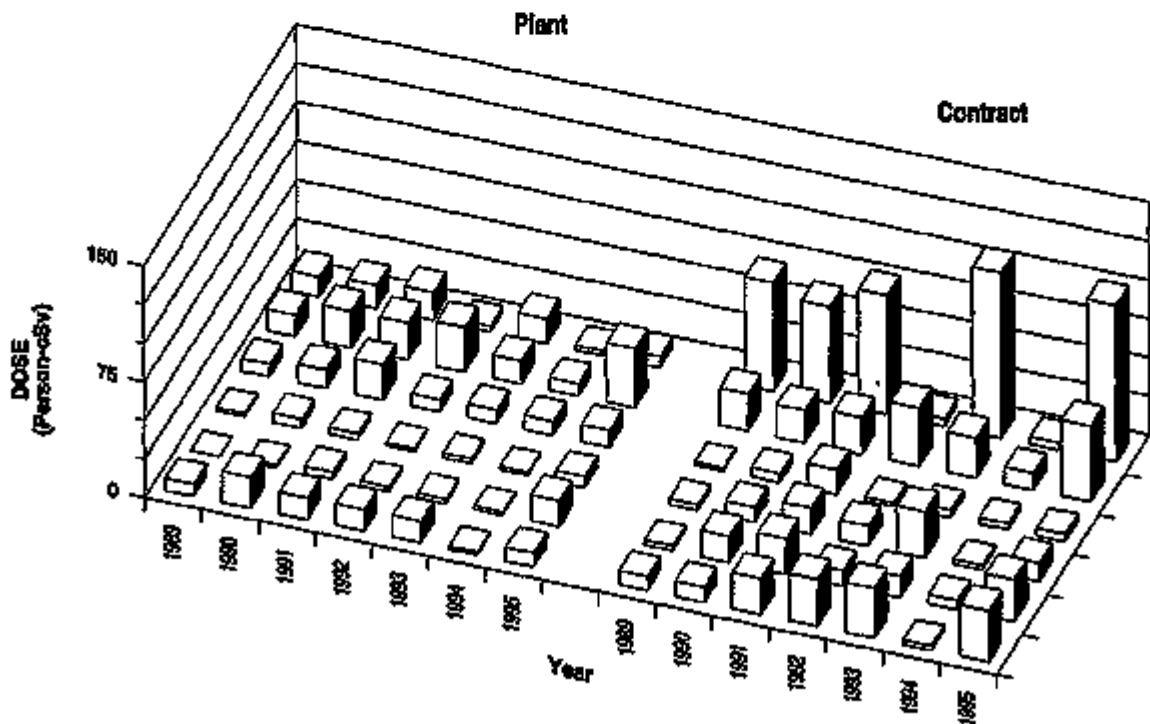
SOUTH TEXAS 1, 2

Dose-Performance Indicators

PWR



Breakdown by Job Function

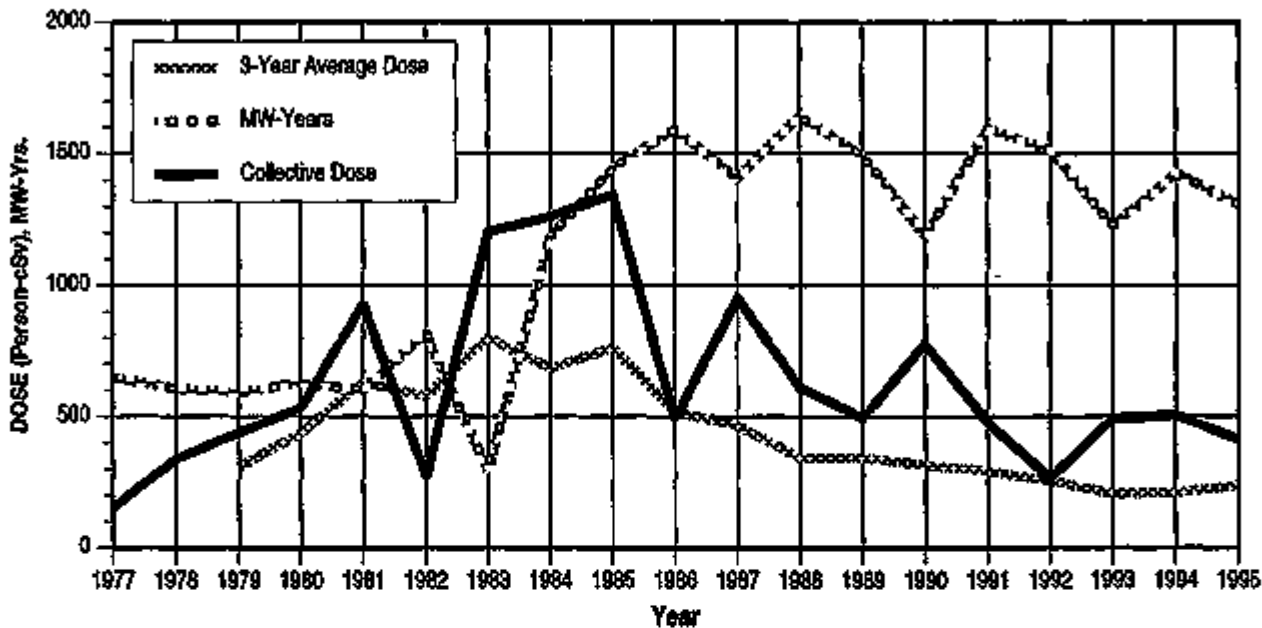


APPENDIX E (continued)

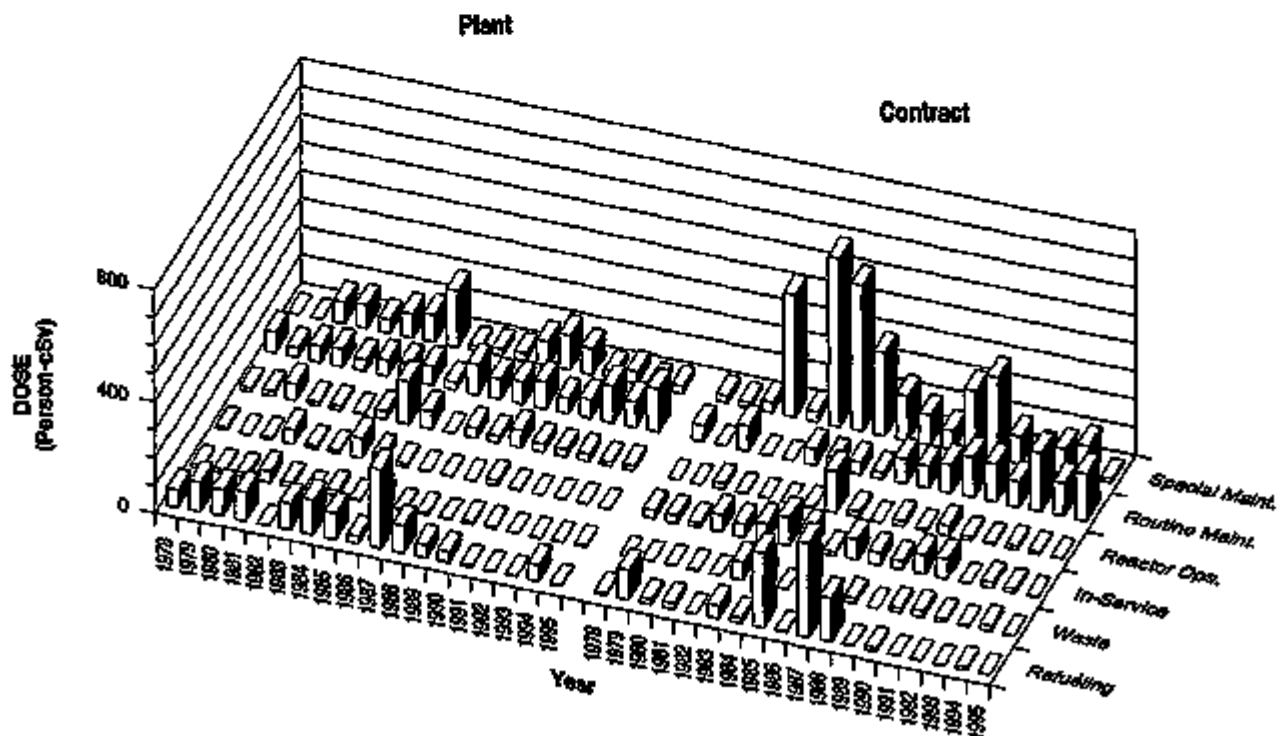
ST. LUCIE 1, 2

Dose-Performance Indicators

PWR



Breakdown by Job Function

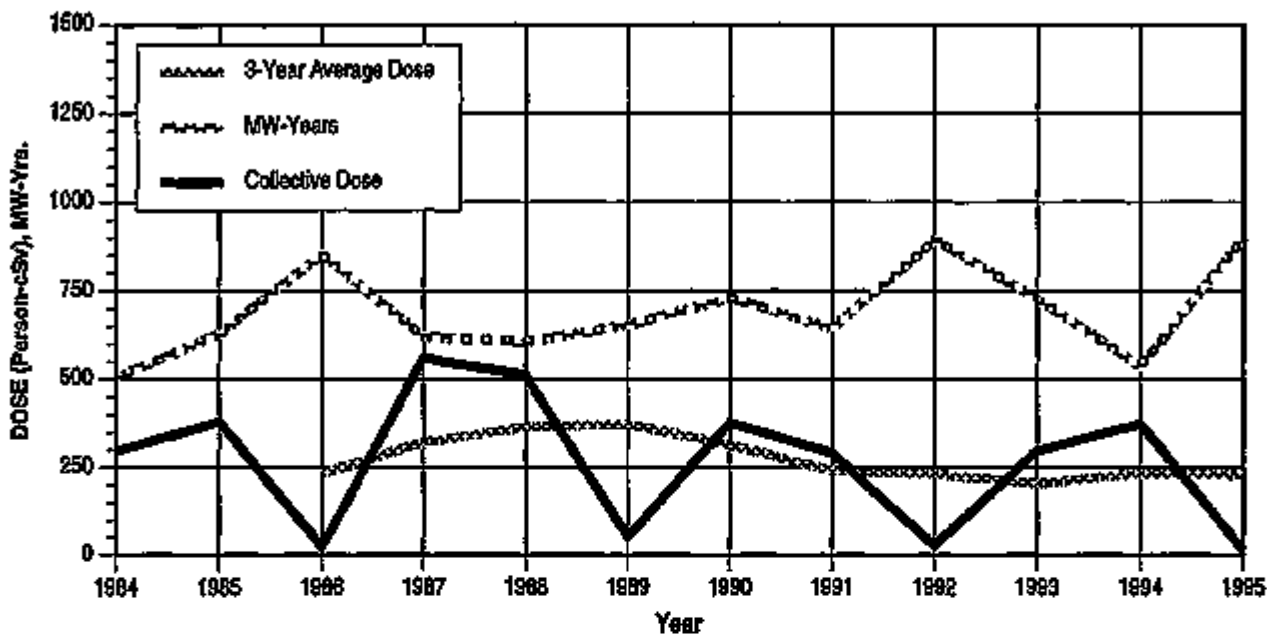


APPENDIX E (continued)

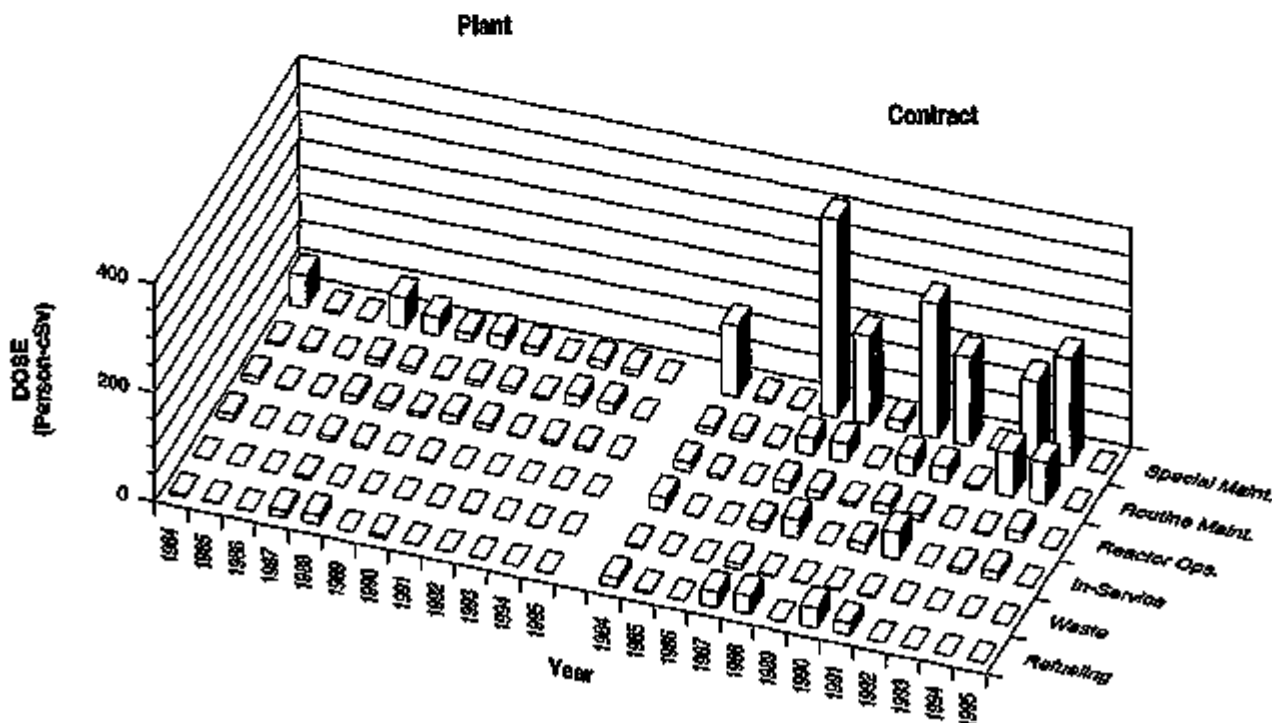
SUMMER 1

Dose-Performance Indicators

PWR



Breakdown by Job Function

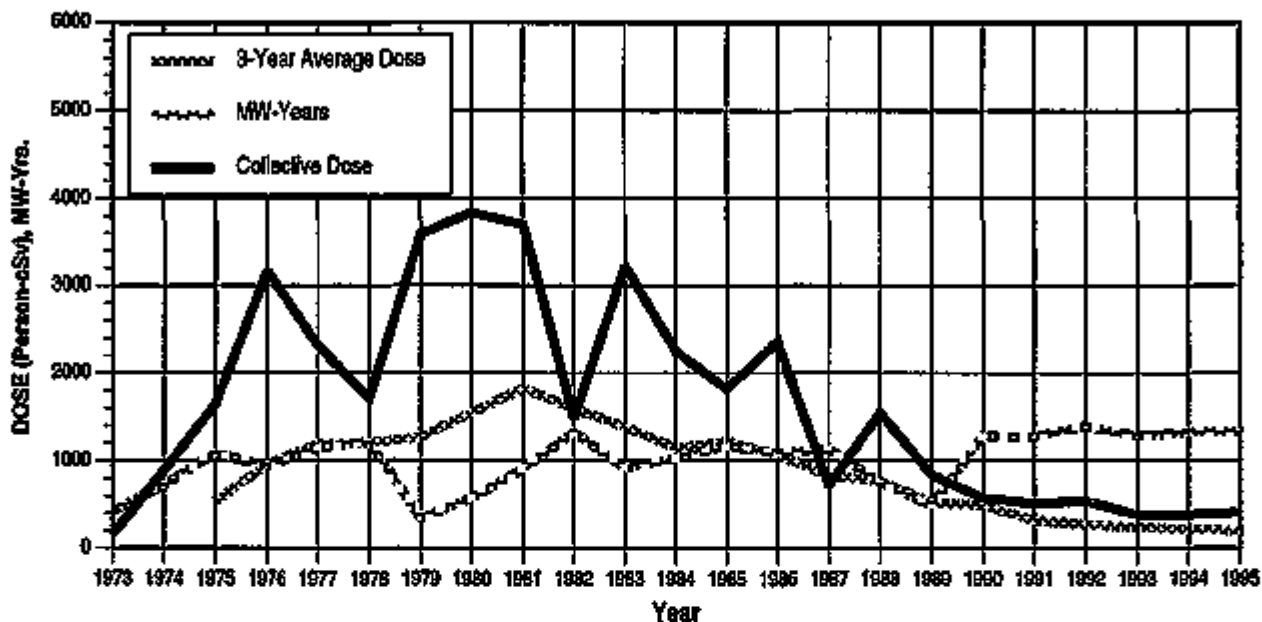


APPENDIX E (continued)

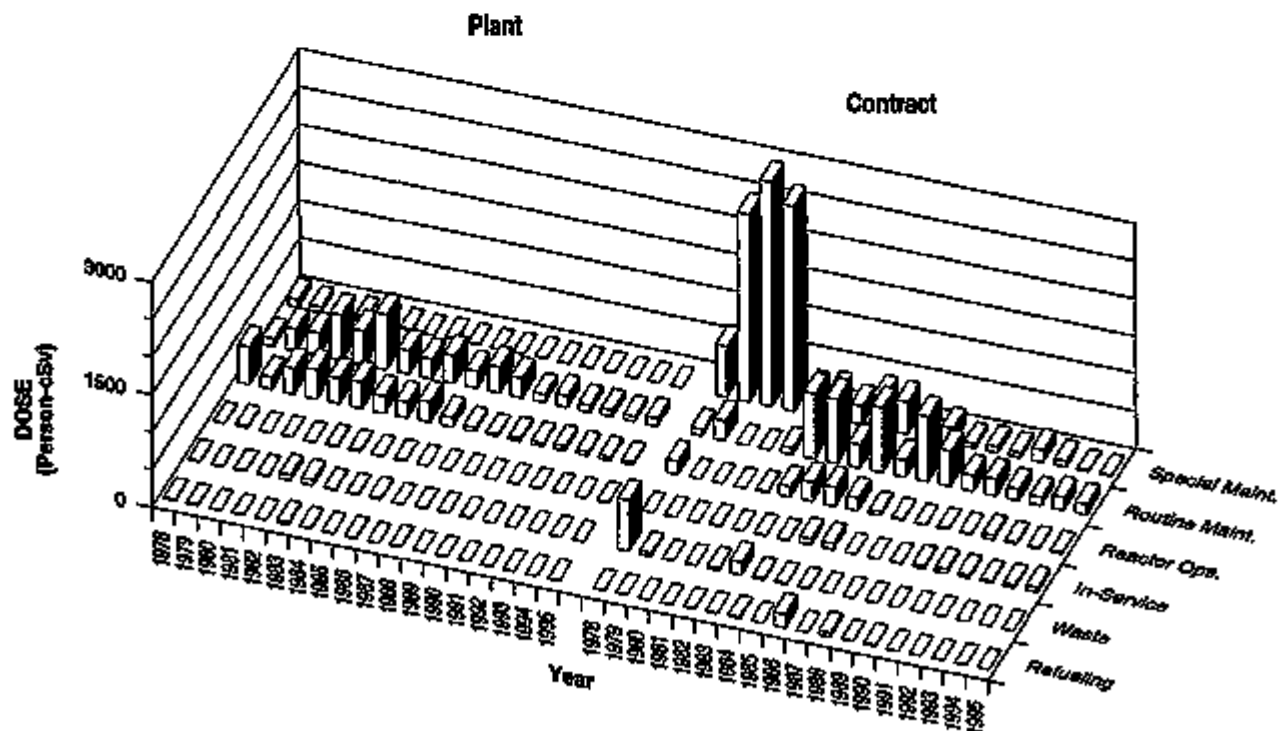
SURRY 1, 2

Dose-Performance Indicators

PWR



Breakdown by Job Function

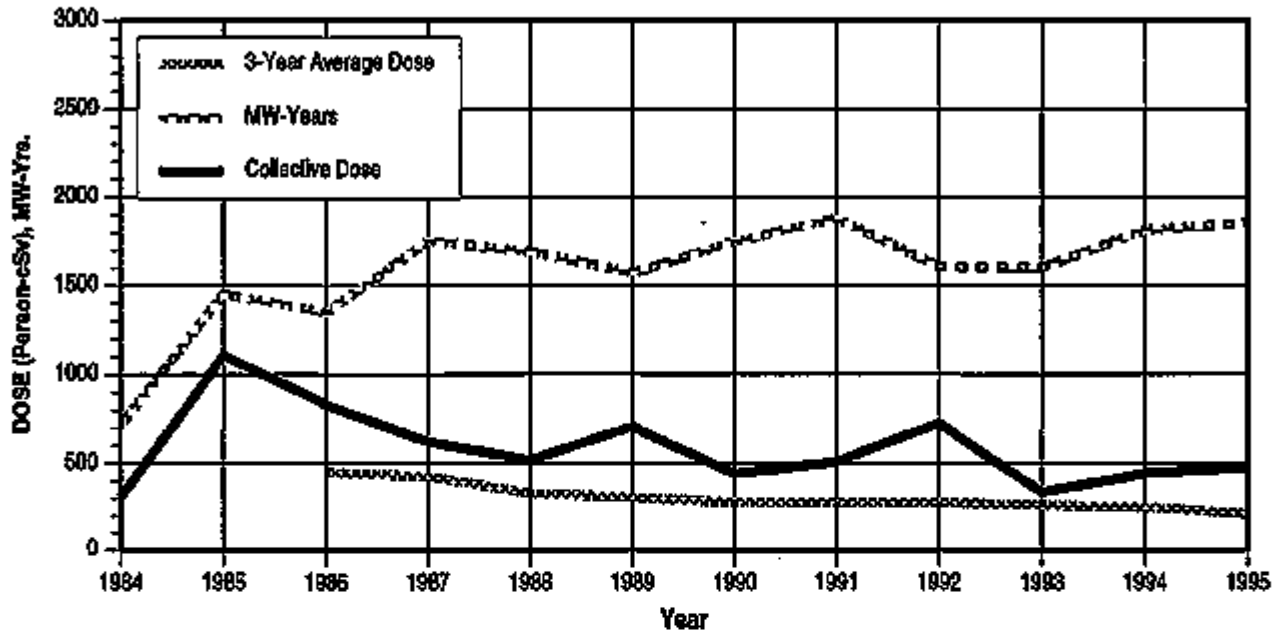


APPENDIX E (continued)

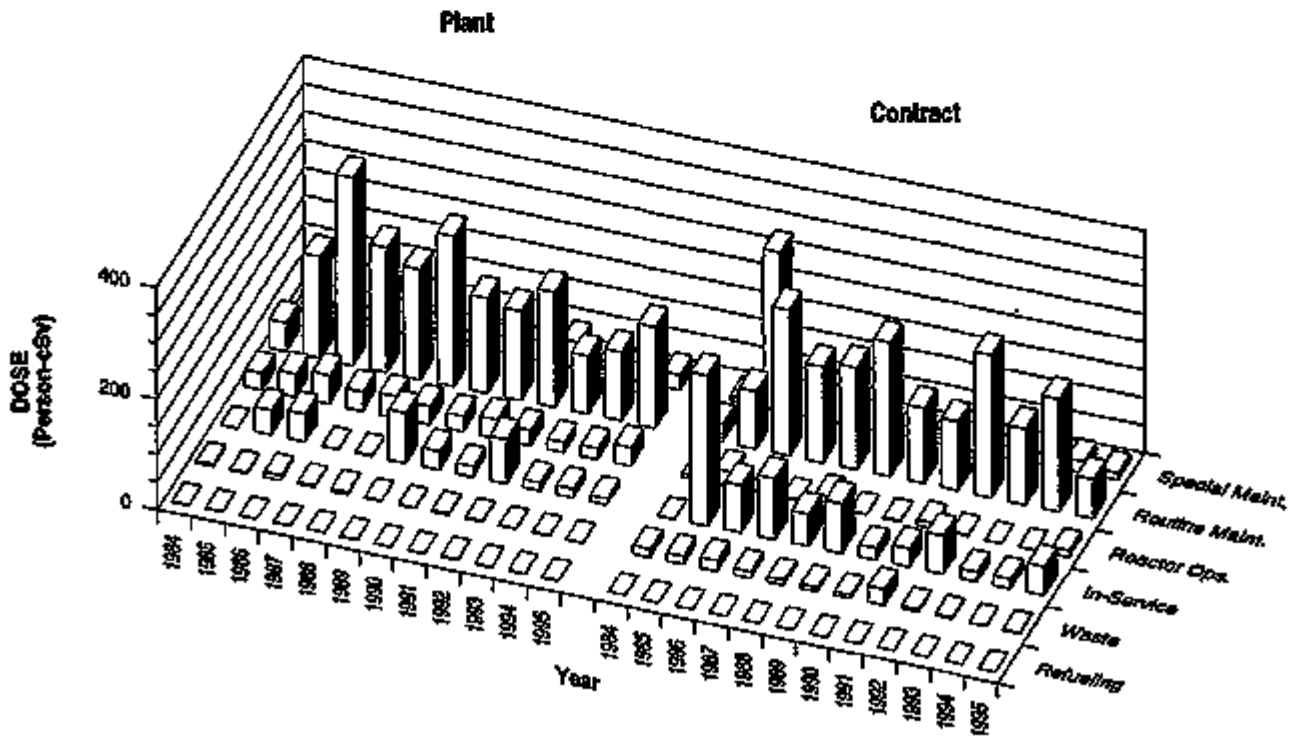
SUSQUEHANNA 1, 2

Dose-Performance Indicators

BWR



Breakdown by Job Function

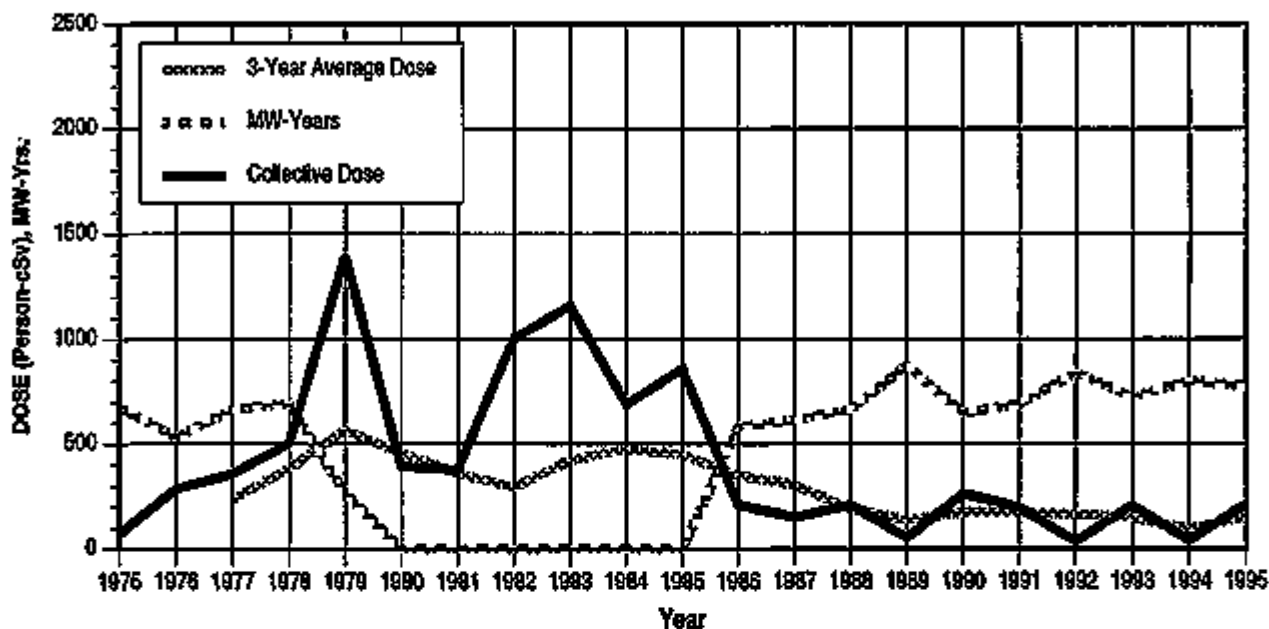


APPENDIX E (continued)

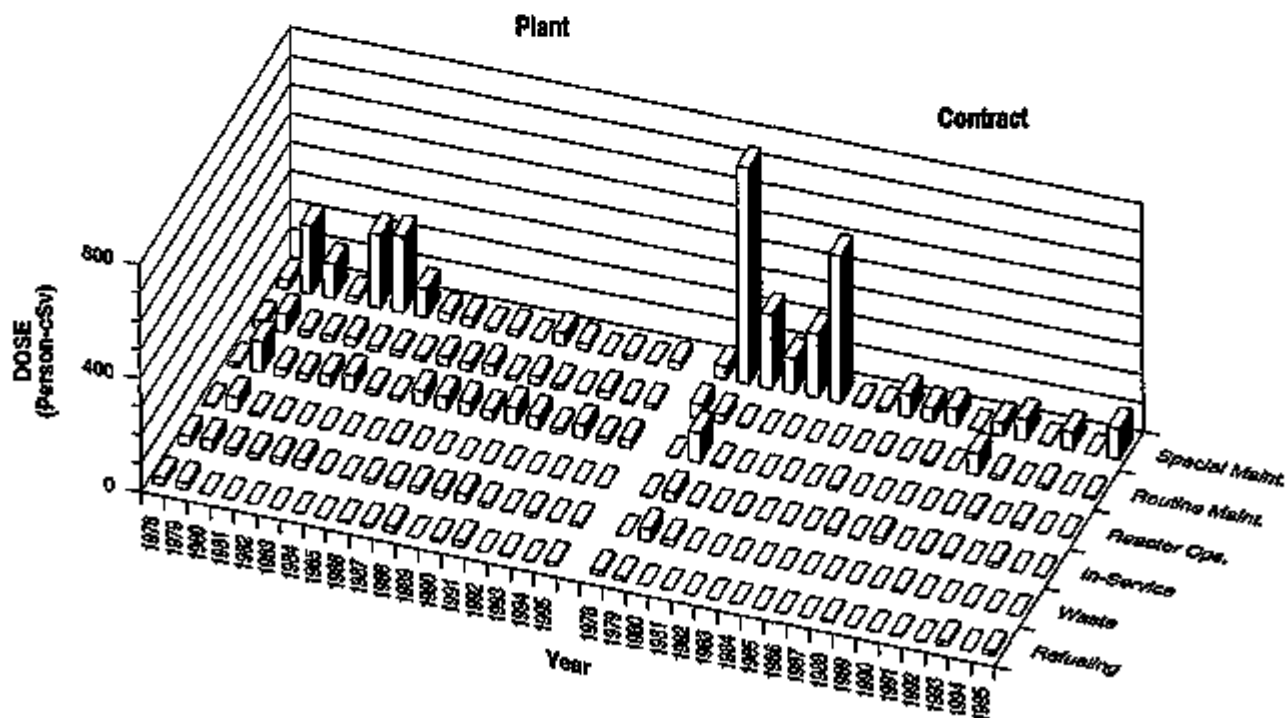
THREE MILE ISLAND 1

Dose-Performance Indicators

PWR



Breakdown by Job Function

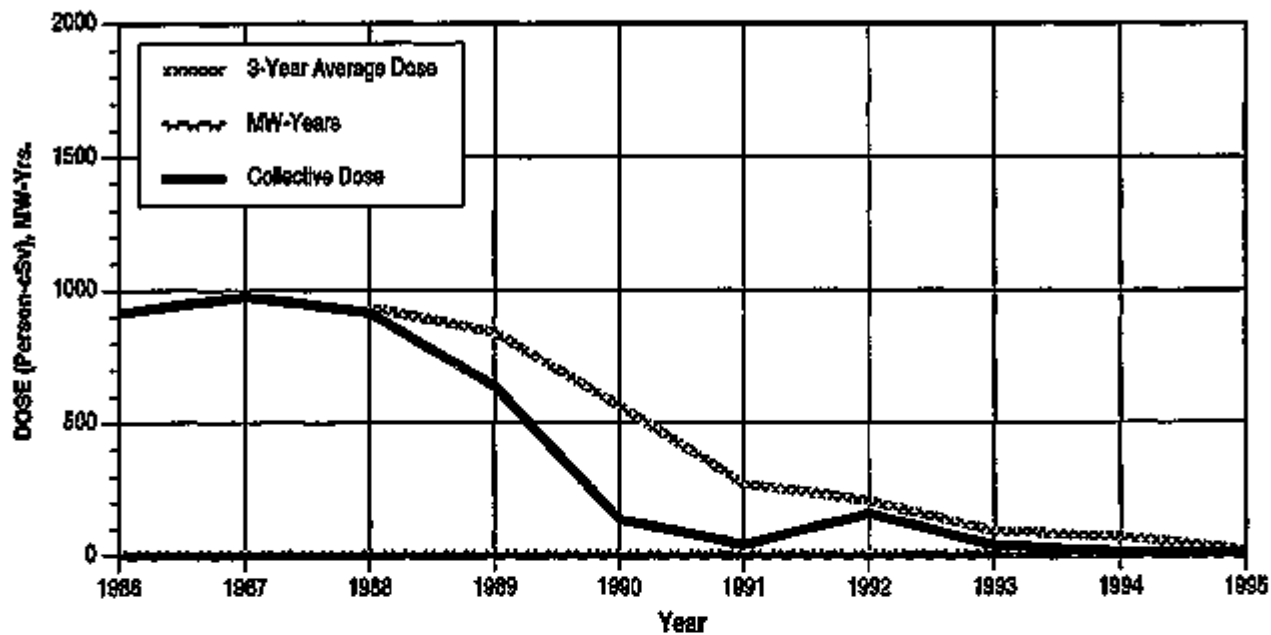


APPENDIX E (continued)

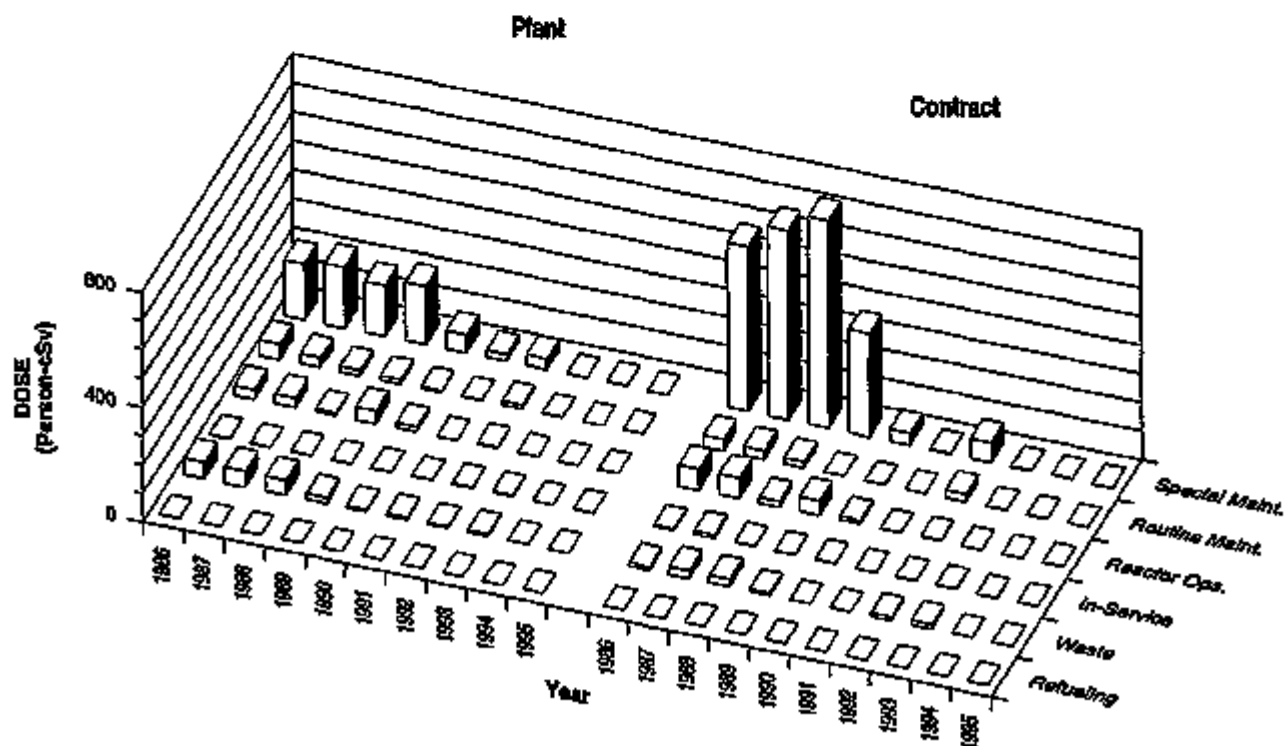
THREE MILE ISLAND 2

Dose-Performance Indicators

PWR



Breakdown by Job Function

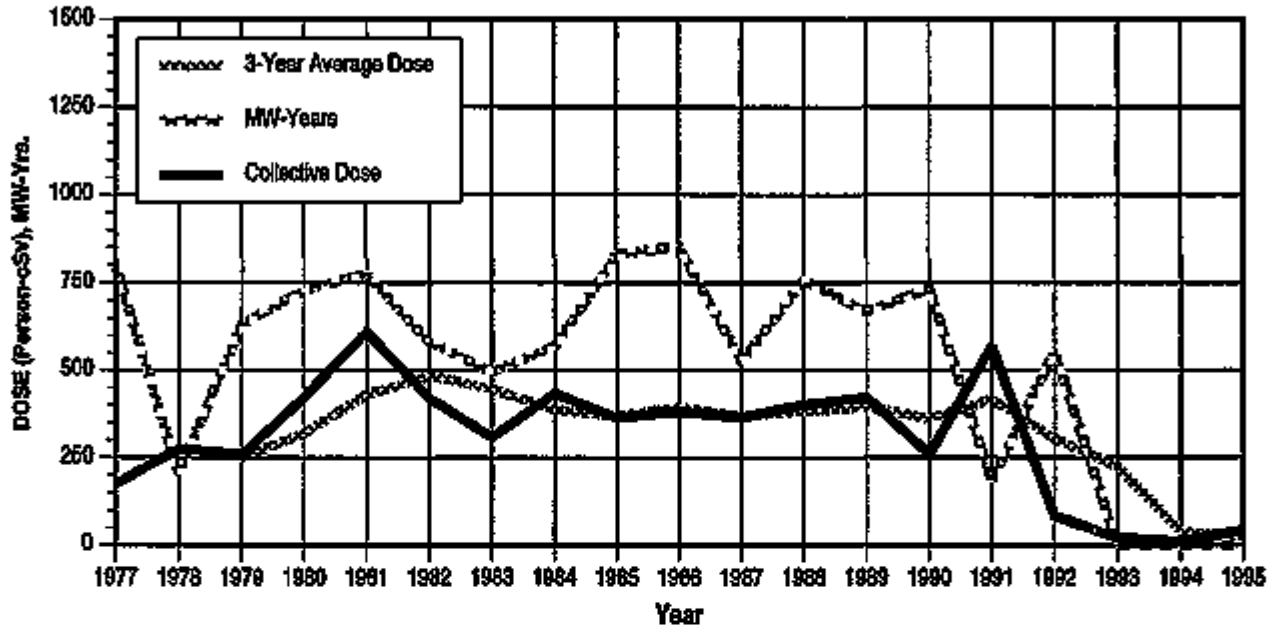


APPENDIX E (continued)

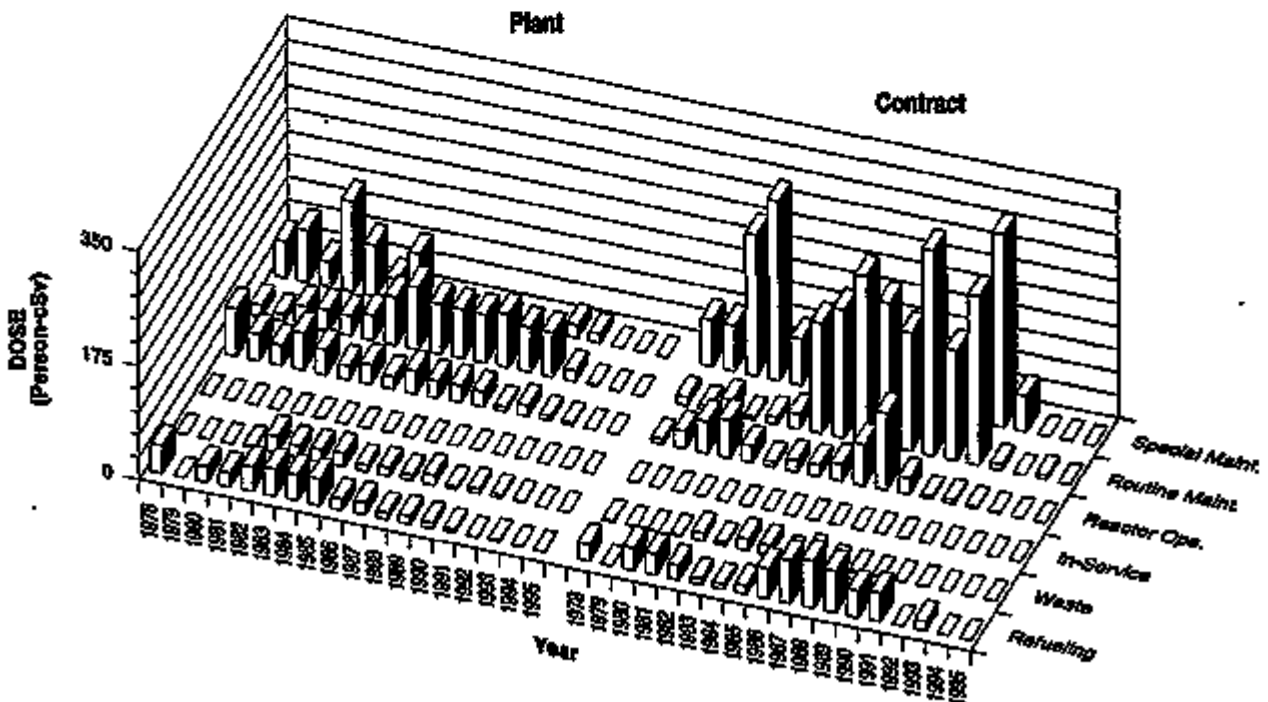
TRJAN

Dose-Performance Indicators

PWR



Breakdown by Job Function

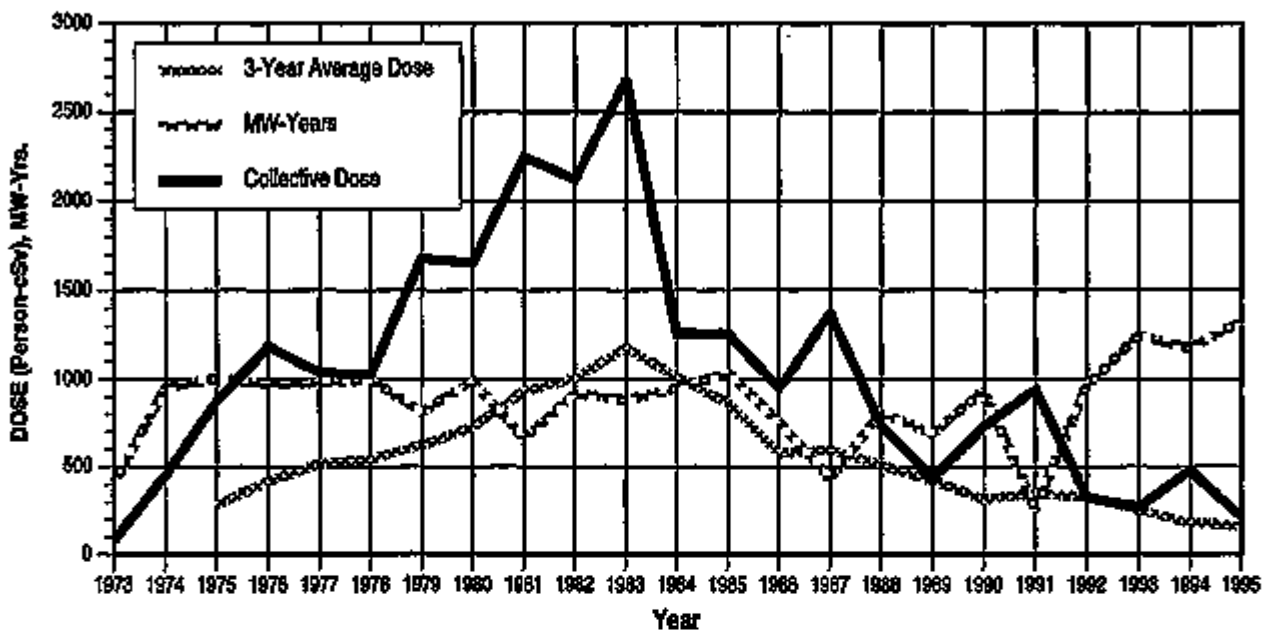


APPENDIX E (continued)

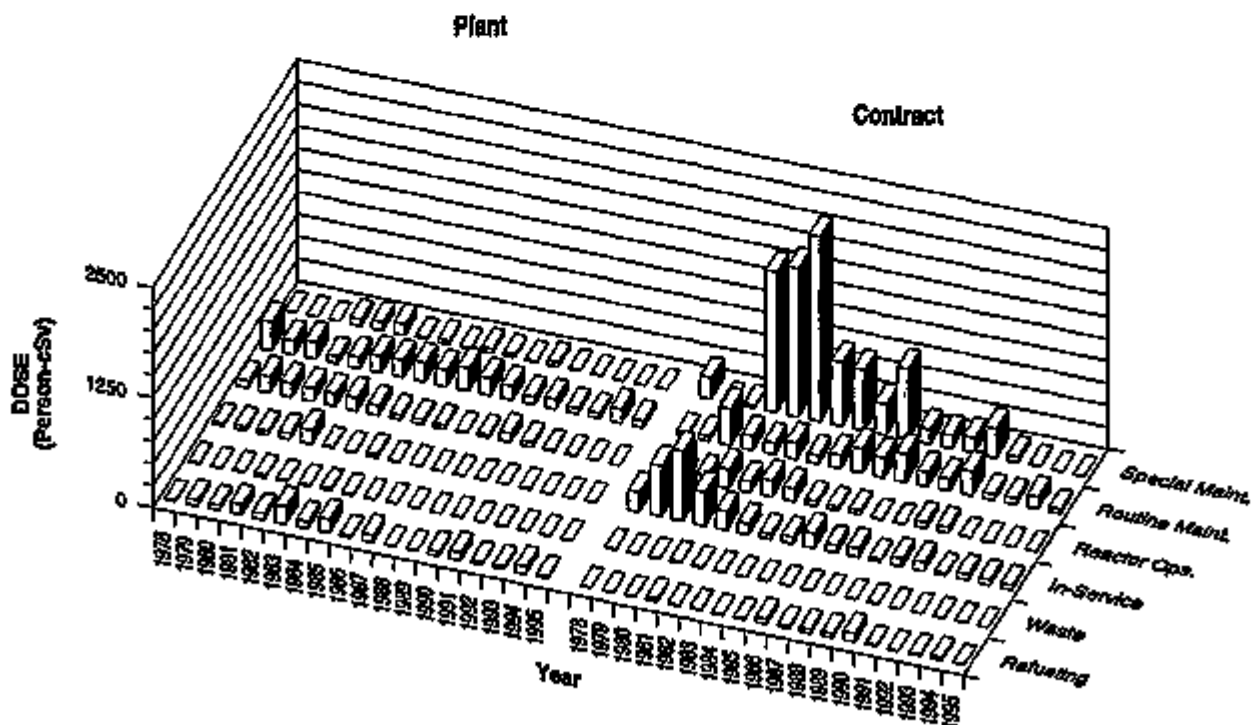
TURKEY POINT 3, 4

Dose-Performance Indicators

PWR



Breakdown by Job Function

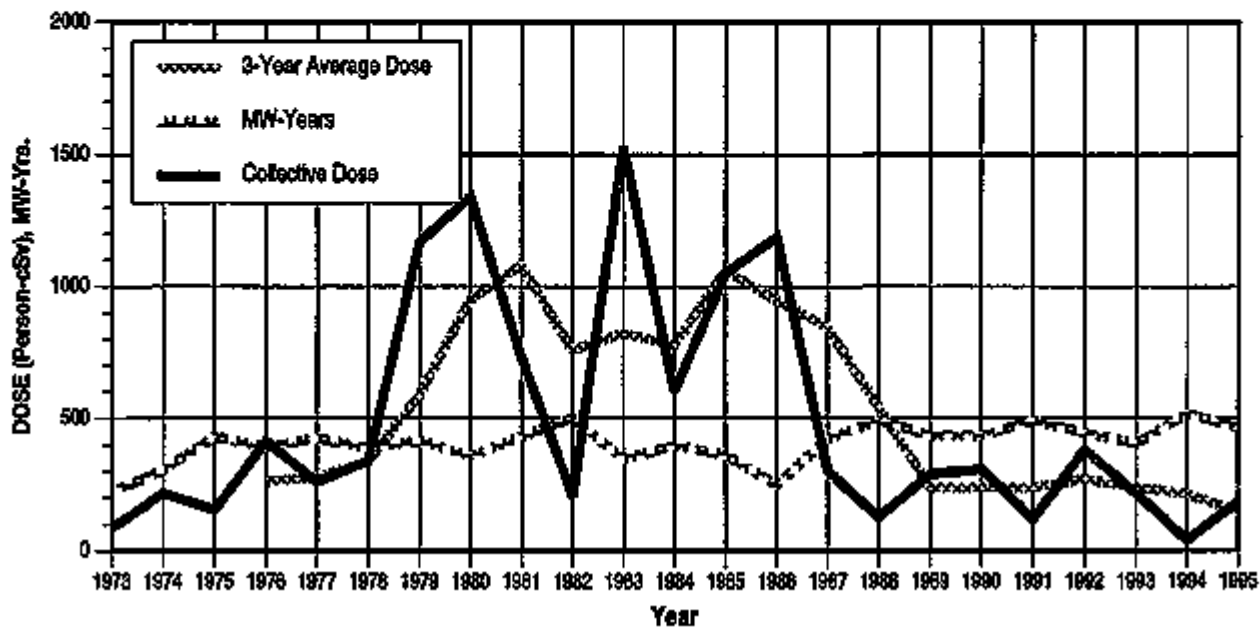


APPENDIX E (continued)

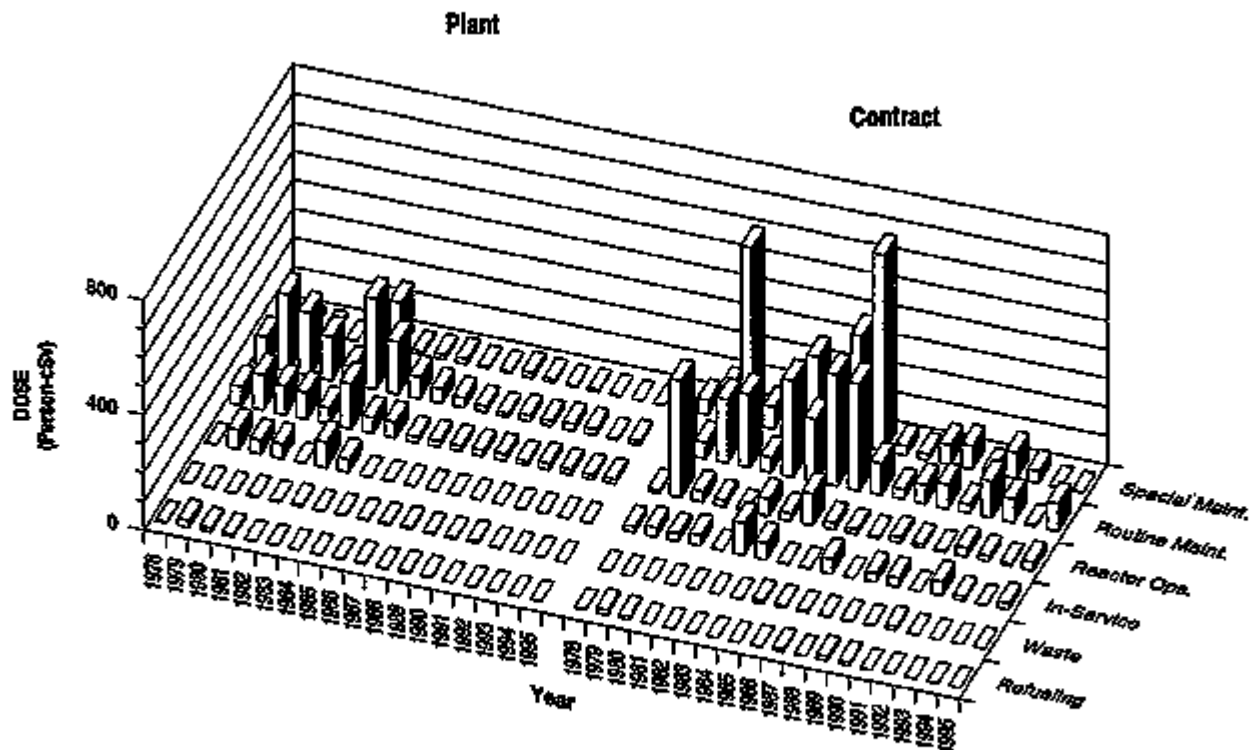
VERMONT YANKEE

Dose-Performance Indicators

BWR



Breakdown by Job Function

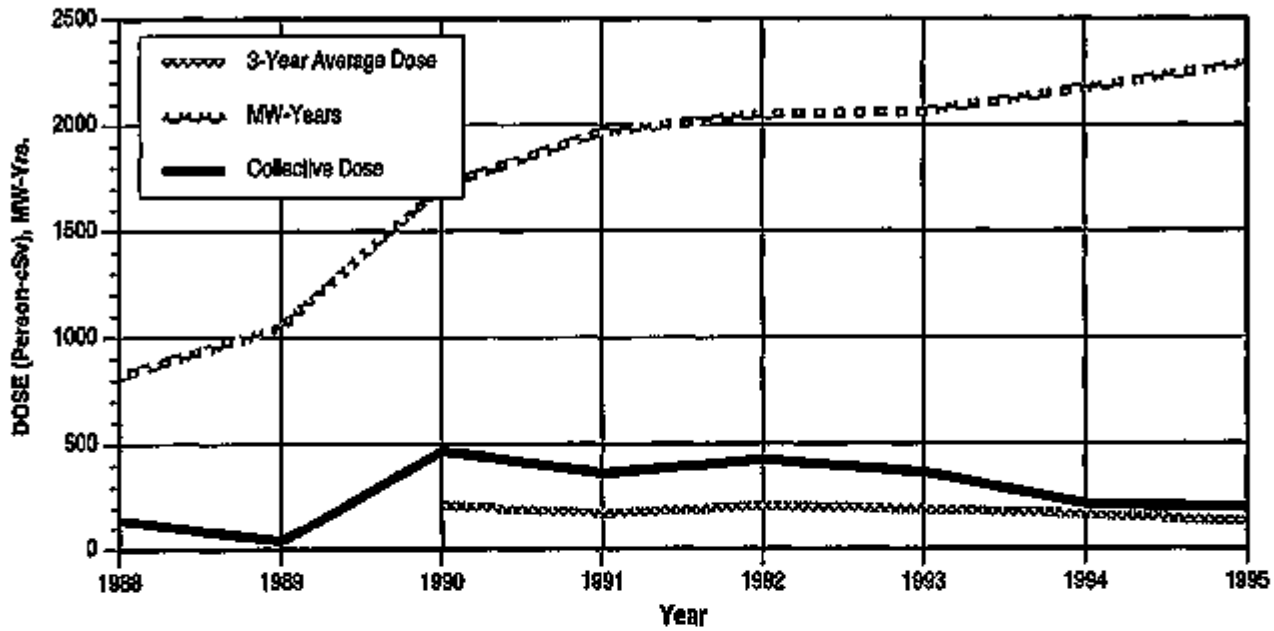


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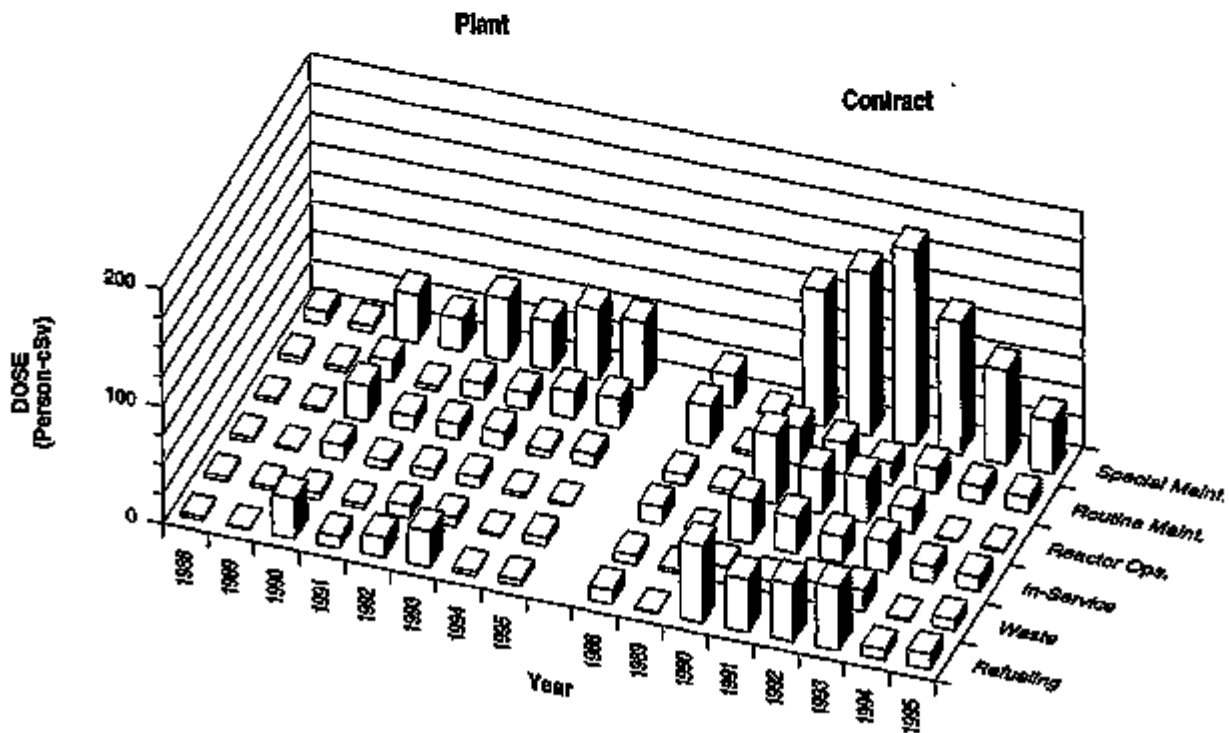
VOGTLE 1, 2

Dose-Performance Indicators

PWR



Breakdown by Job Function

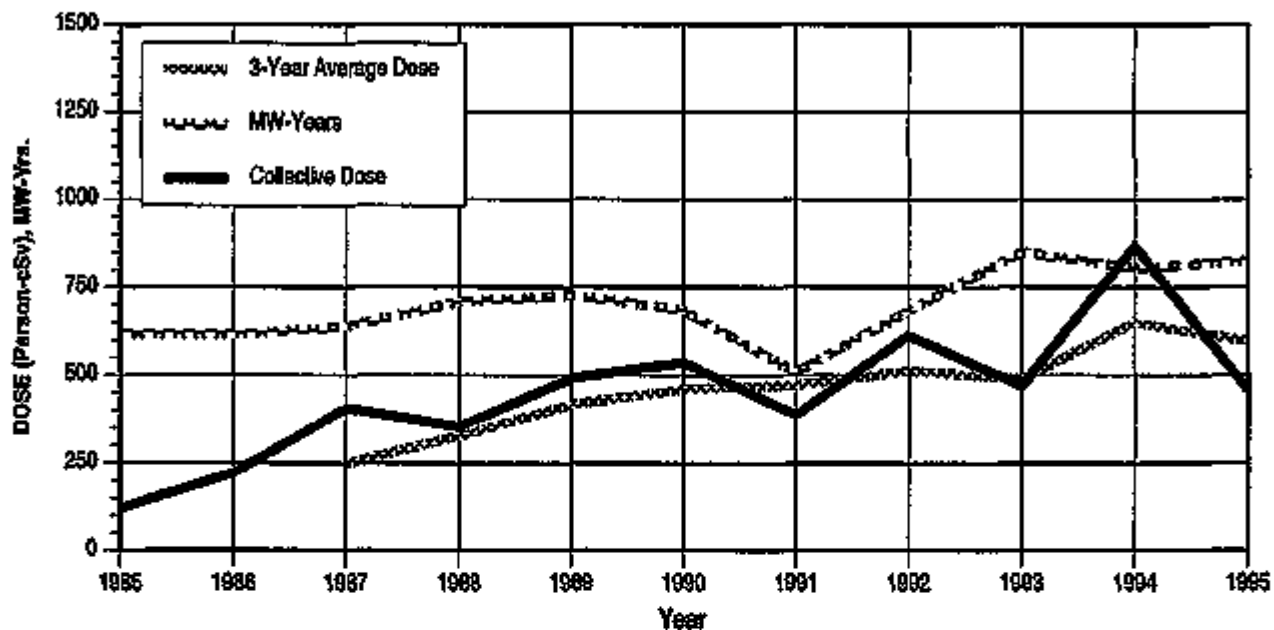


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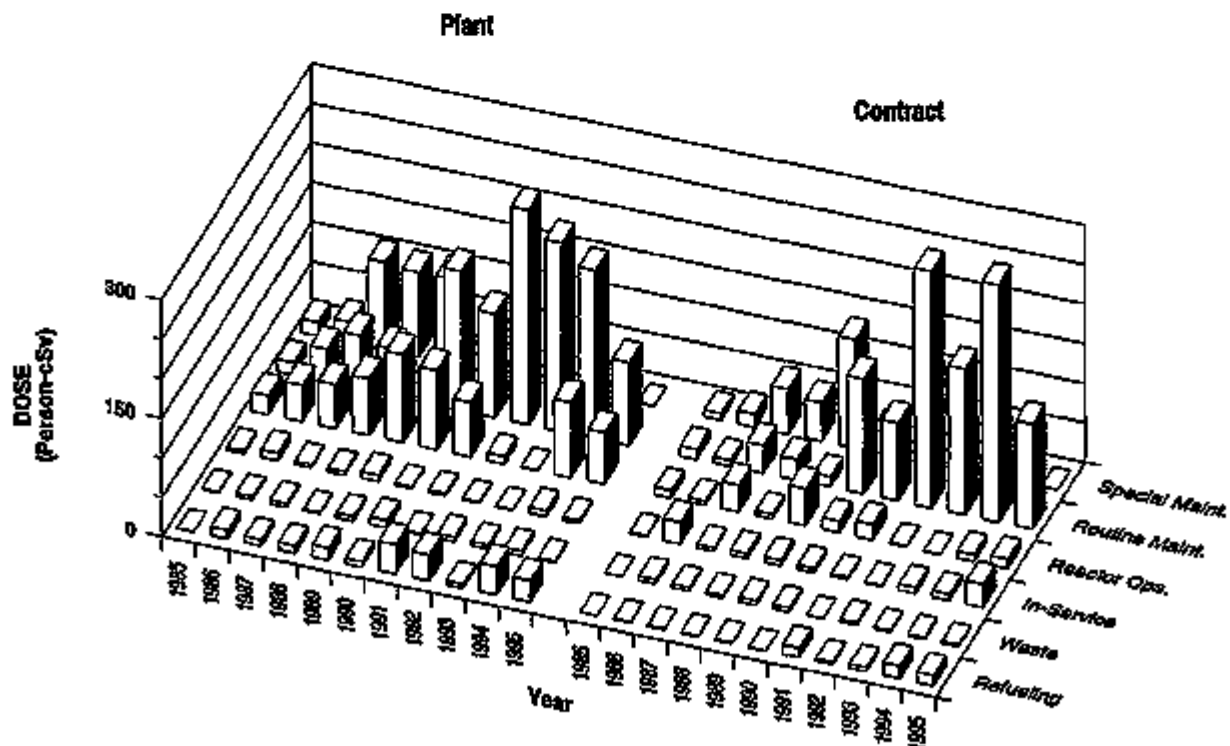
WASHINGTON NUCLEAR 2

Dose-Performance Indicators

BWR



Breakdown by Job Function

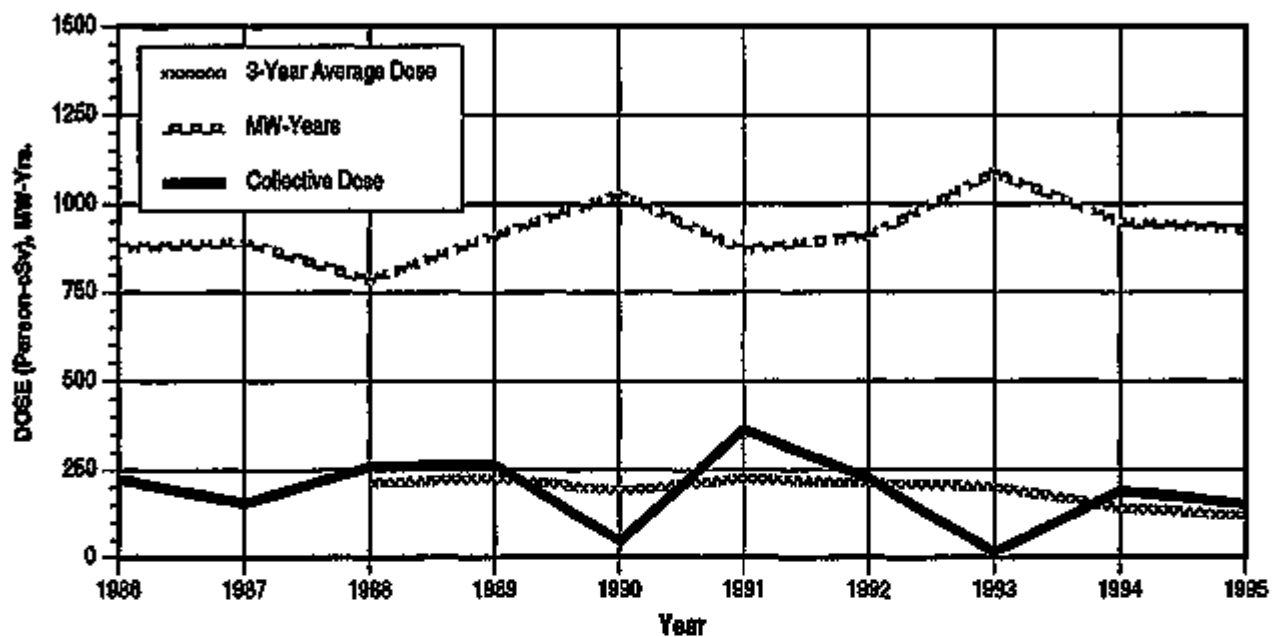


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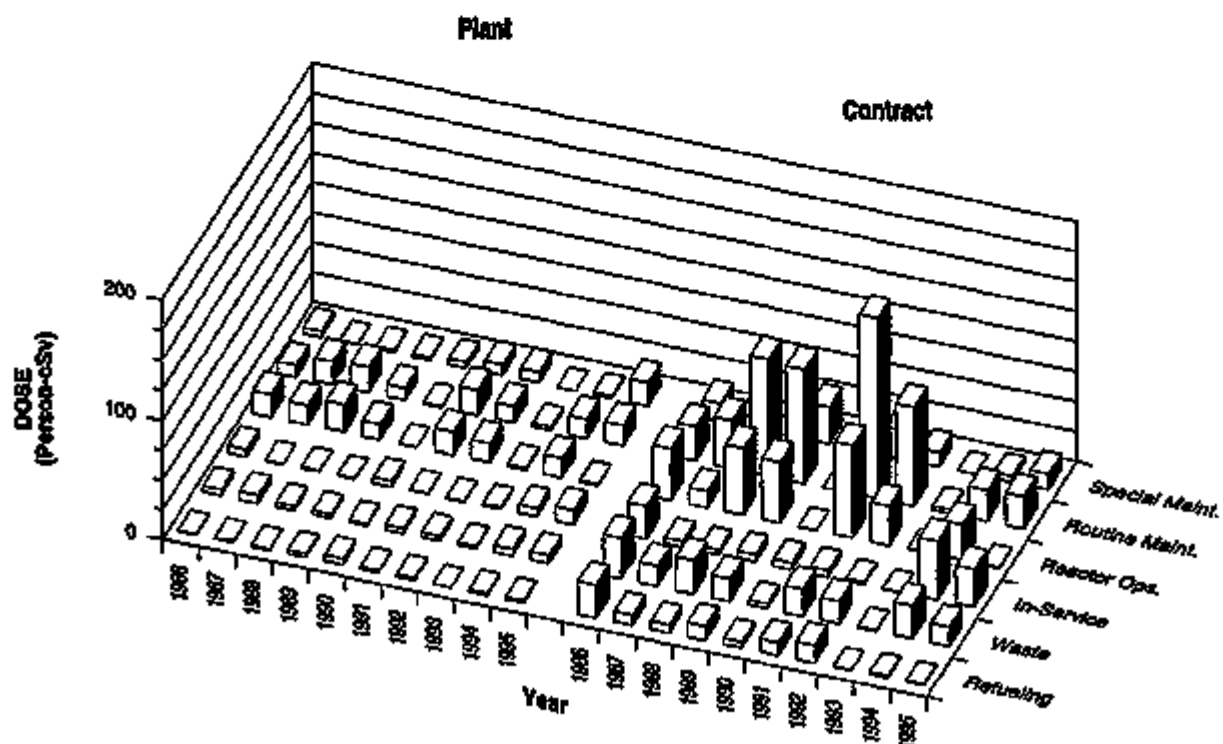
WATERFORD 3

Dose-Performance Indicators

PWR



Breakdown by Job Function

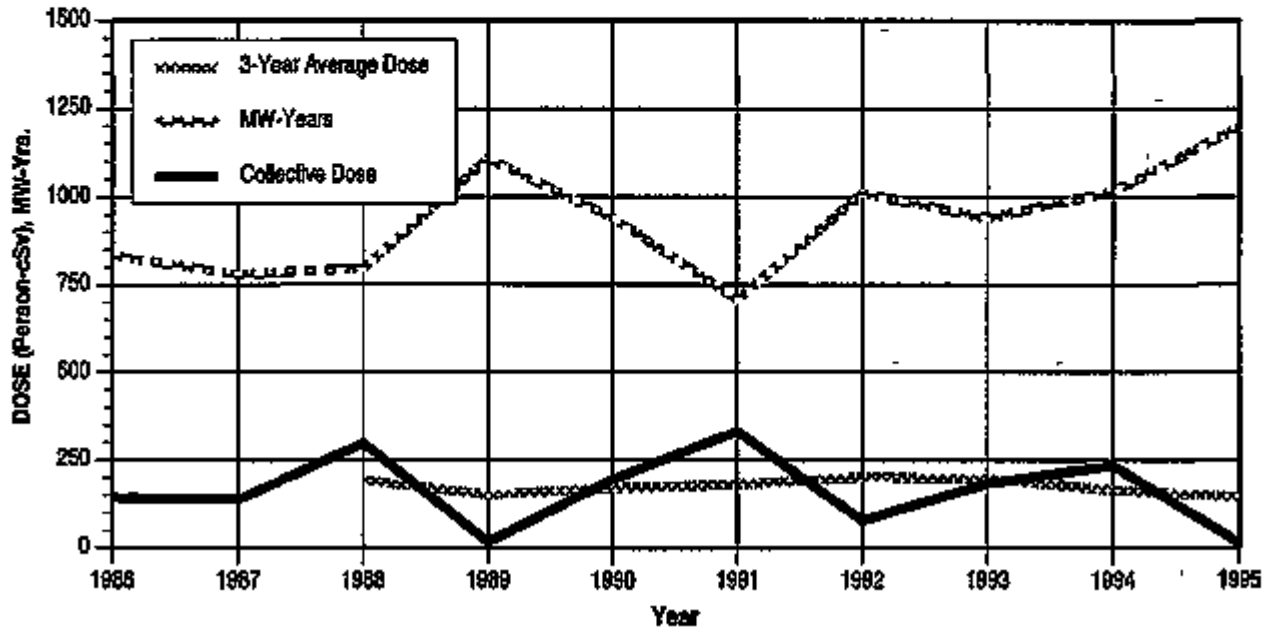


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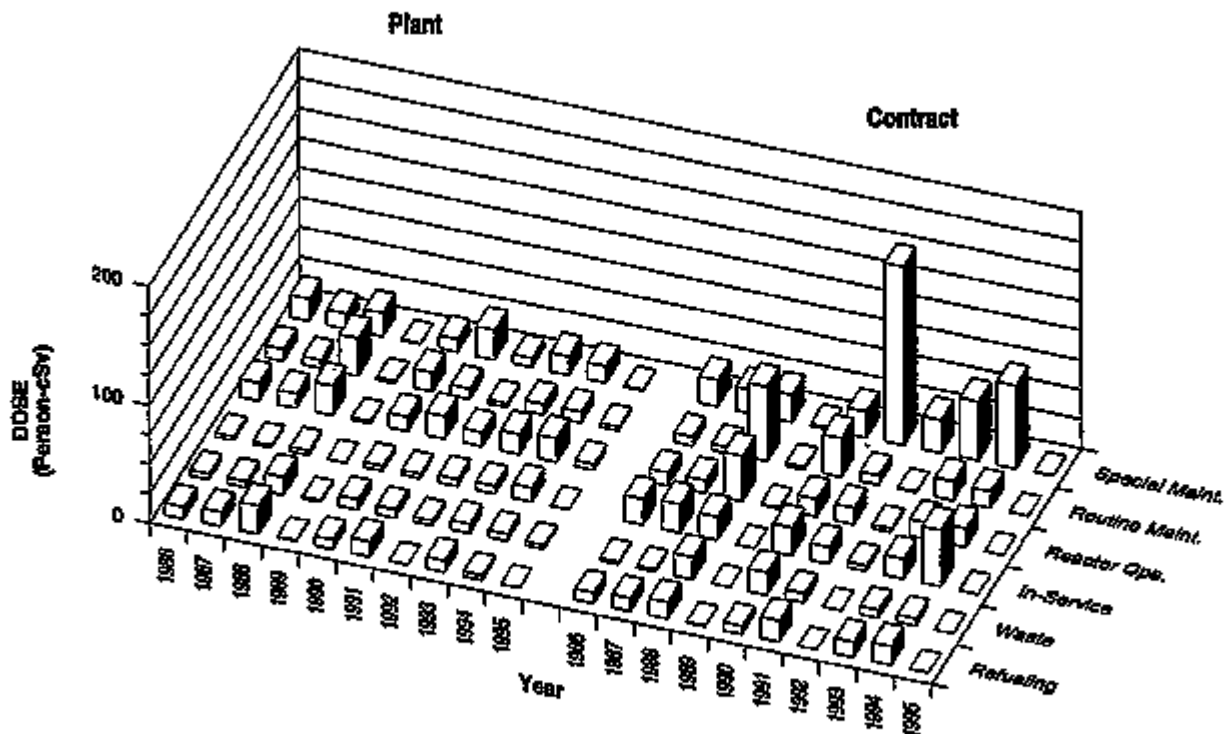
WOLF CREEK 1

Dose-Performance Indicators

PWR



Breakdown by Job Function

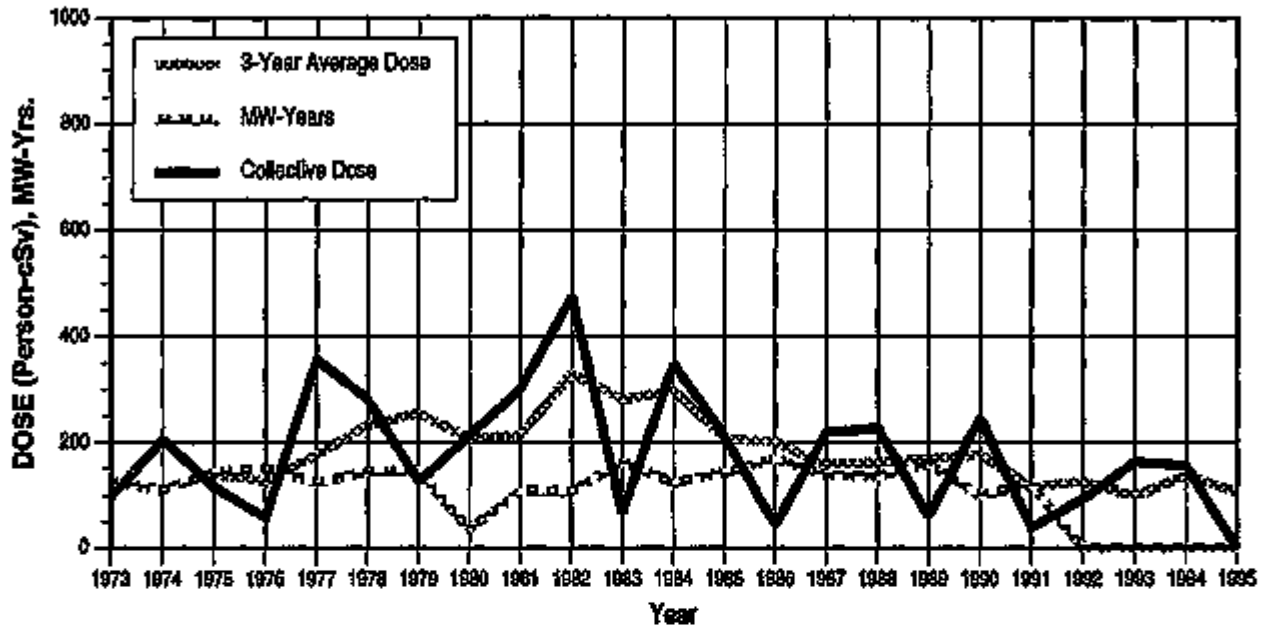


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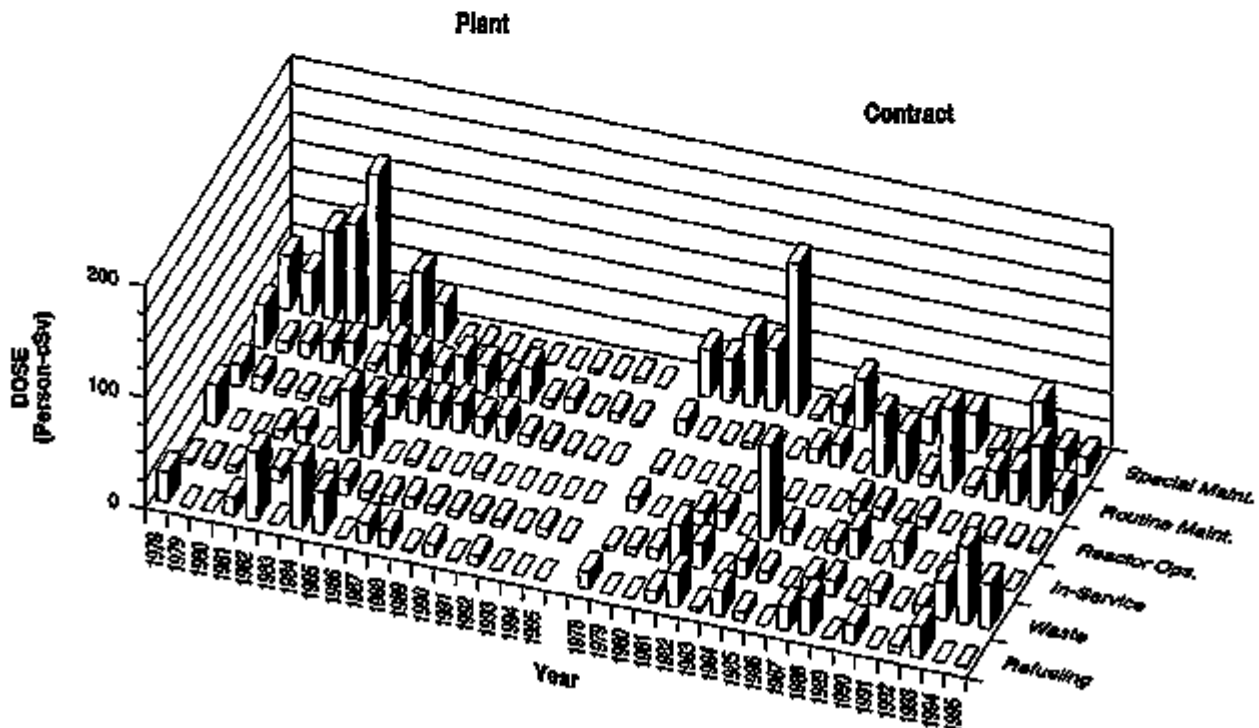
YANKEE-ROWE

Dose-Performance Indicators

PWR



Breakdown by Job Function

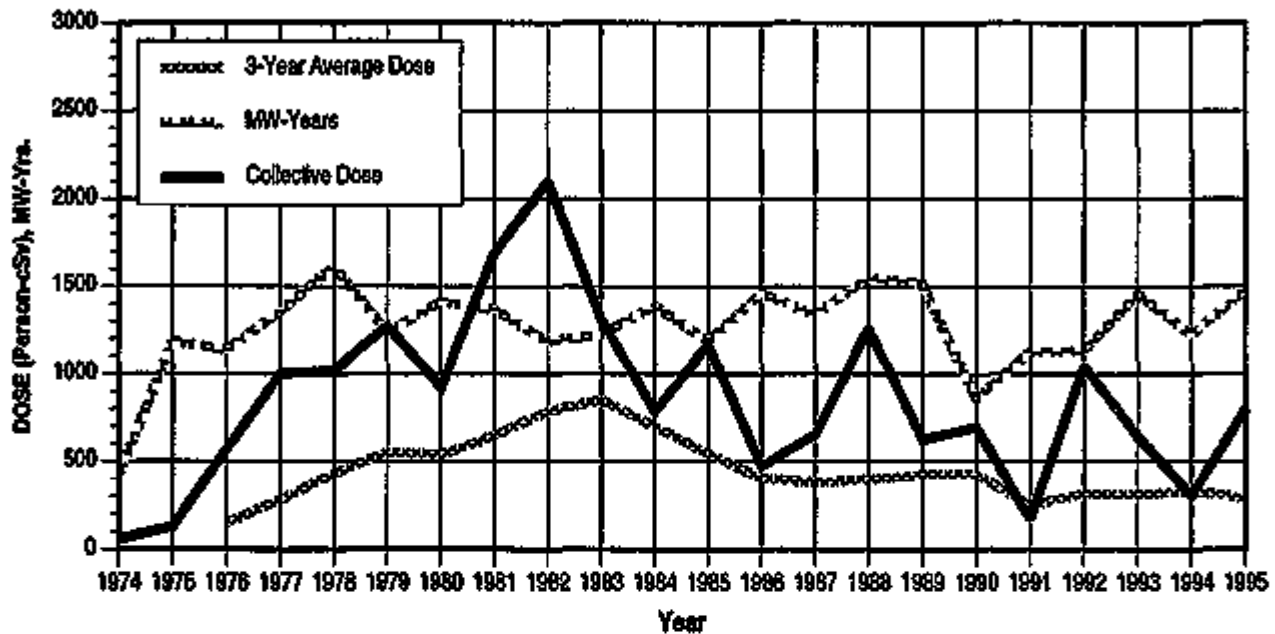


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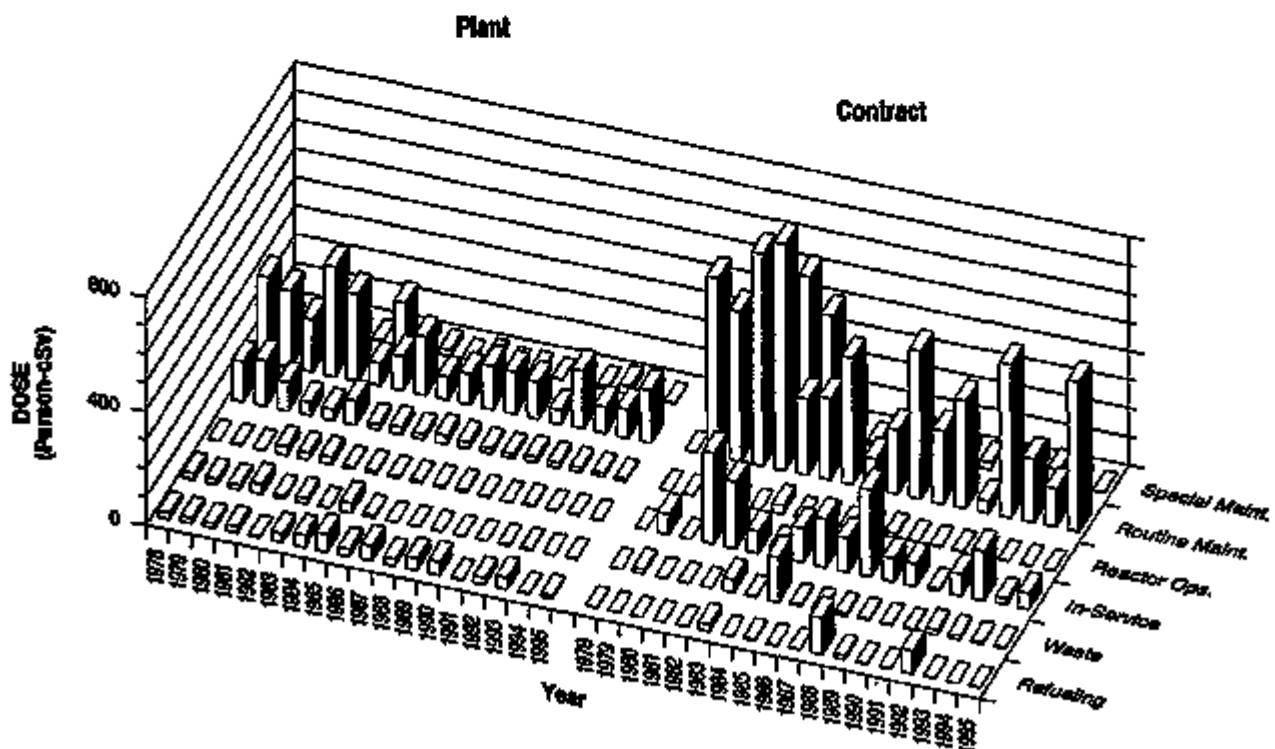
ZION 1, 2

Dose-Performance Indicators

PWR



Breakdown by Job Function



APPENDIX F

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

1987-1996

APPENDIX F*

SUMMARY OF ANNUAL WHOLE BODY DOSE DISTRIBUTIONS BY YEAR AND REACTOR TYPE

1987- 1995

NUREG-0713

F-2

YEAR AND REACTOR TYPE	Number of Reac.	Number of Individuals with Whole Body Doses in the Ranges (rems or μ Sv)													TOTAL NUMBER MONITORED	NUMBER WITH MEAS. EXPOSURE	TOTAL COLLECTIVE DOSE (Person-rem, μ Sv)											
		No Measurable	Meas. <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	5-6	6-7	7-8				8-9	9-10	10-11	11-12	>12						
1985 - PWR	72	49,697	23,311	12,259	8,947	3,767	1,769	1,717	93	4															101,564	51,857	12,207	
1985 - BWR	37	31,395	15,264	7,958	6,332	3,117	1,567	1,360	32	1																66,694	35,659	9,467
1985 - LWR	109	81,032	38,575	20,245	15,279	8,884	3,336	3,077	125	5																166,556	87,526	21,674
1984 - PWR	72	55,008	20,663	10,774	7,569	3,132	1,347	1,034	17																	99,774	44,766	9,603
1984 - BWR	37	30,322	15,898	8,036	6,754	3,719	2,191	2,306	198	6																69,430	39,108	12,092
1984 - LWR	109	85,330	33,761	18,610	14,353	6,851	3,538	3,340	215	8																169,204	83,874	21,695
1983 - PWR	71	57,216	25,579	12,346	9,665	4,636	2,224	2,052	63	1																113,804	56,588	14,142
1983 - BWR	37	35,779	16,340	7,845	6,400	3,728	2,224	2,662	151	1	1															75,131	39,352	12,221
1983 - LWR	108	92,995	41,919	20,193	16,065	8,364	4,448	4,714	234	2	1															188,935	95,940	26,363
1982 - PWR	73	58,859	28,220	12,503	10,259	4,928	2,287	2,602	245	6																117,907	61,048	15,965
1982 - BWR	37	39,594	17,740	8,084	6,883	3,955	2,339	2,868	204	11	3															61,699	42,095	13,309
1982 - LWR	110	96,493	45,960	20,997	17,142	6,881	4,628	5,468	449	17	3															199,596	103,143	29,294
1981 - PWR	74	57,815	28,514	11,876	9,387	4,657	2,462	2,972	371	30																118,084	60,269	18,510
1981 - BWR	37	37,527	17,364	7,076	5,732	3,409	1,975	2,602	299	14	1															76,019	38,492	12,005
1981 - LWR	111	95,342	45,896	18,952	15,119	8,068	4,437	5,574	670	44	1															194,103	96,761	28,545
1980 - PWR	73	53,935	29,689	12,957	10,591	5,601	3,267	4,363	590	43																121,016	67,081	20,812
1980 - BWR	37	39,102	17,210	7,338	5,992	3,717	2,493	4,162	625	41	1															60,679	41,577	15,760
1980 - LWR	110	83,037	46,679	20,283	16,583	9,316	5,760	6,525	1,215	64	1															201,665	106,658	36,552
1989 - PWR	71	51,701	29,419	11,591	9,336	5,061	2,997	4,739	674	66	11															115,585	63,894	20,381
1989 - BWR	38	40,851	19,349	7,887	6,323	3,753	2,544	3,962	515	33																65,311	44,360	15,549
1989 - LWR	107	92,652	48,762	19,478	15,659	8,814	5,541	8,701	1,189	99	11															200,908	106,254	35,930
1988 - PWR	68	47,868	27,177	11,014	9,280	5,523	3,541	5,405	829	127	4															110,787	62,921	22,788
1988 - BWR	34	47,679	16,044	6,736	5,609	3,311	2,397	4,859	1,129	215	5															67,984	40,305	17,963
1988 - LWR	102	95,545	43,221	17,750	14,869	8,874	5,938	10,284	1,958	342	9															198,771	103,226	40,769
1987 - PWR	64	48,870	27,070	10,796	8,828	5,152	3,442	6,187	986	124	10															111,457	62,597	23,684
1987 - BWR	32	43,688	17,711	7,027	5,739	3,447	2,383	4,578	723	117	12															65,425	41,737	16,717
1987 - LWR	96	92,558	44,781	17,623	14,567	8,569	5,825	10,765	1,711	241	22															198,882	104,334	40,401

* Figures contained herein are uncorrected for the 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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M.L. Thomas, NRC Project Manager

11. ABSTRACT (200 words or less)

This report summarizes the occupational exposure data that are maintained in the U.S. Nuclear Regulatory Commission's Radiation Exposure Information and Reporting System (REIRS). The bulk of the information contained in the report was compiled from the 1995 annual reports submitted by the classes of NRC licensees subject to the reporting requirements of 10 CFR 20.2206.

Annual reports for 1995 were received from a total of 294 NRC licensees, of which 109 were operators of nuclear power reactors in commercial operation. Compilations of the reports submitted by the 294 licensees indicated that 142,518 individuals were monitored, 76,822 of whom received a measurable dose. The collective dose incurred by these individuals was 24,536 person-cSv (person-rem) which represents a 1% decrease from the 1994 value. The number of workers receiving a measurable dose also decreased, resulting in the average measurable dose of 0.32 cSv (rem) for 1995. The average measurable dose is defined to be the total collective dose divided by the number of workers receiving a measurable dose. The figures have been adjusted to account for transient reactor workers. In 1995, the annual collective dose per reactor for light water reactor licensees was 199 person-cSv (person-rem). This is the same value that was reported for 1994. The annual collective dose per reactor for boiling water reactors was 256 person-cSv (person-rem) and, for pressurized water reactors it was 170 person-cSv (person-rem). Analyses of transient worker data indicated that 17,153 individuals completed work assignments at two or more licensees during the monitoring year. The dose distributions are adjusted each year to account for the duplicate reporting of transient workers by multiple licensees. In 1995, the average measurable dose calculated from reported data was 0.26 cSv (rem). The corrected dose distribution resulted in an average measurable dose of 0.32 cSv (rem).

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

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