
Occupational Radiation Exposure at Commercial Nuclear Power Reactors 1981

Annual Report

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Management Information Branch
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PREVIOUS REPORTS IN SERIES

1. T. D. Murphy, "A Compilation of Occupational Radiation Exposure from Light Water Cooled Nuclear Power Plants, 1969-1973," USAEC Report WASH-1311, May 1974.
2. T. D. Murphy, C. S. Hinson, "Occupational Radiation Exposure at Light Water Cooled Power Reactors, 1969-1974," USNRC Report NUREG-75/032, June 1975.
3. T. D. Murphy, et al, "Occupational Radiation Exposure at Light Water Cooled Power Reactors, 1969-1975," USNRC Report NUREG-0109, August 1976.
4. L. A. Johnson, "Occupational Radiation Exposure at Light Water Cooled Power Reactors, 1969-1976," USNRC Report NUREG-0323, March 1978.
5. L. A. Johnson, "Occupational Radiation Exposure at Light Water Cooled Power Reactors, 1977," USNRC Report NUREG-0482, May 1979.
6. B. G. Brooks, "Occupational Radiation Exposure at Commercial Nuclear Power Reactors, 1978," USNRC Report NUREG-0594, November 1979.
7. B. G. Brooks, "Occupational Radiation Exposure at Commercial Nuclear Power Reactors, 1979," USNRC Report NUREG-0713, Vol. 1, March 1981.
8. B. G. Brooks, "Occupational Radiation Exposure at Commercial Nuclear Power Reactors, 1980," USNRC Report NUREG-0713, Vol. 2, December 1981.

ABSTRACT

This report presents an updated compilation of occupational radiation exposures at commercial nuclear power reactors for the years 1969 through 1981. This report is one of a series of reports which are published annually and is available at all NRC Public Document Rooms, or may be purchased from either of the organizations identified on the inside of the front cover of this report. The bulk of the information contained in this document was derived from reports submitted to the United States Nuclear Regulatory Commission in accordance with requirements of individual plant technical specifications and in accordance with 20.407 of Title 10, Chapter 1, Code of Federal Regulations (10 CFR §20.407).

This year's report contains data received from the 70 light water cooled reactors (LWRs) and one high temperature gas cooled reactor that had been declared to be in commercial operation for at least one full year as of December 31, 1981. This represents an increase of two reactors over the number contained in last year's report. The total number of personnel monitored at LWRs in 1981 was 124,504, a slight decrease from that found in 1980. The number of workers that received measurable doses during 1981 was 82,183 which is about 2,000 more than that found in 1980. The total collective dose at LWRs for 1981 is estimated to be 54,142 man-rem, which is only about 350 man-rem more than that reported in 1980. The result was that the average dose per worker decreased slightly to 0.66 rem, and the average collective dose per reactor decreased by about 20 man-rem to a value of 773 man-rem. The collective dose per megawatt-year of generated electricity by each reactor also decreased slightly to an average value of 1.7 man-rem per megawatt-year. A brief prospective on the health implications of these annual occupational doses is also provided. The staff projected that receiving 0.66 rem each year during an entire working career would increase the risk of dying from cancer by about two percent over the risk if no occupational radiation exposure were received.

The report also presents a summary and some analyses of the exposure data contained in the "termination reports" that have been submitted by nuclear power licensees to the Commission pursuant to 10 CFR §20.408. As of December 31, 1981, personal identification and exposure information had been collected and computerized for some 210,000 of these terminating reactor personnel. Analysis of these data indicate that in 1980 there were about 2,200 quarterly transient* workers who incurred an average dose of 0.46 rem and some 5,500 yearly transient* workers who incurred an average dose of 1.11 rem. The collective dose (about 6,000 man-rem) incurred by the yearly transients constituted 11% of the total collective dose calculated for 1980. The termination data reported in 1981 has not yet been completely computerized, and, therefore, such analyses for transient workers in 1981 were not available for presentation in this report.

* Transient workers are those workers who begin and end their employment or work assignment at two or more different licensed facilities within one calendar quarter (quarterly transients) or one calendar year (yearly transients).

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OCCUPATIONAL RADIATION EXPOSURE AT
COMMERCIAL NUCLEAR POWER REACTORS
1981

1. INTRODUCTION

In 1974, the NRC staff began changing the technical specifications of operating nuclear power reactors to require the submittal of an annual report which indicated the number of individuals exposed and their cumulative annual doses, broken down by type of personnel, work function, and occupation. (The format for reporting is contained in Regulatory Guide 1.16, "Reporting of Operating Information - Appendix A Technical Specifications," and is similar to that shown in Appendix C of this report.) To obtain data for previous years, each reactor licensee was requested to provide similar information for each year since 1969 in which they had a unit in commercial operation. In every instance, an estimate of the total collective dose (man-rems) incurred by all individuals monitored during the year was provided; however, the number of workers who received measurable doses could not always be determined. The information given in Appendix A, therefore, is not complete for all plants for the years 1969 through 1972.

On February 4, 1974, 10 CFR §20.407 was amended to require licensed nuclear power utilities, among other licensees, to submit an annual statistical report indicating the distribution of the whole body doses of all individuals monitored at each facility. These reports (see Appendix B) allow an estimate to be made of the total collective dose, and of the number of workers receiving measurable doses. These values were used throughout this report (except for Tables 8, 9, 10 and Appendix C) for the years 1973 through 1981.

The plant operating data, such as plant capacity and megawatt-years of electricity generated, was obtained or derived from data included in various issues of the "Operating Units Status Report," (Ref. 1), and from the report "U. S. Central Station Nuclear Power Plants, 1976" (Ref. 2).

This report, and each of its predecessors, summarizes information reported during previous years. However, more plant specific data, such as the annual report submitted by each plant pursuant to 10 CFR §20.407 and Regulatory Guide 1.16, may be found in those documents listed on the front cover of this report. Additional operating data and statistics for each of the years after 1972 through 1979 may be found in a series of reports, "Nuclear Power Plant Operating Experience" (Refs. 3-8). These documents are available at all NRC public document rooms, or they may be purchased from the National Technical Information Service, as shown in the Reference section. The 1980 and 1981 reports in this series should be published in 1983.

2. SUMMARY OF OCCUPATIONAL MONITORING DATA AND POWER GENERATION

2.1 Definitions of Terms and Sources of Data

2.1.1 Number of Reactors

Tables 1 through 3 provide summaries of the plant data given in Appendix A for boiling water reactors (BWRs), pressurized water reactors (PWRs), and all light water cooled reactors (LWRs), respectively. The number of reactors included each year (those without parentheses) are those reactors that had been in commercial operation for at least one full year as of December 31 of each of the indicated years. The figure shown in parentheses (for the years 1969-1972) is the number of reactors that provided both the number of individuals that received measurable doses (referred to as "workers") while visiting or working at the facility and the summation of the annual whole body doses (called man-rem) of all of these workers. The annual collective doses shown in parentheses and the other information marked with an asterisk are also based on the data submitted by the number of reactors shown in parentheses.

2.1.2 Collective Dose

The collective doses (in man-rem) shown for 1969 through 1972 were obtained by special requests made to the licensee or from monthly and semi-annual operating reports that had been previously submitted pursuant to plant technical specifications. When possible, the number of workers receiving measurable doses was obtained in the same manner. Beginning with 1973, the collective dose and the number of workers receiving measurable doses were obtained from the annual reports submitted pursuant to 10 CFR §20.407. From these reports, the annual collective dose was calculated by summing the products obtained by multiplying the number of individuals shown in each of the dose ranges (shown in Table 7 and Appendix B) by the midpoint of each range. Past experience has shown that the actual mean dose of individuals reported in each dose range is less than the midpoint of the range. Thus the collective doses* shown in this report may be about 10% too high.

2.1.3 Breakdown of Collective Dose

In Appendix A, the collective dose that was calculated from the §20.407-type annual reports is broken down by work function (operations and maintenance) and by personnel type (contractor, and station and utility combined) for each plant site. The proportion of the collective dose shown for each type is the same as that reported in the plant's annual report required by its technical specifications (see 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

* A few facilities reported the actual collective dose of those individuals shown on the §20.407-type annual report, and this figure was used instead of the calculated value.

TABLE 1

SUMMARY OF ANNUAL INFORMATION REPORTED BY
COMMERCIAL BOILING WATER REACTORS

1969 - 1981

Year	Number Of Reactors Included	Annual Collective Doses (Man-rem)	No. of Workers With Measurable Doses	Gross MW-Yrs Electricity Generated	Average Dose Per Worker (Rems)	Average Collective Dose Per Reactor (Man-rem)	Average No. Personnel With Measurable Doses Per Reactor	Average Man-rem Per MW-Yr	Average MW-Yrs Generated Per Reactor	Average Rated Capacity Net (MWe)
1969	3 (2)	586 (300)	290*	102	1.03*	186	145*	3.1	64	112
1970	6 (4)	764 (510)	1,321*	912	0.39*	127	330*	0.8	152	267
1971	7 (5)	1,784 (1,069)	1,873*	1,308	0.57*	255	375*	1.4	187	339
1972	10 (7)	2,508 (2,130)	2,258*	3,058	0.94*	286	323*	0.9	306	434
1973	12	4,584	5,340	3,394	0.85	380	445	1.3	283	459
1974	14	7,095	8,769	4,059	0.81	507	626	1.7	290	513
1975	18	12,611	14,607	5,786	0.86	701	812	2.2	321	611
1976	23	12,626	17,859	8,586	0.71	549	776	1.5	373	647
1977	23	19,042	21,388	9,098	0.89	828	930	2.1	396	645
1978	25	15,086	20,278	11,774	0.74	604	811	1.3	471	668
1979	25	18,322	25,245	11,671	0.73	733	1,010	1.6	467	669
1980	26	29,530	34,094	10,868	0.87	1,136	1,311	2.7	418	664
1981	26	25,471	34,832	10,899	0.73	960	1,340	2.3	419	674

* During the years 1969 through 1972, all plants reported collective doses but a few did not submit the number of personnel that received measurable doses. The number of reactors that did report doses and number of workers is given in parentheses in the second column. The collective doses shown in parentheses in the third column, as well as the asterisked values in the remaining columns, are all based on the data submitted by the number of reactors shown in parentheses. This correction, and others, changed some of the values from

TABLE 2
SUMMARY OF ANNUAL INFORMATION REPORTED BY
COMMERCIAL PRESSURIZED WATER REACTORS

1969 - 1981

Year	Number Of Reactors Included	Annual Collective Doses (Man-rem)	No. of Workers With Measurable Doses	Gross MW-Yrs Electricity Generated	Average Dose Per Worker (Rems)	Average Collective Dose Per Reactor (Man-rem)	Average No. Personnel With Measurable Doses Per Reactor	Average Man-rem Per MW-Yr	Average MW-Yrs Generated Per Reactor	Average Rated Capacity Net (MW _e)
1969	4 (3)	661 (363)	464*	1,097	0.80*	166	161*	0.6	274	349
1970	4 (3)	2,738 (1,099)	1,340*	978	0.82*	684	447*	2.8	245	349
1971	6 (4)	1,844 (812)	808*	1,912	1.01*	307	228*	1.0	319	399
1972	8 (6)	3,708 (2,083)	1,885*	2,544	1.11*	464	377*	1.5	318	448
1973	12	9,399	9,440	3,770	1.00	783	787	2.5	314	533
1974	20	6,627	9,697	6,824	0.68	331	485	1.0	341	619
1975	26	8,268	10,884	11,963	0.76	318	419	0.7	461	643
1976	30	13,807	17,588	13,325	0.79	460	586	1.0	444	675
1977	34	13,469	20,878	17,346	0.65	396	614	0.8	510	699
1978	39	16,713	25,720	19,840	0.65	429	659	0.8	509	723
1979	42	21,859	38,877	18,249	0.56	516	924	1.2	434	729
1980	42	24,266	46,237	18,287	0.52	578	1,101	1.3	436	721
1981	44	28,671	47,351	20,552	0.61	652	1,076	1.4	467	745

* During the years 1969 through 1972, all plants reported collective doses but a few did not submit the number of personnel that received measurable doses. The number of reactors that did report doses and number of workers is given in parentheses in the second column. The collective doses shown in parentheses in the third column, as well as the asterisked numbers in the remaining columns, are all based on the data submitted by the number of reactors shown in parentheses. This correction, and others, changed some of the values from

TABLE 3

SUMMARY OF ANNUAL INFORMATION REPORTS BY COMMERCIAL LIGHT WATER COOLED REACTORS

1969 - 1981

Year	Number Of Reactors Included	Annual Collective Doses (Man-rem)	No. of Workers With Measurable Doses	Gross MW-Yrs Electricity Generated	Average Dose Per Worker (Rems)	Average Collective Dose Per Reactor (Man-rem)	Average No. Personnel With Measurable Doses Per Reactor	Average Man-rem Per MW-Yr	Average MW-Yrs Generated Per Reactor	Average Rated Capacity Net (MW _e)
1969	7 (6)	1,247 (663)	744*	1,289	0.89*	178	149*	1.0	184	247
1970	10 (7)	3,502 (1,808)	2,661*	1,892	0.60*	350	380*	1.9	189	300
1971	13 (9)	3,628 (1,951)	2,778*	3,220	0.71*	280	309*	1.1	248	367
1972	18 (12)	6,566 (4,213)	4,143*	5,602	1.02*	366	345*	1.2	311	408
1973	24	13,963	14,780	7,164	0.94	582	616	1.9	299	496
1974	34	13,722	18,466	10,883	0.74	404	543	1.3	320	575
1975	44	20,878	25,491	17,769	0.82	475	579	1.2	404	630
1976	53	26,433	35,447	21,911	0.75	499	669	1.2	413	683
1977	57	32,511	42,286	26,444	0.77	570	742	1.2	484	677
1978	64	31,809	45,988	31,614	0.69	497	719	1.0	484	702
1979	67	39,981	64,122	29,920	0.62	597	968	1.3	447	706
1980	68	53,796	80,331	29,155	0.67	791	1,181	1.8	429	699
1981	70	54,142	82,183	31,451	0.66	773	1,174	1.7	449	719

During the years 1969 through 1972, all plants reported collective doses but a few did not submit the number of personnel that received measurable doses. The number of reactors that did report doses and number of workers is given in parentheses in the second column. The collective doses shown in parentheses in the third column, as well as the asterisked values in the remaining columns, are all based on the data submitted by the number of reactors shown in parentheses. This correction, and others, changed some of the values from those appearing in earlier NUREG documents.

pursuant to their technical specifications (the first number in the last columns in Appendix C) was determined. (2) The ratio of this dose to the total collective dose (the last number in the last columns in Appendix C) was calculated and multiplied by the total collective dose that had been estimated using the \$20.407-type annual report. This product is the number of man-rem's shown in the column headed "Operations" in Appendix A. (3) The number of man-rem's shown in the column headed "Maintenance and Others" in Appendix A was determined by first summing the collective doses incurred by workers in the five remaining functions, given in Appendix C, and then calculating the fraction that this dose is of the total collective dose. This fraction was multiplied by the total collective dose estimated from the \$20.407-type annual reports to yield the number of man-rem's shown in this column of Appendix A. (4) A similar procedure was followed in determining the number of man-rem's in the type of personnel columns "Contractor" and "Station & Utility" in Appendix A.

2.1.4 Workers With Measurable Whole Body Doses

The number of workers with measurable doses, rather than the total number of individuals monitored, is shown in Tables 1 through 3 and Appendix A. These values were used to calculate the average annual dose per worker and the average number of personnel per reactor. This was done to delete those individuals, many of whom probably did not routinely work in radiation areas (and were monitored for convenience or for identification purposes), who may have received exposures too small to be detected by personnel monitoring devices.

2.1.5 Megawatt-years of Electricity

The number of gross megawatt-years (MW-Yr) of electric energy generated each year by each facility is shown in Appendix A. 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. The gross megawatt-years of generated electricity that are presented in Tables 1 through 3 are the sums of that produced by all of the reactors included each year. This sum is divided by the number of those reactors included each year to yield the average amount of electric energy generated (MW-Yr) per reactor, which is also shown in Tables 1 through 3.

2.1.6 Collective Dose per Megawatt-year

The number of megawatt-years generated was also used to determine average values of the annual collective dose per megawatt-year generated. This was calculated by dividing the total collective dose by the total gross megawatt-years generated to yield a quotient, having the units "man-rem's per MW-Yr," that is used as a measure of the doses incurred by workers at power reactors in relation to the gross electric energy produced. This value was also calculated for each reactor site and is presented in Tables 4 through 6 and Appendix A.

2.1.7 Average Rated Capacity

The average rated capacity, shown in Tables 1 through 3, was found by dividing the sum of the net maximum dependable capacities (Net MWe) of

the reactors by the number of reactors included each year. The net maximum dependable capacity is defined to be 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 is the "capacity" shown for each plant in Appendix C.

2.2 Average Annual Occupational Doses

Some of the data presented in Tables 1 and 2 is graphically displayed in Figure 1, where it can be seen that the average collective dose and average number of workers per BWR has been higher than that for PWRs for the last seven years and that the values of both parameters have, in general, continued to rise at both types of facilities. At BWRs in 1981, the average collective dose, dose per worker, and collective dose per megawatt-year decreased by about 15% from the 1980 figures to 780 man-rem, 0.73 rem, and 2.3 man-rem per megawatt-year, respectively. The number of workers per reactor (1340) remained about the same. At PWRs, the values of these three parameters increased to 652 man-rem per reactor, 0.61 rem per worker, and 1.4 man-rem per megawatt-year, while the average number of workers per reactor (1,076) remained about the same as the 1980 value.

Figures 2 and 3 show plots of much of the information that is given in Table 3 for all light water reactors. One can see that the total values of the three parameters (workers, collective dose, and megawatt-years) showed only slight increases over last year's values, while the average dose per worker, number of workers per reactor, and collective dose per megawatt-year decreased slightly.

To further assist in the identification of any trends that might exist, Fig. 4 displays the average and the median* values of the collective dose per reactor for BWRs and for PWRs for the years 1973 through 1981. 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 are not as greatly affected by the extreme values of the collective doses, one can see that they do not fluctuate as much from year to year as do the average values. The median collective dose for PWRs appears to have levelled off at about 400 man-rem, while for BWRs, it has generally increased and reached a high of 940 man-rem in 1981. In all but one case 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).

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

FIGURE 1
COMMERCIAL LIGHT WATER COOLED REACTORS
1969 - 1981

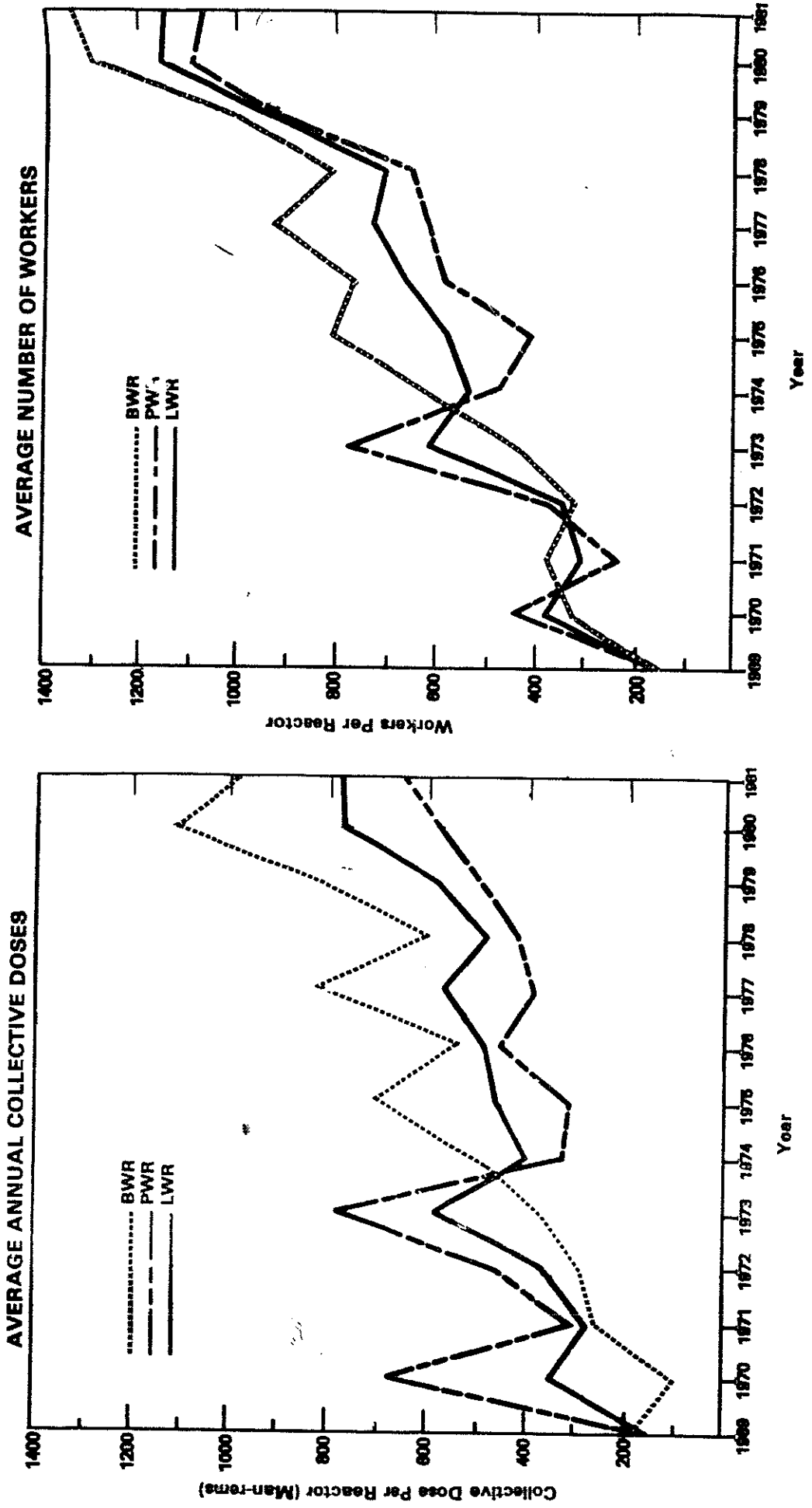


FIGURE 2
 PLOT OF TOTAL ANNUAL VALUES AT ALL
 LIGHT WATER COOLED REACTORS
 1969-1981

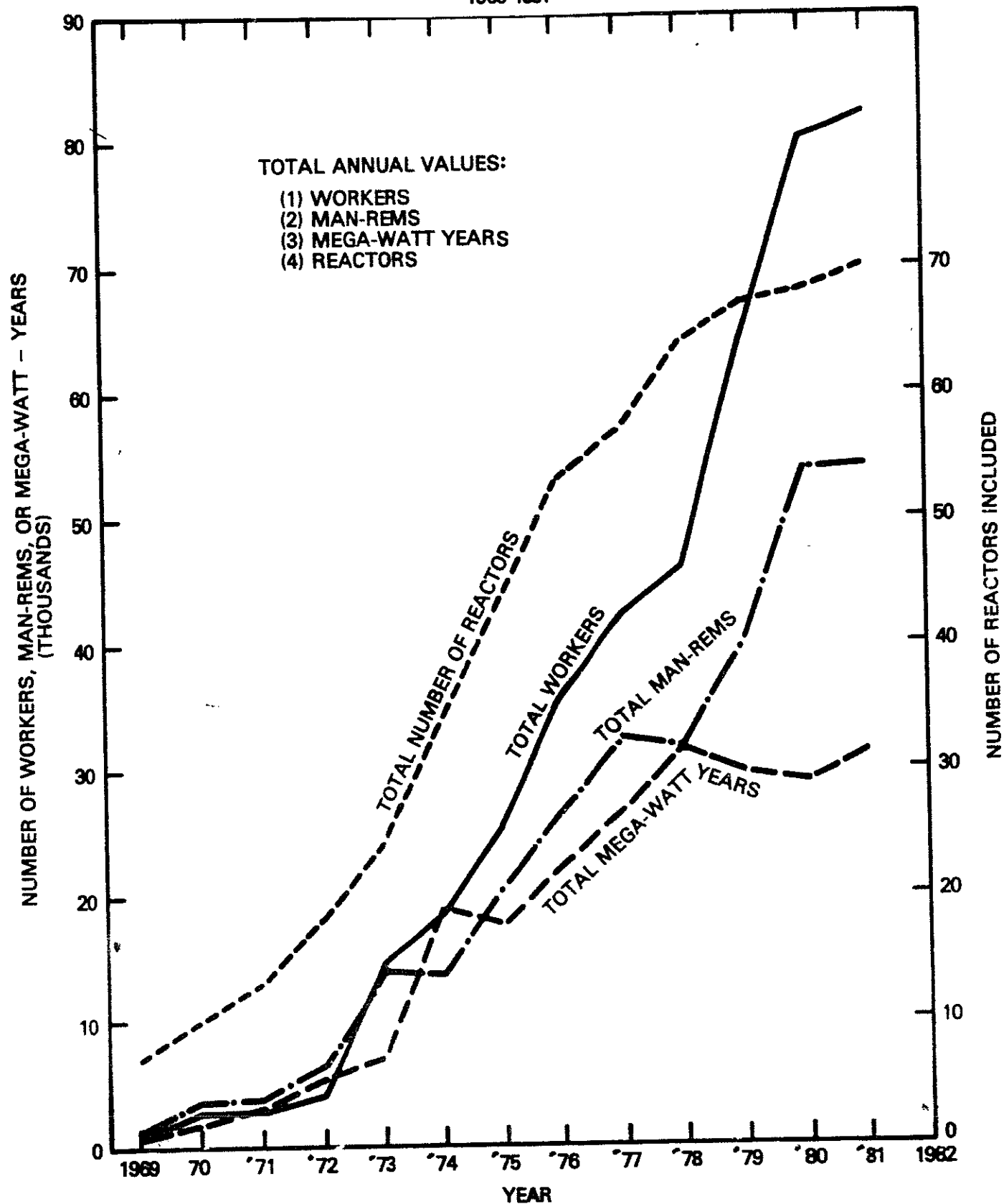


FIGURE 3
 PLOT OF AVERAGE ANNUAL VALUES AND AT ALL
 LIGHT WATER COOLED REACTORS
 1969-1981

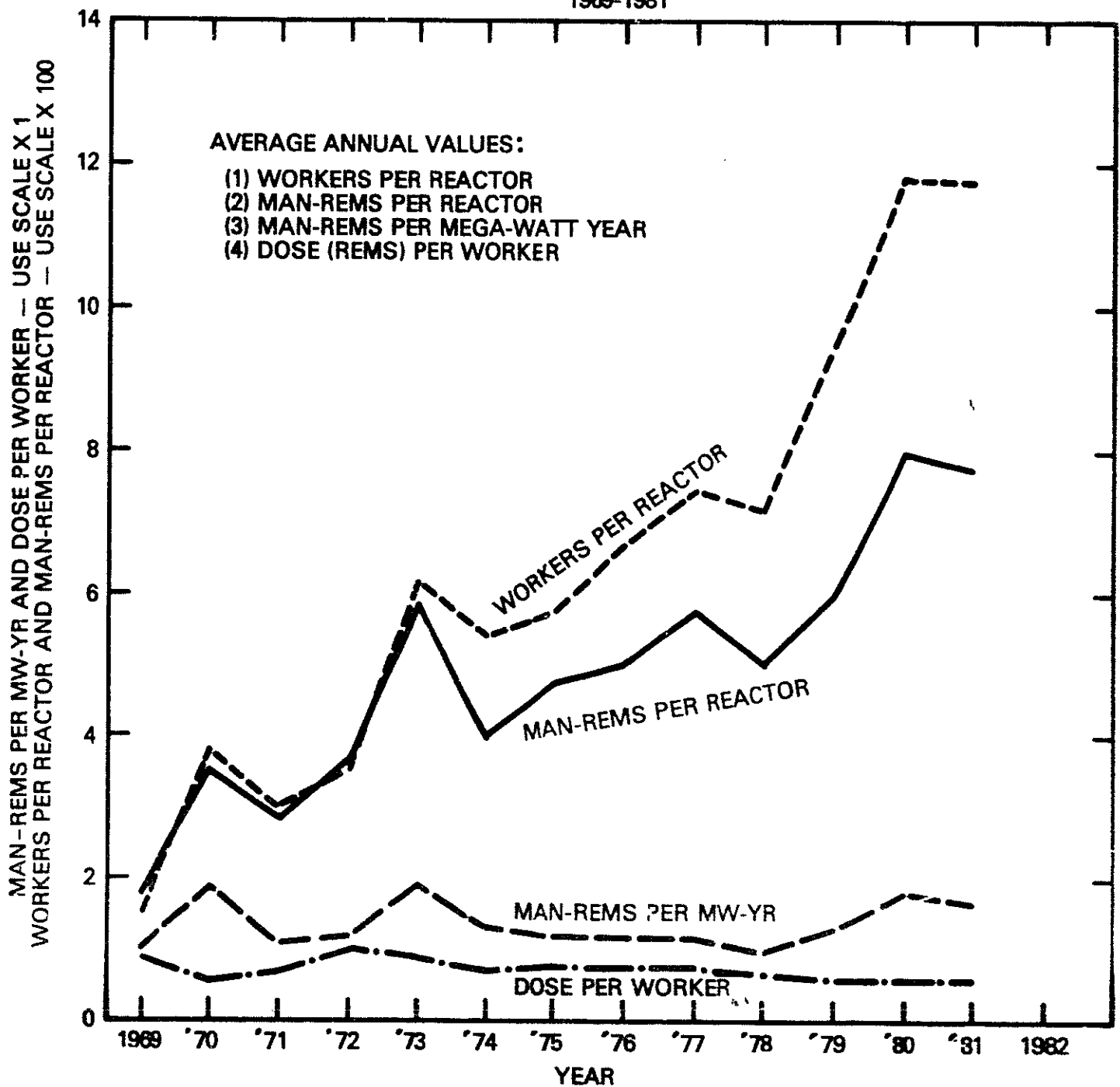
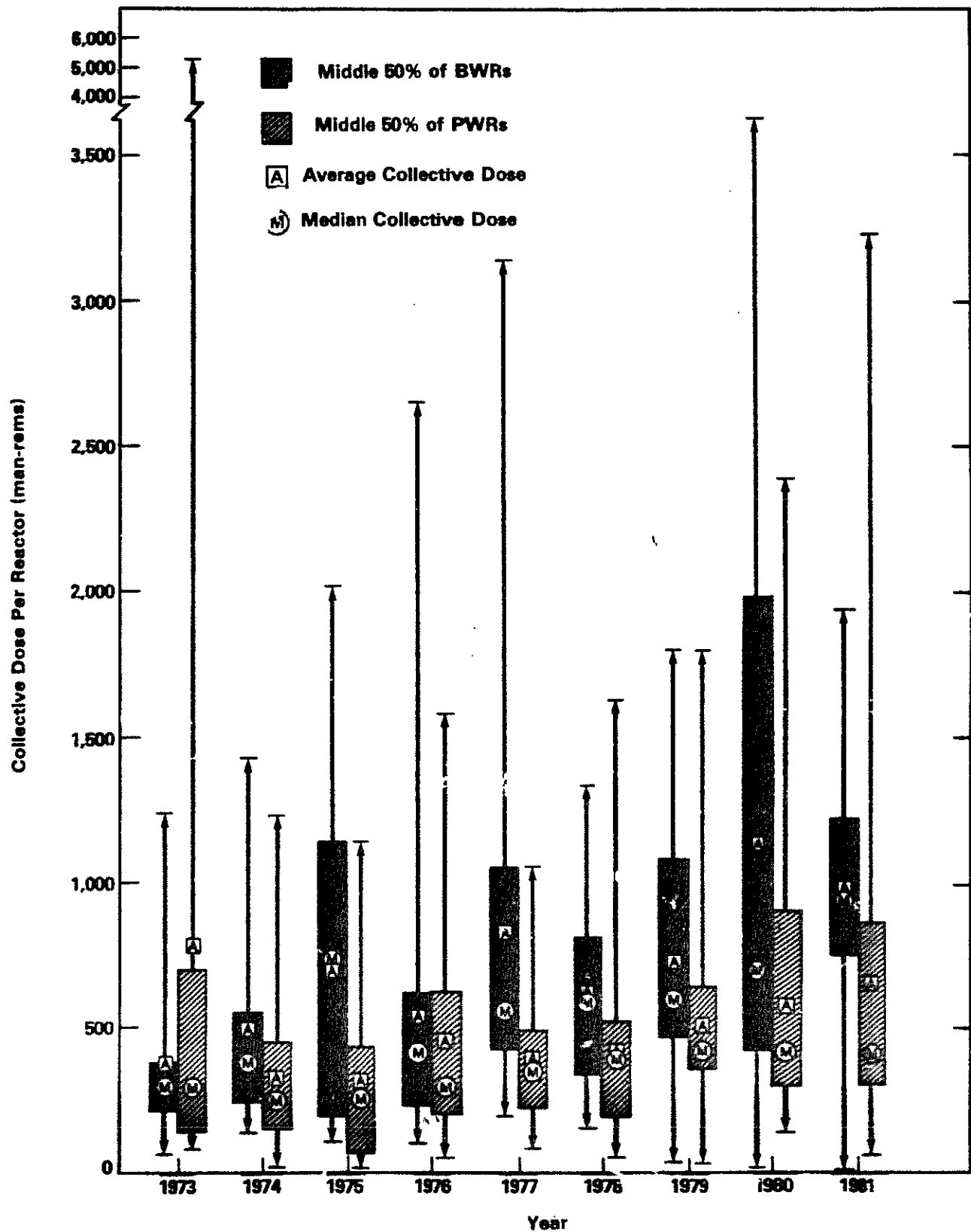


FIGURE 4
AVERAGE, MEDIAN AND EXTREME VALUES OF
THE COLLECTIVE DOSE PER REACTOR
 1973 - 1981



2.3 Plant Rankings By Collective Dose Per Reactor

The number of reactors from which data have been collected is still rather small, and 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 and 5 list the BWRs and PWRs in ascending order of man-rem per reactor for each of the years 1976 through 1981. Two other parameters, dose per worker and collective dose per megawatt-year, are also given for each plant and could have been used in ranking the plants as well. Also, shown for the first time is a parameter "CR" which is defined to be the ratio of the annual collective dose delivered at individual doses exceeding 1.5 rems to the total annual collective dose. This shows the proportion of the total collective dose at the plant that was received by individuals who incurred annual doses of 1.5 rems or greater. CR is one of the parameters that the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) recommended be used in the analysis and comparison of exposure data. The draft of the latest UNSCEAR report* states that the normal values of CR lie between 0.05 and 0.50, and one can see that CR for most of the plants fell within this range in 1981.

Table 6 ranks the plants that had been in commercial operation for at least five years as of December 31, 1981. At BWRs, the number of workers per reactor, year, and values of the average collective dose per reactor-year and collective dose per megawatt-year increased by about 10% over those that had been calculated for the five years ending in 1980. At PWRs, the five-year averages for the collective dose per megawatt-year and the collective dose per reactor-year increased less than 10%, while the average number of workers per reactor increased by about 14% over the previous five years' values. The average dose per worker decreased slightly at both BWRs and PWRs during this period.

In general, one can see from the listings in Tables 4 through 6 that the plants having the lower values of the three parameters shown for each year are usually the newer plants. Some of the older, smaller plants also appear near the top of the listings since they report small collective doses; however, the ratio of their man-rem to the number of megawatt-years generated will be higher because of their limited power generation capacity. Usually, when a plant reports a large annual collective dose, and a large man-rem to megawatt-year ratio as well, it indicates that extensive maintenance or modifications were undertaken during the year. For example, the PWR facilities reporting high values for these two parameters during the last few years generally have been involved in major repair and replacement of steam generators. At BWRs, torus modifications contributed significantly to their 1981 doses. At both types of plants, in-service inspections and other plant modifications (such as pipe hangers, snubbers, and fire protection) were also major contributors. It should be noted that there are significant differences in nuclear plant designs, even between plants of a given type. Therefore, one should be careful when attempting to draw conclusions from this data.

*The final report should be made available by the General Assembly of Official Records, United Nations, New York, late in 1982.

**TABLE 4-
BOILING WATER REACTORS
LISTED IN ASCENDING ORDER OF MAN-REMS PER REACTOR**

1977	1978	1978	1980	1981	
Man- Rems per Site	Man- Rems per Site	Man- Rems per Site	Man- Rems per Site	Man- Rems per Site	Site Name
Dose per Worker (Rem)	Dose per Worker (Rem)	Dose per Worker (Rem)	Dose per Worker (Rem)	Dose per Worker (Rem)	
Man- Rems per MW-Yr.	Man- Rems per MW-Yr.	Man- Rems per MW-Yr.	Man- Rems per MW-Yr.	Man- Rems per MW-Yr.	CR 2
Cooper Station	Cooper Station	Humboldt Bay	Humboldt Bay	Humboldt Bay	
La Crosse	La Crosse	Monticello	La Crosse	La Crosse	
Vermont Yankee	Big Rock Point	La Crosse	Hatch 1,2	Big Rock Point	
Duane Arnold	Hatch 1	Cooper	Big Rock Point	Cooper Station	
Big Rock Point	Nine Mile Point	Cooper	Monticello	Hatch 1,2	
Millstone Point 1	Humboldt Bay	Duane Arnold	Monticello	Vermont Yankee	
Browns Ferry 1,2,3	Vermont Yankee	Big Rock Point	Nine Mile Point	Duane Arnold	
Hatch 1	Monticello	Oyster Creek	Browns Ferry 1,2,3	Browns Ferry 1,2,3	
Quad Cities 1,2,3	Monticello	Browns Ferry 1,2,3	Duane Arnold	Oyster Creek	
Dresden 1,2,3	Dresden 1,2,3	Hatch	Dresden 1,2,3	Dresden 1,2,3	
Browns Ferry 1,2,3	Browns Ferry 1,2,3	Dresden 1,2,3	Cooper Station	Monticello	
Peach Bottom 2,3	Peach Bottom 2,3	Peach Bottom 2,3	Peach Bottom 2,3	Peach Bottom 2,3	
Monticello	Monticello	Fitzpatrick	Vermont Yankee	Monticello	
Peach Bottom 2,3	Peach Bottom 2,3	Pilgrim	Oyster Creek	Brunswick 1,2	
Fitzpatrick	Fitzpatrick	Pilgrim	Brunswick 1,2	Fitzpatrick	
Brunswick 2	Duane Arnold	Quad Cities 1,2	Brunswick 1,2	Millstone 1	
Nine Mile Point	Millstone 1	Vermont Yankee	Fitzpatrick	Quad Cities 1,2	
Oyster Creek	Oyster Creek	Brunswick 1,2	Millstone Point 1	Nine Mile Point	
Humboldt Bay	Pilgrim	Nine Mile Point	Quad Cities 1,2	Pilgrim	
Pilgrim 1	Average per Reactor	Millstone Point 1	Pilgrim	Average per Reactor	
Average per Reactor		Average per Reactor	Average per Reactor	Average per Reactor	

¹For those sites with more than one operating reactor, the number of man-rems per reactor is obtained by dividing the number of man-rems reported by the number of reactors.
²CR is the ratio of the annual collective dose delivered at individual sites exceeding 1.5 rems to the total annual collective dose.

TABLE 5
PRESSURIZED WATER REACTORS
LISTED IN ASCENDING ORDER OF MAN-REMS PER REACTOR

1977	1978	1979	1980	1981
Site Name	Site Name	Site Name	Site Name	Site Name
Man- Rams per Site	Man- Rams per Site	Man- Rams per Site	Man- Rams per Site	Man- Rams per Site
Dose per Worker (Rams)	Dose per Worker (Rams)	Dose per Worker (Rams)	Dose per Worker (Rams)	Dose per Worker (Rams)
MW-Yr.	MW-Yr.	MW-Yr.	MW-Yr.	MW-Yr.
Beaver Valley	48	30	154	58
Palladas	108	180	185	141
Keweenaw	221	128	353	329
Prairie Island 1&2	117	128	394	376
Haddam Neck	122	127	213	229
Salem 1	164	127	218	254
Keweenaw	320	132	483	596
Point Beach 1&2	189	139	688	302
Arkansas 1	180	154	308	867
Beaver Valley	500	287	877	865
Cahert Cliffs 1&2	282	844	342	680
Yankee Rowe	312	844	1,046	364
Trojan	321	1,001	412	402
Crystal River	323	718	421	1,211
Rancho Seco	336	388	424	408
Cook 1	337	805	435	424
St. Lucie	401	438	448	468
San Onofre	410	448	820	511
Maine Yankee	420	472	482	531
Glinne	460	495	482	1,102
Oconee 1, 2&3	1393	584	971	808
Three Mile Island 1	504	1,170	532	608
Zion 1 & 2	1017	582	583	665
Turkey Point 3&4	1032	838	825	733
Haddam Neck	2008	1,274	636	1,720
Indian Point 1*, 2 & 3	784	1,278	688	902
Palladas	1837	843	708	929
Surry 1&2	983	1,880	1,861	1,036
Robinson 2	1821	854	1,353	2,281
Millstone 2	1821	1,181	1,892	2,731
Average per Reactor	428	1,188	2,336	4,344
		3,584	2,387	3,223
		810	578	682
		0.66	0.82	0.61
		1.17	1.33	1.4
				0.82

Indian Point 1 was defueled in 1974.
 For those sites with more than one operating reactor, the numbers of man-rem per reactor is obtained by dividing the number of man-rem reported by the site by the number of reactors.
 For those sites with annual collective dose delivered at individual doses exceeding 1.0 rem to the total annual collective dose, the annual collective dose is reported.

TABLE 6
FIVE-YEAR TOTALS AND AVERAGES
LIGHT WATER COOLED REACTORS
LISTED IN ASCENDING ORDER OF MAN-REMS PER REACTOR

1977 - 1981

BOILING WATER REACTORS						PRESSURIZED WATER REACTORS					
2 Site Name	1 Total Man-Rems per Site	Total Workers with Measurable Doses	Average Dose per Worker (Rems)	Total Mega-watt Years	Average Man-rem per MW-Yr.	2 Site Name	1 Total Man-Rems per Site	Total Workers with Measurable Doses	Average Dose per Worker (Rems)	Total Mega-watt Years	Average Man-rem per MW-Yr.
La Crosse	915	787	1.16	112.9	8.1	Prairie Island 1,2	1383	3677	0.38	4374.6	0.3
Big Rock Point	1478	2451	0.80	210.9	7.0	Kewaunee	726	1774	0.41	2189.2	0.3
Cooper	2014	2758	0.73	2610.6	0.8	Beaver Valley	1191	4733	0.26	1494.0	0.8
Humboldt Bay	2301	1735	1.33	0.0	---	Yankee Rowe	1280	2748	0.47	563.2	2.3
Duane Arnold	3009	4801	0.63	1471.6	2.0	Point Beach 1,2	2687	2997	0.96	4083.9	0.6
Monticello	3067	4471	0.69	2208.1	1.4	Rancho Seco	1653	2972	0.56	2553.2	0.6
Vermont Yankee	3836	5502	0.70	2011.9	1.9	Maine Yankee	1705	3142	0.54	2949.5	0.6
Peach Bottom 2,3	9549	12978	0.74	6964.7	1.4	Trojan	1780	4508	0.39	3131.6	0.6
Ninn Mile Point	5377	6183	0.87	2148.2	2.5	Fort Calhoun	1959	3295	0.59	1637.3	1.2
Oyster Creek	6010	7581	0.79	1906.2	3.2	Oconee 1,2,3	5988	9900	0.60	8548.6	0.7
Fitzpatrick	6313	7680	0.82	2378.9	2.6	St. Lucie	2388	4696	0.51	3074.5	0.8
Quad Cities 1,2	12791	9137	1.40	5193.4	2.5	Ginna	2906	4063	0.69	1876.6	1.5
Millstone Point 1	7078	9785	0.72	2347.4	3.0	Zion 1,2	5934	8477	0.92	6988.2	0.8
Dresden 1,2,3	9929	11340	0.88	5498.2	1.8	Palisades	3044	6238	0.49	2068.3	1.5
Pilgrim	10946	12352	0.89	2179.3	5.0	Millstone Point 2	3502	4626	0.76	2877.0	1.2
Grand Totals and Averages per Reactor-year	84,613	99,521		37,242.3		Turkey Point 3,4	7650	9392	0.81	4435.3	1.7
	881	1048	0.85	392	2.3	Haddam Neck	4308	5750	0.75	2451.4	1.8
						Robinson 2	5191	6502	0.80	2287.9	2.8
						San Onofre	6897	8235	0.85	1198.6	5.8
						Surry 1,2	15808	18198	0.87	4168.4	3.8
						Grand Totals and Averages per Reactor-year	77,880	113,625	0.89	62,940.3	1.2
							557	842		468	

¹ For those sites with more than one operating reactor, the number of man-rem per reactor is obtained by dividing the number of man-rem shown by the number of reactors at the site.

² Multiple unit sites where all reactors had not completed one full year of commercial operation as of 12-31-77 are not included.

3. ANNUAL DOSE DISTRIBUTIONS

3.1 Annual Whole Body Dose Distributions

Table 7 summarizes the distribution of the annual whole body doses received by workers at commercial LWRs during each of the years 1969 through 1981. This distribution is the sum of the annual dose distributions reported by each licensed nuclear facility each year. The distribution reported by each facility for 1981 is shown in Appendix B. From Table 7, one can see that prior to 1973 the reports had a different format such that there were only two dose ranges, 0.0 to 1.25 rems and 1.25 to 2.0 rems, for doses less than two rems. This did not allow an estimate of the collective dose, as previously described, to be made for these years. For the years after 1972, the table indicates that the annual collective dose increased nearly every year, as did the number of monitored individuals. However, the values of CR show that the portion of the collective dose due to individual doses greater than 1.5 rems has decreased from a high of 0.72 in 1973 and has leveled off at about 0.55 for the last few years. The data for 1981 is graphically displayed in Figure 5 by plotting the log of the annual dose against the cumulative percent on a probability axis. If the data were log-normally distributed, as has even found to be the case for certain dose ranges (Ref. 11), the data points would form a straight line. However, distributions in which there are annual doses that exceed 2 rems frequently depart from a straight line because of the licensees' efforts to meet various recommendations and limits.

The curves in Figure 5 show the cumulative distribution of the number of workers receiving measurable doses that were reported in various dose ranges (shown in Table 7) for all LWRs and for BWRs and PWRs, separately, (as shown in Appendix B). From these curves it can be quickly seen that at all LWRs about 76% of the workers received annual doses that were less than one rem, and that about 99.7% of them received doses less than five rems. The position of the curve for PWRs (above that of the curve for BWRs) at doses less than four rems indicates that a larger portion of the workers at PWRs received lower individual doses than at BWRs. For doses greater than four rems, the situation reversed. Also, using the curves in Figure 5 and the values of CR shown at the bottom of the figure, one can determine that the 14% of the workers at LWRs whose dose exceeded 1.5 rems received 54% of the collective dose in 1981.

The compilation of the distribution data submitted by each facility into one report, however, introduces an additional source of error. Since individuals are not identified in the annual distribution reports, an individual who was monitored by five different reactor facilities would have been counted once on each facility's report. Therefore, when the data were summed to determine the total number of individuals monitored by all facilities, this person would have been counted as five individuals rather than as one. This could affect the distribution of doses as well as the number of individuals and their average dose, because the individual would have been counted five times in the lower dose ranges rather than one time in a higher range in which his actual accumulated dose (the sum of his doses incurred at each facility) would have placed him. Further discussion of this is provided in Section 4.3.4.

TABLE 7 *

**SUMMARY DISTRIBUTION OF ANNUAL WHOLE BODY DOSE
AT COMMERCIAL RESEARCH WATER COOLED REACTORS**

1969 - 1981

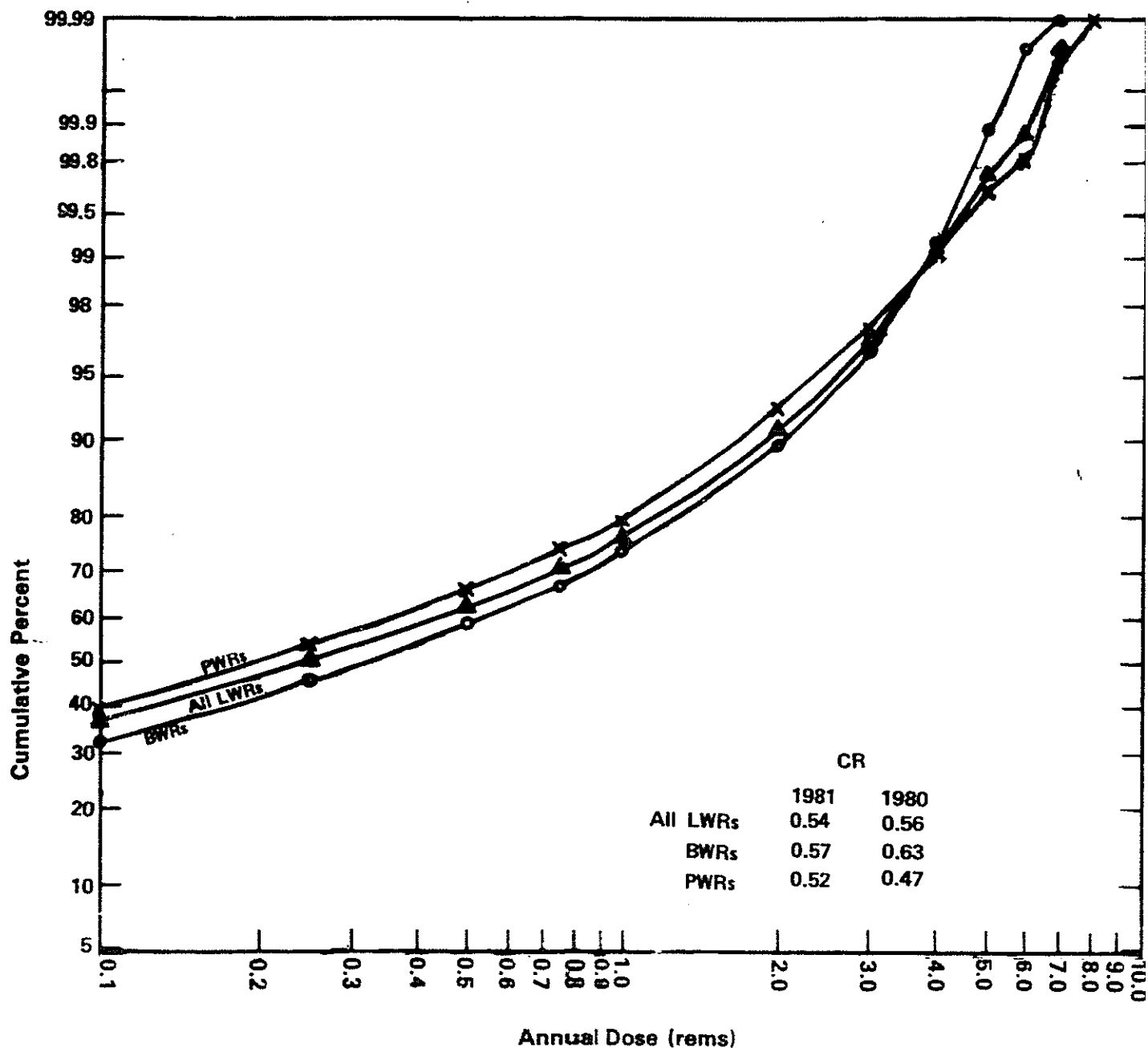
Year	Number of Individuals with Whole Body Exposures in the Indicated Ranges (Reme)																Total Number Monitored	** Annual Collective Doses (Man-rem)	*** CR
	No Measurable Exposure	Measurable ≤0.10	0.10- 0.25	0.25- 0.50	0.50- 0.75	0.75- 1.0	1.0- 2.0	2.0- 3.0	3.0- 4.0	4.0- 5.0	5.0- 6.0	6.0- 7.0	7.0- 8.0	8.0- 9.0	9.0- 10.0	10.0- 11.0			
	0.0-1.25			1.25-2.0															
1969	2,479			128			134	65	26	5	2				2,838	/			
1970	6,839			146			166	163	88	98	8	1			7,509				
1971	8,586			410			315	137	105	17	11				9,581				
1972	14,095			688			532	189	111	46	21	9	6	6	15,713				
1973	19,043	5,494	1,698	1,214	740	652	2,468	1,584	422	251	125	71	38	16	7	33,823	13,983	0.72	
1974	20,472	6,735	2,887	2,056	1,182	906	2,503	1,378	471	226	86	30				38,938	13,722	0.63	
1975	18,854	8,841	3,674	2,750	1,685	1,339	3,948	1,872	691	423	199	60	24	12	1	44,343	20,879	0.65	
1976	25,704	12,821	5,130	4,135	2,520	2,030	4,880	2,354	789	487	188	70	26	11	5	61,151	26,433	0.62	
1977	24,868	13,970	6,534	5,050	3,258	2,486	6,182	2,837	1,130	569	141	66	36	21	6	67,134	32,511	0.61	
1978	30,143	16,639	6,943	5,504	3,399	2,498	6,405	2,969	1,080	418	67	26	8		(>12) 2	76,121	31,804	0.50	
1979	41,191	24,512	9,881	8,090	5,147	3,426	7,898	3,306	1,255	477	86	28	13	2	(>11) 1	105,313	39,981	0.54	
1980	47,377	29,638	11,760	9,820	6,082	4,518	11,474	4,515	1,537	686	192	98	18	3		127,708	53,796	0.56	
1981	42,323	29,332	12,217	10,326	6,625	4,903	11,766	4,546	1,783	486	93	81	11	2	1	124,506	54,142	0.55	

* Summary of reports submitted in accordance with 10 CFR 20.407 by plants that had been in commercial operation for at least one full year as of December 31 of each of the indicated years.

** The collective dose and CR were not reported by the facilities but were calculated by the NRC staff using methods described in this document.

*** CR is the ratio of the annual collective dose delivered at individual dose exceeding 1.5 rem to the total annual collective dose

FIGURE 5
CUMULATIVE PERCENT OF ANNUAL INDIVIDUAL DOSES
1981



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

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

3.2 Dose Distributions by Work and Job Function

Tables 8, 9 and 10 summarize the annual data submitted in accordance with plant technical specifications in a format similar to that shown in Appendix C. The licensees are requested to record the collective doses received by station employees, utility employees, and contract workers among various prescribed work functions and occupations. The report submitted by each station for 1981 is contained in Appendix C. One should note that in some cases, the licensee data had to be modified slightly in order to fit into the prescribed categories.

Table 8 provides a detailed summary of the distribution of collective dose by work function and personnel types for BWRs, PWRs and all LWRs. It shows that contract workers performing special maintenance at LWRs incur the largest portion of the collective dose. Table 9 presents a more general summary of this data for the last seven years, and one can see that workers involved in routine and special maintenance activities continue to incur most of the total cumulative dose. At BWRs (Table 8) workers involved in these activities received 75.3% of the cumulative dose for BWRs, a decrease of about 5% from last year's value, and at PWRs these workers received 73.6% of the cumulative dose, an increase of 3% over last year's value. The portions of the collective dose received by workers during inservice inspection and refueling at BWRs are 3.7% and 2.5%, respectively; at PWRs such workers received 6.5% and 7.0%, respectively, of the collective dose. Overall, contractor personnel received 68.0% of the collective dose (about the same as last year), and the station and utility employees received the remaining 32% at LWRs.

Table 10 presents the distribution of the collective dose at all LWRs among five occupations. As expected, maintenance personnel incurred the majority (70.6%) of the collective dose with contractor-maintenance personnel receiving more than twice as much as the station and utility maintenance employees, combined. Supervisory personnel received 2.4% of the dose, while workers in the remaining three occupations - operations, health physics, and engineering - received 9.5%, 8.6%, and 9.1%, respectively, of the collective dose. The total collective dose, 48,421 man-rems, shown in Table 10 does not equal that shown in Table 8 because several sites did not provide the distribution of the collective dose by occupation. Also, the collective doses shown in Tables 8 and 10 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 C rather than the collective dose that was calculated from the §20.407-type annual reports.

3.3 Health Implications of Average Annual Doses

If any biological effects are caused by exposure to radiation in the work place, the effects are likely to occur only after many years. The most important radiation-induced health effects are excess cancers, which can only manifested years after exposure, and genetic damage, which can only be expressed in subsequent generations. A vast amount of scientific information is available from which estimates of these risks can be made. Much of this information, however, has been obtained from epidemiologic studies of human populations at levels

TABLE 8
ANNUAL COLLECTIVE DOSES
BY WORK FUNCTION AND PERSONNEL TYPE

1981

WORK FUNCTION

WORK FUNCTION	STATION EMPLOYERS		UTILITY EMPLOYERS		CONTRACT WORKERS & OTHERS		TOTAL PER FUNCTION	
	MAN-REMS	% OF TOTAL	MAN-REMS	% OF TOTAL	MAN-REMS	% OF TOTAL	MAN-REMS	% OF TOTAL
ROLLING WATER REACTORS								
REACTOR OPERATIONS & SURVEILLANCE	1303.318	5.2 %	126.276	0.5 %	439.353	1.8 %	1868.947	7.5 %
ROUTINE MAINTENANCE	1964.022	7.9 %	1812.172	7.3 %	6731.897	27.0 %	10508.091	42.2 %
INSERVICE INSPECTION	124.246	0.5 %	80.513	0.3 %	713.329	2.9 %	918.088	3.7 %
SPECIAL MAINTENANCE	1000.031	4.0 %	402.544	1.6 %	6839.190	27.5 %	8241.765	33.1 %
WASTE PROCESSING	661.127	2.7 %	16.757	0.1 %	2067.513	8.3 %	2739.397	11.0 %
REFUELING	359.500	1.4 %	69.343	0.3 %	188.661	0.8 %	617.504	2.5 %
TOTALS	5412.244	21.7 %	2507.605	10.1 %	16973.943	68.2 %	24893.792	100.0 %

PAWS SURVEILLANCE WATER REACTORS

WORK FUNCTION	STATION EMPLOYERS		UTILITY EMPLOYERS		CONTRACT WORKERS & OTHERS		TOTAL PER FUNCTION	
	MAN-REMS	% OF TOTAL	MAN-REMS	% OF TOTAL	MAN-REMS	% OF TOTAL	MAN-REMS	% OF TOTAL
REACTOR OPERATIONS & SURVEILLANCE	1683.055	6.0 %	130.413	0.5 %	911.842	3.3 %	2725.310	9.8 %
ROUTINE MAINTENANCE	2380.471	8.5 %	353.285	1.3 %	5279.972	18.9 %	8013.728	28.7 %
INSERVICE INSPECTION	277.964	1.0 %	182.598	0.7 %	1360.960	4.9 %	1821.522	6.5 %
SPECIAL MAINTENANCE	1197.547	4.3 %	1408.865	5.0 %	9927.091	35.5 %	12533.503	44.9 %
WASTE PROCESSING	379.026	1.4 %	28.036	0.1 %	479.636	1.7 %	886.698	3.2 %
REFUELING	679.802	2.4 %	259.614	0.9 %	1009.614	3.6 %	1949.030	7.0 %
TOTALS	6597.865	23.6 %	2362.811	8.5 %	18969.115	67.9 %	27929.791	100.0 %

ALL LIGHT WATER REACTORS

WORK FUNCTION	STATION EMPLOYERS		UTILITY EMPLOYERS		CONTRACT WORKERS & OTHERS		TOTAL PER FUNCTION	
	MAN-REMS	% OF TOTAL	MAN-REMS	% OF TOTAL	MAN-REMS	% OF TOTAL	MAN-REMS	% OF TOTAL
REACTOR OPERATIONS & SURVEILLANCE	2986.373	5.7 %	256.689	0.5 %	1351.195	2.6 %	4594.257	8.7 %
ROUTINE MAINTENANCE	4344.493	8.2 %	2165.457	4.1 %	12011.869	22.7 %	18521.819	35.0 %
INSERVICE INSPECTION	402.210	0.8 %	263.111	0.5 %	2074.289	3.9 %	2739.610	5.2 %
SPECIAL MAINTENANCE	2197.578	4.2 %	1811.409	3.4 %	16766.281	31.7 %	20775.268	39.3 %
WASTE PROCESSING	1040.153	2.0 %	44.793	0.1 %	2541.149	4.8 %	3626.095	6.9 %
REFUELING	1039.302	2.0 %	328.957	0.6 %	1198.275	2.3 %	2566.534	4.9 %
TOTALS	12010.109	22.7 %	4870.416	9.2 %	35943.058	68.0 %	52823.583	100.0 %

TABLE 9
PERCENTAGES OF ANNUAL COLLECTIVE DOSE
AT LWRS BY WORK FUNCTION

Work Function	Percent of Dose						
	1975	1976	1977	1978	1979	1980	1981
Reactor Operations and Surveillance	10.8%	10.2%	10.5%	13.3%	12.2%	9.5%	8.7%
Routine Maintenance	52.6%	31.0%	28.1%	31.5%	29.2%	35.5%	35.0%
Inservice Inspection	3.0%	6.0%	6.4%	7.7%	9.0%	5.5%	5.2%
Special Maintenance	19.0%	40.0%	42.5%	35.9%	39.4%	40.6%	39.3%
Waste Processing	6.9%	5.0%	5.8%	5.0%	3.6%	3.0%	6.9%
Refueling	7.7%	7.9%	6.7%	6.6%	6.6%	6.1%	4.9%

TABLE 10
ANNUAL COLLECTIVE DOSES
BY OCCUPATION AND PERSONNEL TYPE

1981

OCCUPATION

OCCUPATION	STATION EMPLOYEES		UTILITY EMPLOYEES		CONTRACT WORKERS & OTHERS		TOTAL PER FUNCTION	
	MAN-REMS	% OF TOTAL	MAN-REMS	% OF TOTAL	MAN-REMS	% OF TOTAL	MAN-REMS	% OF TOTAL
<u>ROLLING WATER REACTORS</u>								
MAINTENANCE	2638.649	10.6 %	2105.961	8.5 %	12080.039	48.5 %	16824.649	67.6 %
OPERATIONS	1479.531	5.9 %	65.815	0.3 %	1620.048	6.5 %	3165.394	12.7 %
HEALTH PHYSICS	589.074	2.4 %	41.212	0.2 %	798.988	3.2 %	1429.274	5.7 %
SUPERVISORY	369.107	1.5 %	73.560	0.3 %	65.301	0.3 %	507.968	2.0 %
ENGINEERING	115.001	1.3 %	221.057	0.9 %	2409.567	9.7 %	2966.507	11.9 %
TOTALS	5412.244	21.7 %	2507.605	10.1 %	16973.943	68.2 %	24893.792	100.0 %

HEAVY SUBMERGED WATER REACTORS

MAINTENANCE	2954.180	12.6 %	1945.086	8.3 %	12452.019	52.9 %	17351.285	73.7 %
OPERATIONS	1102.054	4.7 %	64.271	0.3 %	198.752	0.8 %	1365.077	5.8 %
HEALTH PHYSICS	685.456	2.9 %	56.998	0.2 %	1978.089	8.4 %	2720.545	11.6 %
SUPERVISORY	305.375	1.3 %	91.153	0.4 %	240.974	1.0 %	637.502	2.7 %
ENGINEERING	336.791	1.4 %	109.993	0.5 %	1006.014	4.3 %	1452.798	6.2 %
TOTALS	5383.858	22.9 %	2267.501	9.6 %	15875.848	67.5 %	23527.207	100.0 %

ALL LIGHT WATER REACTORS

MAINTENANCE	5592.829	11.6 %	4051.047	8.4 %	24532.058	50.7 %	34175.934	70.6 %
OPERATIONS	2581.585	5.3 %	130.086	0.3 %	1818.800	3.8 %	4530.471	9.4 %
HEALTH PHYSICS	1274.532	2.6 %	98.210	0.2 %	2777.077	5.7 %	4149.819	8.6 %
SUPERVISORY	674.482	1.4 %	164.713	0.3 %	306.275	0.6 %	1145.470	2.4 %
ENGINEERING	672.674	1.4 %	331.050	0.7 %	3415.581	7.1 %	4419.305	9.1 %
TOTALS	10796.102	22.3 %	4775.106	9.9 %	32849.791	67.8 %	48420.999	100.0 %

A The remaining 4,402.6 man rems of the total collective dose shown in Table 8 were not categorized by the Point Beach 1&2 and Surry 1&2 plants.

of exposures considerably higher than those normally experienced in the work place. Complementary to this, information obtained from many animal and cell biology studies have greatly enhanced our knowledge and understanding of the biological effects of ionizing radiation. Although using this information to estimate risks in the work place introduces uncertainties, these uncertainties can be dealt with in such a manner that the risk is not likely to be underestimated. Thus, the discussion below is likely to overstate the health implications rather than understate them.

Cancer induction as a result of radiation exposure has been examined by many organizations having scientific and medical expertise in the subject. One of these, the National Academy of Sciences (NAS), published a comprehensive review of the biological effects of ionizing radiation in 1980 (Ref. 11). Based on this report, a large working population receiving one million man-remS might suffer an estimated 100 to 200 additional cancer deaths over the remaining years of their lives. This risk estimate can be applied to the 54,142 man-remS (Table 3) and the 82,183 workers who received measurable exposures. The result is that for the total work force exposed at commercial LWRs in 1981, the number of additional cancer deaths would be less than ten. These deaths would be in addition to the approximately 12,000 cancer deaths that would occur normally in a population of 80,000 workers without exposure to this amount of radiation. Perhaps more meaningful to the individual workers are the health implications to the workers receiving the average dose of 0.66 remS or the maximum dose, under normal conditions, of 9 remS or so during 1981. The estimated excess risk of dying of cancer during the remainder of life is one chance in 10,000 for the average dose and one chance in 1,000 for the nine-rem dose. The estimated excess risk for the accidental overexposure of 21 remS is one chance in 300. Should a worker receive 0.66 remS per year continuously during this entire working career his risk of dying from cancer will increase by about 2% of the normal risk. These risks can be compared to the American Cancer Society's estimates of one chance in four of having cancer and one chance in seven of dying of cancer.

The potential genetic effects from a worker population receiving about 50,000 man-remS is very small compared to genetic damages that occur spontaneously in this population. Based again on the 1980 NAS report, from zero to four serious genetic diseases could be induced in first generation children of the 80,000 exposed* workers and from three to 60 in all future generations. This number is compared to the approximately 100,000 serious genetic defects that occur normally in one million live births.

3.4 High Temperature Gas Cooled Reactor (HTGR)

The only HTGR operating in the United States is the Fort St. Vrain plant near Denver, Colorado. It is owned by the Public Service Company of Colorado who was licensed to operate the plant on December 21, 1973. The 330 MWe (net) rated plant achieved initial criticality on January 31, 1974, and began generating electricity in December 1976. However, the plant did not declare commercial operability until July 1, 1979 and during 1981 it was still restricted to a 70% power level, except for testing.

* Assuming that, on the average, each exposed person will have one child in the future.

As shown in Table 11, annual whole body doses incurred by workers at the plant have been minimal. In 1981, everyone monitored received a whole body dose that was less than 0.10 rems, and no one has ever exceeded an annual dose of 0.25 rems. The average dose per worker remains at about 0.05 rems or less. For the eight years ending on December 31, 1981, the total collective dose for workers at the site was 22.0 man-rems, and a total of 301.1 megawatt-years of electricity had been generated. This yields an eight-year average of about 0.1 man-rems per megawatt-year. The average value of this parameter for LWRs is seventeen times as much (Table 3).

TABLE 11
ANNUAL DOSES AT FORT ST. VRAIN
1974 - 1981

No. of Individuals with Annual Doses in Ranges (Rems)				Total No. of Individuals Monitored	Annual Collective Dose (Man-Rems)	Gross MW-Yrs Generated	Average Measurable Dose Per Worker (Rems)
Year	No Measurable Dose	Measurable 0.10	0.10- 0.25				
1974	1597	63	1	1,661	3.3	0.0	0.05
1975	1263	0	0	1,263	0.0	0.0	0.00
1976	1362	25	0	1,387	1.3	2.8	0.05
1977	946	55	1	1,002	2.9	29.8	0.05
1978	896	34	0	930	1.7	75.7	0.05
1979	1149	120	2	1,271	6.4	16.0	0.05
1980	902	57	1	960	3.0	83.2	0.05
1981	1096	31	0	1,127	1.0	93.6	0.03

4. TERMINATION DATA SUBMITTED PURSUANT TO 10 CFR §20.408

4.1 Termination Reports, 1969-1980

In 1969 the NRC (then the Atomic Energy Commission) began requiring operating nuclear power facilities and three other types of licensees* to submit personnel identification and exposure information upon the termination of each monitored person's employment or work assignment in the licensee's facility. The appropriate information on each report is manually coded and entered into the Commission's computerized Radiation Exposure Information and Reporting System (REIRS) at Oak Ridge, Tennessee. The data are retrievable through numerous ways - social security number, name, facility, etc. - which allows statistical analysis of the data, as well as the tracing of individual dose histories. During the years that this information has been collected, some 680,000 termination records have been received for approximately 210,000 individuals who have been reported as having terminated their employment at nuclear power plants. The figures given for the number of reports and the number of individuals are different because numerous individuals have been terminated more than once over the years and because some individuals may have had external doses reported for more than one part of the body, as well as estimates of internal depositions of radioactive material, each of which is counted as one record. Table 12 provides a breakdown of this information for individuals terminating during each of the thirteen years and shows that the number of such records continues to increase each year. This indicates a growing industry need for workers even though the number of operating reactors is increasing very slowly.

4.2 Limitations of the Termination Data

When examining or using the statistics shown in the report that are based on the termination data, one should keep in mind that these data have various limitations, such as the following: some licensees submit a termination report for each monitored non-utility employee at the end of each monitoring period rather than waiting until the individual actually leaves the facility; the period(s) of exposure that are reported for terminating individuals may indicate the monitoring period during which he may have been exposed to radiation rather than the actual dates of exposure; some licensees report cumulative periods of exposure and doses rather than the actual periods and dose incurred during each period; licensees having more than one licensed facility sometimes file a termination report when the individual leaves the second facility that includes the dose which he incurred at the first facility which had already been reported. Although attempts have been made to correct for some of these problems, they are still an additional source of error in any statistics developed from the termination data.

4.3 Transient Workers per Calendar Quarter

One use that is being made of the information contained in the termination reports is the examination of the doses being received by short-term

* Industrial radiographers; fuel processors, fabricators, and reprocessors; and manufacturers and distributors of specified quantities of byproduct material.

TABLE 12
TERMINATION REPORTS SUBMITTED
FOR REACTOR PERSONNEL
1969 - 1981

Year	Number of Termination Records	Number of Terminating Individuals
1969	790	730
1970	2,130	1,910
1971	2,350	2,200
1972	4,500	3,890
1973	11,530	9,070
1974	16,950	11,600
1975	38,380	22,630
1976	63,590	35,290
1977	80,400	36,550
1978	84,540	37,100
1979*	114,250*	47,900*
1980*	158,580*	64,510*
1981**	104,920**	45,120**

* Data for these years were updated based on more recent compilations.

** All of the termination data for individuals terminating during 1981 has not yet been entered into the REIR System.

workers. Since nearly half of the termination reports indicated periods of exposure that were less than 90 days, it is possible that several thousand individuals could have been employed by two or more licensees during the same calendar quarter. Thus, in this report, a "transient" worker is defined to be a radiation worker who began and terminated employment at two or more different licensed facilities within one calendar quarter. This allows one to examine the doses of those workers most likely to approach the quarterly limits without their employer's knowledge since they move so rapidly among facilities.

Table 13 displays some of the information gathered from these termination reports that were submitted by the licensed nuclear power facilities. The number of these workers has increased more than twentyfold during the five years 1972 through 1976, but now appears to be increasing at a much

TABLE 13
TRANSIENT WORKERS PER CALENDAR QUARTER
AT NUCLEAR POWER FACILITIES
1972 - 1981 *

Year	/ear	No. of Workers Terminated by			No. of Workers Terminated by			No. of Workers Terminated by			No. of Workers Terminated by			No. of Workers Terminated by			No. of Workers Terminated by		
		Commercial Reactors	Two or More Licensees	Average Dose (Rems)	Three Licensees	Two or More Licensees	Average Dose (Rems)	Three Licensees	Two or More Licensees	Average Dose (Rems)	Three Licensees	Two or More Licensees	Average Dose (Rems)	Three Licensees	Two or More Licensees	Average Dose (Rems)	Three Licensees	Two or More Licensees	Average Dose (Rems)
1972	1972	18	57	1.00	2	3	1.50	2	3	1.50	2	3	1.50	2	3	1.50	2	3	1.50
1973	1973	24	148	0.94	11	13	1.18	11	13	1.18	11	13	1.18	11	13	1.18	11	13	1.18
1974	1974	34	286	0.86	28	24	0.86	28	24	0.86	28	24	0.86	28	24	0.86	28	24	0.86
1975	1975	44	684	0.72	70	62	0.89	70	62	0.89	70	62	0.89	70	62	0.89	70	62	0.89
1976	1976	83	1,267	0.71	146	146	1.01	146	146	1.01	146	146	1.01	146	146	1.01	146	146	1.01
1977	1977	57	1,435	0.59	147	115	0.78	147	115	0.78	147	115	0.78	147	115	0.78	147	115	0.78
1978	1978	64	1,500	0.45	165	75	0.45	165	75	0.45	165	75	0.45	165	75	0.45	165	75	0.45
1979	1979	67	1,754	0.46	178	130	0.73	178	130	0.73	178	130	0.73	178	130	0.73	178	130	0.73
1980 *	1980 *	69	2,186	0.46	253	138	0.55	253	138	0.55	253	138	0.55	253	138	0.55	253	138	0.55

* Revised according to latest compilations.

smaller rate. The top part of Table 13 shows that the average individual dose (which is close to being a quarterly dose for most of these workers) showed a decreasing trend in the earlier years and has leveled off at about 0.46 rems. The lower half of the table breaks down the information shown in the first part and presents the doses of the workers employed by two, three and four or more different reactor licensees. One can see that the majority of these workers were reported by two different licensees during a quarter, while the smaller number of those terminated by three or more licensees generally showed higher average doses. Examinations of these records have revealed that some individuals have worked for as many as five different NRC licensees during one calendar quarter. However, only a few instances have been found in which a worker exceeded his quarterly limit of three rems as a result of his working at two different licensed facilities within one calendar quarter. Two of them occurred in 1980 when the doses that the workers had received while employed by the first utility were revised upward later in the year. This resulted in their receiving a quarterly dose that slightly exceeded three rems. That is not to say that no other workers' doses have exceeded the quarterly limit because the records of those who were employed by a second licensee for a period spanning the end of a calendar quarter could not be examined in this manner, and the records of those employed by other than four categories of NRC licensees are not submitted to the NRC.

4.4 Transient Workers per Calendar Year

Since the number of transient workers per calendar quarter comprise only a small percentage of the total number of individuals terminating each year, it was decided to change the criteria such that the records of more workers would be examined. This was done by selecting the records of all individuals who began and terminated two or more periods of employment with at least two different reactor facilities within one calendar year and by summing each worker's whole body doses. An examination of this data would allow one to determine the number and average dose for these "annual transients." Table 14 presents the number and doses of these "annual transients" that was found among the individuals terminating during each of the four years 1977 through 1980. This has not been done for the 1981 data because not all of it has yet been computerized. The figures shown for 1980 have been updated from those shown in the 1980 annual report to reflect the additional reports that were computerized after the 1980 report was published. One can see that the number of these workers has nearly doubled since 1977. The average dose, however, has remained at about one rem. The lower portion of the table shows the number and doses of workers that were terminated by two, three and four or more different reactor licensees during each year. One can see that the average dose of workers employed by two licensees increased to 0.91 rems in 1980, while the average dose of workers employed by four or more licensees has continued to decline to a value of 1.85 rems.

In order to determine the impact that the inclusion of these individuals in each of two or more licensee's annual reports had on the annual summary (Table 7) for all nuclear power facilities (one of the problems mentioned in Section 3.1), Tables 15a and 15b are presented. Table 15a shows the actual distribution of these transient workers' doses as determined from the above-described termination reports and compares it with the

TABLE 14
TRANSIENT WORKERS PER CALENDAR YEAR
AT NUCLEAR POWER FACILITIES

1977 - 1980

Year	No. of Commercial Reactors	No. of Workers Terminated by Two or More Licensees	Collective Dose (Man-rem)	Average Dose (Rems)
1977	57	3,161	3,776	1.29
* 1978	64	3,202	3,231	1.01
* 1979	67	4,022	3,881	0.97
* 1980	69	5,463	6,028	1.10

Year	No. of Workers Terminated by Two Licensees	Collective Dose (Man-rem)	Average Dose (Rems)
1977	2,166	1,987	0.92
* 1978	2,119	1,490	0.73
* 1979	2,761	2,097	0.76
* 1980	3,444	3,772	0.91

No. of Workers Terminated by Three Licensees	Collective Dose (Man-rem)	Average Dose (Rems)
572	842	1.47
621	792	1.30
688	805	1.17
959	1,245	1.30

No. of Workers Terminated by Four or More Licensees	Collective Dose (Man-rem)	Average Dose (Rems)
423	947	2.24
462	949	2.06
493	989	2.01
732	1,339	1.83

* Figures for the years 1978, 1979, and 1980 have been updated based on the latest completions.

TABLE 15a
ACTUAL AND COMPILED DOSE DISTRIBUTIONS OF
TRANSIENT WORKERS PER CALENDAR YEAR AT LWRS

Type of Distribution and * Year	Number of Individuals with Whole Body Doses in the Ranges (Rems)																		Total Man- Rems	Avg. Dose (Rems)	Avg. Mass Dose (Rems)	
	Less than Measurable	Meas'ble < 0.10	0.10- 0.25	0.25- 0.50	0.50- 0.75	0.75- 1.00	1.00- 2.00	2.00- 3.00	3.00- 4.00	4.00- 5.00	5.00- 6.00	6.00- 7.00	7.00- 8.00	8.00- 9.00	9.00- 10.00	10.00- 11.00	11.00- 12.00	>12.00				
Actual Distribution of Transients - 1977	220	782	300	236	184	151	500	381	213	100	50	23	11	2					3,161	3,776	1.19	1.28
Compiled Distribution of Transients - 1977	1,594	2,357	804	768	552	417	1,013	362	55	5	5								7,935	3,776	0.48	0.50
Actual Distribution of Transients - 1978	308	885	317	282	177	131	483	307	188	107	42	13	1		1				3,202	3,231	1.01	1.12
Compiled Distribution of Transients - 1978	2,078	2,423	918	788	488	382	873	282	51	11	0	2							8,277	3,231	0.39	0.52
Actual Distribution of Transients - 1979	373	883	398	358	281	240	678	410	195	71	32	14	4	1					3,938	3,888	0.99	1.09
Compiled Distribution of Transients - 1979	2,130	2,076	1,250	1,048	673	460	1,040	313	48	3	1								9,649	3,888	0.40	0.52
Actual Distribution of Transients - 1980	533	1,175	565	482	388	277	829	595	353	174	47	25	15	4	1				5,483	6,028	1.10	1.22
Compiled Distribution of Transients - 1980	3,207	3,810	1,839	1,398	900	681	1,832	503	74	29	4	4	4						13,965	6,028	0.43	0.56

TABLE 15b
EFFECTS OF TRANSIENT WORKERS ON ANNUAL STATISTICAL COMPILATIONS

Type of Distribution and Year	Number of Individuals with Whole Body Doses in the Ranges (Rems)																Total Man- Rems	Avg. Dose (Rems)	Avg. Mass Dose (Rems)		
	Less than Measurable	Measurable < 0.10	0.10- 0.25	0.25- 0.50	0.50- 0.75	0.75- 1.00	1.00- 2.00	2.00- 3.00	3.00- 4.00	4.00- 5.00	5.00- 6.00	6.00- 7.00	7.00- 8.00	8.00- 9.00	9.00- 10.00	10.00- 11.00	11.00- 12.00	>12.00			
a Compiled Statistical Distribution - 1977	27,671	15,623	6,760	5,179	3,300	2,600	6,174	2,838	1,130	689	141	66	36	21	6			71,904	32,731	0.46	
c Adjusted Statistical Distribution - 1977	26,305	13,948	6,246	4,847	2,932	2,234	5,661	2,857	1,268	661	168	89	47	23	6			67,130	32,643	0.49	
a Compiled Statistical Distribution - 1978	31,039	16,673	6,943	5,504	3,399	2,498	6,405	2,989	1,080	418	67	26	8			2		77,051	31,806	0.41	
c Adjusted Statistical Distribution - 1978	29,268	16,136	6,342	4,998	3,088	2,247	6,998	3,034	1,197	514	109	37	9		1	2		71,878	31,668	0.48	
a Compiled Statistical Distribution - 1979	42,340	24,632	9,883	8,080	5,147	3,426	7,898	3,306	1,255	477	86	28	13	2		1		106,584	39,987	0.38	
c Adjusted Statistical Distribution - 1979	40,583	22,831	9,022	7,400	4,755	3,206	7,536	3,403	1,404	545	117	42	17	3		1		100,873	39,525	0.39	
a Compiled Statistical Distribution - 1980	47,377	29,695	11,751	9,820	6,082	4,518	11,474	4,515	1,537	686	192	98	18	3				128,668	53,799	0.42	
c Adjusted Statistical Distribution - 1980	44,703	26,980	10,877	8,904	5,570	4,134	10,671	4,807	1,816	831	235	119	29	7	1			120,166	53,628	0.45	

^aBased on data submitted by all reactors, although all of them may not have been in commercial operation for a full year.

^bCollective dose found by summing the actual doses reported for these workers on their termination reports.

^cDistribution found by subtracting the actual from the compiled distribution shown in Table 15a and then subtracting this difference from the compiled statistical distribution shown in Table 15b.

^dFigures for the years 1978, 1979, and 1980 have been updated to reflect the latest compilations.

distribution of the whole body doses as they would have appeared in a compilation of the annual statistical reports submitted by each of the nuclear power facilities. During each of the years shown, there was an increasing number of transient workers who were counted more than once. Some individuals were reported by as many as nine different facilities. In 1977 the 2,933 transients that received a measurable dose were counted as 6,341 workers. By 1980 the number had grown to 4,930 transients who were counted as 10,728 workers, and they incurred a collective dose of 6,040 man-rem, an average dose of 1.11 rem, and an average measurable dose of 1.23 rem.

Table 15b illustrates the impact that the multiple reporting of these transient workers had on the staff's compilations of the annual statistical reports for the years 1977 through 1980. Since each nuclear power facility reports the distribution of the doses received by workers while monitored by that particular facility during the year, one would expect that a summation of these reports would result in individuals being counted several times in dose ranges lower than the range in which their total accumulated dose (the sum of the personnel monitoring results incurred at each facility) would actually place them. Thus, while the total collective dose would remain about the same, the number of workers, their dose distribution, and their average dose could 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 1977 the compiled annual reports indicated that 270 individuals received doses greater than five rem, while the adjusted distribution indicated that there were at least 351 such workers. This resulted in an average measurable dose of 0.80 rem rather than the 0.74 rem obtained from the compiled reports. Although the number of these transient workers has continued to increase, the number of them with doses exceeding five rem remained at about 50 during 1978 and 1979. In 1980, however, the number increased to 92. As a result, 391 workers with doses greater than five rem were found in the adjusted compilation as compared to the 311 such workers found in the compiled statistical distribution. In general, however, since the number of transient workers receiving measurable doses is only about five percent of the total number receiving measurable doses during the year, their impact on most of the statistics derived from compilations of the annual summary reports is not very great.

4.5 Temporary Workers Per Calendar Year

In order to complete the examination of the doses received by the short-term workers employed at nuclear power facilities, Table 16 summarizes the data compiled on "temporary workers". Temporary workers were defined to be those individuals who began and ended their employment at only one nuclear power facility during the calendar year. The chart at the top of Table 16 shows that the number of these individuals has grown during the last few years and that there were 28,305 of them that received a measurable dose in 1980. Comparison of these figures with those in Table 15b reveals that these workers comprised 38% of the total number of workers (74,561) receiving a measurable dose in 1980, while their collective dose was only 30% of the total collective dose. Their average measurable dose of 0.57 rem was also considerably less than the overall average of 0.72 rem.

TABLE 16
TEMPORARY WORKERS PER CALENDAR YEAR
(Individuals terminated by only one employer)

YEAR	No. of Reactors	Total No. Monitored	No. with Meas'ble Dose	Collective Dose (Rems)	Avg. Dose (Rems)	Avg. Meas'ble Dose (Rems)
1977	57	29,090	19,094	11,373	0.39	0.60
1978	64	28,864	17,110	9,821	0.34	0.57
1979	67	38,347	21,491	9,488	0.25	0.44
1980	69	48,383	28,305	16,168	0.33	0.57

DISTRIBUTION OF TEMPORARY WORKER DOSES
BY LENGTH OF EMPLOYMENT
1980

Total Days of Employment	Number of Individuals with Doses in the Ranges (Rems)												Total Workers	Collective Dose (Man-rems)			
	Less than Meas'ble	Meas'ble 0.10	0.10- 0.25	0.25- 0.50	0.50- 0.75	0.75- 1.00	1.00-		2.00-		3.00-				4.00-		5.00- 10.00
							2.00	1.00	3.00	2.00	4.00	5.00			6.00		
1 - 7	9,318	1,705	138	75	66	45	129	41	1	0	0	11,518	459				
8 - 14	762	1,937	287	195	117	66	252	81	1	1	0	3,698	885				
15 - 21	564	601	260	160	87	43	92	27	4	1	0	1,839	429				
22 - 28	2,170	1,008	280	216	117	93	335	110	2	0	1	4,330	1,059				
29 - 60	4,370	3,143	1,040	904	591	431	1,076	296	54	17	1	11,927	3,847				
61 - 90	1,044	1,313	627	536	316	280	771	290	80	39	1	5,297	3,054				
91 - 180	1,226	1,706	814	639	456	345	889	454	152	59	24	6,764	4,332				
181 - 270	483	526	281	157	110	80	204	129	78	25	29	2,082	1,428				
271 - 365	157	210	116	102	79	47	84	66	41	23	3	927	696				
Totals	20,078	12,147	3,843	2,984	1,939	1,430	3,832	1,493	413	165	59	48,383	16,168				

The second chart in Table 16 shows the dose distribution of these workers by total length of employment. This was compiled by summing each period of employment and each whole body dose that was reported for those workers that were employed at only one nuclear power facility during to 1980 and placing them in the proper range according to these totals. When using this chart, one should keep in mind that the days of employment are not necessarily continuous. For example, the worker shown as being employed from 22-28 days and receiving a dose between five and ten rems was actually exposed for about a week during each of three different quarters so that he never exceeded his three rem quarterly limit. The chart shows that very few workers received doses greater than five rems and that most of them were employed less than two months. Overall, the distribution of doses incurred by the temporary workers is quite similar to that shown in Table 15b for all workers with the exception of there being a slightly higher percentage of temporary workers in the range "measurable less than 0.10 rems" and a smaller proportion of workers with doses greater than five rems.

5. PERSONNEL OVEREXPOSURES

Table 17 presents the number and types of personnel overexposures that have been reported by power reactors pursuant to 10 CFR §20.403 and §20.405 since 1971. In 1981, the number of overexposed individuals decreased sharply from last year's figure, but one of the individuals received a whole body dose of 21 rems, the second highest overexposure shown in the table. This overexposure occurred on March 3, 1981, at Commonwealth Edison's Dresden 2 plant when a contractor employee removed shield plugs during a refueling outage. The feedwater spargers had been replaced and the radiation protection procedures for this operation did not adequately cover shield plug removal. Also, the reactor vessel water instrumentation indicated a water level higher than that which actually existed. The employee did not exhibit any observable clinical effects of the overexposure.

In 1980, the number of overexposed individuals was unusually high because about sixty workers were slightly overexposed during steam generator testing and repair work at San Onofre. The licensee had failed to properly monitor the area of the body (the top of the head) most likely to receive the highest dose.

TABLE 17
PERSONNEL OVEREXPOSURES AT POWER REACTORS

Year	Number of Workers Overexposed to External Radiation	1971 - 1980		Number of Workers Exposed to Excessive Concentrations of Radioactive Material	Maximum Exposure
		Sum of Whole Body Doses (Man-rem)	Maximum Whole Body Dose (Rem)		
1971	2	4.5	3.1	21	6.1 rem (thyroid)
1972	16	49.7	5.1	2	2000 MPC-hrs
1973	19	61.2	4.0	0	—
1974	43	166.9	6.1	12	433 MPC-hrs
1975	14	44.2	3.8	7	13.5 rem (lung)
1976	20	74.3	10.1	1	248 MPC-hrs
1977	27	52.9	3.6	0	—
1978	9	71.1	27.3	0	—
1979	21	43.4	10.1	0	—
1980	73	266.2	4.9	0	—
1981	7	35.4	21	0	—

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* Report is available for purchase from the National Technical Information Service, Springfield, Virginia 22161, and/or the NRC/GPO Sales Program, Division of Technical Information and Document Control, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555.

APPENDIX A*

Personnel, Dose and Power Generation Summary

1969 - 1981

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

Appendix A
Personnel, Dose and Power Generation Summary

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Total Man-rem	Man-rem per Work Function		Man-rem per Personnel Type		Average Dose per Worker (Rems)	Man-rem per MW-Yr
						Operations	Maint. & Others	Contractor	Station & Utility		
ARKANSAS 1, 2 Docket 50-313; DPR-51, NPF-6 1st commercial operation 12/74,- Type - PWR Capacity - 836.858 MWe	1975	588.0	76.5	147	21					0.14	0.0
	1976	464.6	56.6	476	289	27	262	100	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	1321	369	54	315	252	117	0.28	0.9
	1980	452.8	63.7	1233	342	81	261	213	129	0.28	0.8
	1981	1104.7	68.3	2225	1102	130	972	843	259	0.50	1.0
BEAVER VALLEY 1 Docket 50-334; DPR-66 1st commercial operation 10/76 Type - PWR Capacity - 810 MWe	1977	355.6	57.0	331	87	8	79	58	29	0.26	0.2
	1978	304.2	40.8	646	190	11	179	152	38	0.29	0.6
	1979	221.0	40.0	704	132	22	110	67	65	0.19	0.6
	1980	39.8	6.8	1817	553	76	477	477	76	0.30	13.9
	1981	573.4	73.6	1237	229	38	191	142	87	0.19	1.4
BIG ROCK POINT Docket 50-185, DPR-6 1st commercial operation 3/63 Type - BWR Capacity - 64 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	43.5		195	181					0.93	4.2
	1973	50.9		241	265			119	166	1.18	5.6
	1974	40.7	70.3	281	276			42	234	0.98	6.8
	1975	35.1	59.8	300	180	54	222	20	160	0.60	5.1
	1976	29.5	50.1	488	289	58	122	105	184	0.59	9.8
	1977	43.6	73.4	465	334	82	207	60	274	0.72	7.7
	1978	48.5	77.9	285	175	94	240	9	166	0.61	3.6
	1979	13.0	23.5	623	455	93	82	102	353	0.73	35.0
	1980	48.9	79.0	599	354	89	366	91	263	0.59	7.2
	1981	56.9	90.6	479	160	16	102	38	122	0.33	2.8
	1975	161.7	17.8	2380	325					0.14	2.0
BROWNS FERRY 1, 2, 3 Docket 50-259, 50-260, 50-296; DPR-33, -52, -68 1st commercial operation 8/74, 3/75, 3/77 Type - BWR Capacity - 1065, 1065, 1065 MWe	1976	337.6	26.9	2207	234	60	803	249	614	0.11	0.7
	1977	1327.5	73.0	1858	863					0.46	0.6
	1978	1992.1	73.5	2376	1792	4	1788	259	1533	0.75	0.9
	1979	2393.0	79.1	2689	1667	0	1667	289	1378	0.62	0.7
	1980	2182.1	73.6	2712	1825	4	1821	49	1776	0.67	0.8
	1981	2132.9	69.5	3379	2380	100	2280	404	1976	0.70	1.1

Appendix A (Continued)
Personnel, Dose and Power Generation Summary

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Total Man-rem	Man-rem per Work Function Operations & Others	Man-rem per Personnel Type Contractor Station & Utility	Average Dose per Worker (Rems)	Man-rem per MW-Yr
BRUNSWICK 2, 1 Docket 50-324, 50-325; DPR-62, -71 1st commercial operation 11/75, 3/77 Type - BWR Capacity - 790, 790 MWe	1976	297.2	56.0	1265	326	15	222	0.26	1.1
	1977	291.1	55.7	1512	1119	48	782	0.74	3.8
	1978	1173.1	83.7	1458	1004	99	695	0.69	0.8
	1979	810.0	60.1	2891	2602	97	2074	0.90	3.2
	1980	687.2	52.2	3788	3870	111	3098	1.02	5.6
	1981	925.2	56.9	3854	2638	159	1890	0.68	2.9
CALVERT CLIFFS 1, 2 Docket 50-317, 50-318; DPR-53, -69 1st commercial operation 5/75, 4/77 Type - PWR Capacity 825, 825 MWe	1976	753.4	95.2	507	74	28	8	0.15	0.1
	1977	583.0	72.1	2265	547	36	224	0.24	0.9
	1978	1188.5	75.8	1391	500	13	143	0.36	0.4
	1979	1161.0	74.0	1428	805	33	423	0.56	0.7
	1980	1309.9	84.1	1496	677	15	402	0.45	0.5
	1981	1379.7	83.1	1555	607	29	378	0.39	0.4
COOK 1, 2 Docket 50-315; DPR-58, -74 1st commercial operation 8/75, 7/78 Type - PWR Capacity - 1044 MWe, 1082 MWe	1976	807.4	83.1	395	116	13	71	0.29	0.1
	1977	573.0	76.1	802	299	21	138	0.37	0.5
	1978	744.8	73.6	778	336	49	139	0.43	0.4
	1979	1373.0	65.3	1445	718	45	454	0.50	0.5
	1980	1552.4	74.1	1345	493	46	323	0.37	0.3
	1981	1557.3	73.4	1341	655	48	442	0.49	0.4
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	19	0.20	0.2
	1976	433.3	75.5	763	350	39	210	0.46	0.8
	1977	538.2	56.2	315	197	50	66	0.63	0.4
	1978	576.0	91.0	297	158	40	58	0.53	0.3
	1979	591.0	87.6	426	221	50	89	0.52	0.4
	1980	448.3	71.2	785	859	70	644	1.09	1.9
	1981	457.1	71.2	935	579	63	382	0.62	1.3
CRYSTAL RIVER 3 Docket 50-302; DPR-72 1st commercial operation 3/77 Type - PWR Capacity - 782 MWe	1978	311.5	41.4	643	321	8	244	0.50	1.0
	1979	453.0	58.9	1150	495	29	346	0.43	1.1
	1980	402.1	53.2	1053	625	24	382	0.59	1.6
	1981	490.4	62.2	1120	408	18	236	0.36	0.8

Appendix A (Continued)
Personnel, Dose and Power Generation Summary

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Total Man-rem	Man-rem per Work Function		Man-rem per Contractor	Man-rem per Station & Utility	Average Dose per Worker (Rem)	Man-rem per MW-Yr
						Operations	Maint. & Others				
DAVIS-BESSE 1 Docket 50-346; NPF-3 1st commercial operation 11/77 Type - PWR Capacity - 874 MWe	1978	326.4	48.7	421	48	13	35	14	34	0.11	0.1
	1979	381.0	67.0	304	30	8	22	5	25	0.10	0.1
	1980	256.4	36.2	1283	154	4	150	121	33	0.12	0.6
	1981	531.4	67.4	578	58	1	57	32	26	0.10	0.1
DRESDEN 1, 2, 3 Docket 50-010, 50-237, 50-249; DPR-2, -19, -25 1st commercial operation 7/60, 7/70, 11/71 Type - BWR Capacity - 197, 772, 773 MWe	1969	99.7			286						2.9
	1970	163.1			143						0.9
	1971	394.5			715						1.8
	1972	1243.7			728						0.6
	1973	1112.2			939	143	796	344	595	0.70	0.8
	1974	842.5	54.9	1594	1662			57	1605	1.04	2.0
	1975	708.1	54.6	2310	3423	271	3152	2252	1171	1.48	4.8
	1976	1127.2	80.8	1746	1680	228	1452	749	931	0.96	1.5
	1977	1132.9	77.0	1862	1693	316	1377	693	1000	0.91	1.5
	1978	1242.2	79.5	1946	1529	204	1325	619	910	0.79	1.2
	1979	1013.0	74.7	2407	1800	191	1609	641	1159	0.75	1.8
	1980	1074.4	55.0	2717	2108	236	1869	1093	1012	0.77	2.0
	1981	1035.7	51.5	2408	2802	120	2682	1850	952	1.16	2.7
DUANE ARNOLD Docket 50-331; DPR-49 1st commercial operation 2/75 Type - BWR Capacity - 515 MWe	1976	305.2	78.0	350	105	14	91	62	43	0.30	0.3
	1977	353.6	78.9	538	299	36	263	220	79	0.56	0.8
	1978	149.2	33.2	1112	974	59	915	932	42	0.88	6.5
	1979	352.0	78.0	757	276	35	240	219	66	0.36	0.8
	1980	339.1	73.3	1108	671	32	639	570	101	0.61	2.0
	1981	277.7	69.8	1286	790	56	734	598	192	0.61	2.8
FARLEY 1 Docket 50-348; NPF-2 1st commercial operation 12/77 Type - PWR Capacity - 804 MWe	1978	713.8	86.5	527	108	39	69	34	74	0.20	0.1
	1979	211.0	28.6	1227	643	108	535	460	183	0.52	3.0
	1980	557.3	69.3	1310	435	106	329	185	250	0.33	0.8
	1981	310.2	41.4	1331	511	96	415	270	241	0.38	1.6

*Dresden 1 is shutdown, but it is still included in the count of commercial reactors shown elsewhere in the report.

Appendix A (Continued)
Personnel, Dose and Power Generation Summary

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Total Man-rem	Man-rem per Work Function		Man-rem per Contractor	Man-rem per Station & Utility	Average Dose per Worker (Rem)	Man-rem per MW-Yr
						Operations	Maint. & Others				
FITZPATRICK Docket 50-333; DPR-59 1st commercial operation 7/75 Type - BWR Capacity - 810 MWe	1976	489.0	71.6	600	202	14	1066	937	143	0.34	0.4
	1977	460.5	68.4	1380	1080	166	743	597	312	1.00	2.3
	1978	497.0	72.1	904	909	169	690	538	321	1.01	1.8
	1979	349.0	50.8	850	859	118	1922	1808	232	0.99	2.5
	1980	509.5	70.3	2056	2040	187	1238	1072	353	0.57	4.0
	1981	562.9	74.7	2490	1425						2.5
FORT CALHOUN Docket 50-285; DPR-40 1st commercial operation 9/73 Type - PWR Capacity - 478 MWe	1974	294.0	83.5	327	71			24	47	0.22	0.2
	1975	252.3	67.4	469	294	28	285	92	202	0.63	1.2
	1976	265.9	69.5	516	313	33	264	38	275	0.61	1.2
	1977	351.8	79.4	535	297	59	351	72	225	0.56	0.8
	1978	342.3	75.1	596	410	19	107	151	259	0.69	1.2
	1979	440.0	95.7	451	126	38	630	47	79	0.28	0.3
	1980	242.3	50.4	891	668	61	397	426	242	0.75	2.8
	1981	260.9	72.3	822	458			254	204	0.56	1.8
	1971	327.8		340	430	69	361	108	322	1.26	1.3
	1972	293.6		677	1032	71	961	278	754	1.52	3.5
GINNA Docket 50-244; DPR-18 1st commercial operation 7/70 Type - PWR Capacity - 470 MWe	1973	409.5		319	224	55	169	84	140	0.70	0.5
	1974	253.7	62.4	884	1225					1.39	4.8
	1975	365.2	76.7	685	538	29	607	210	426	0.78	1.5
	1976	248.8	58.2	758	636	15	386	120	281	0.84	2.5
	1977	365.6	85.5	530	401	20	430	98	352	0.76	1.1
	1978	386.5	80.6	657	450	68	524	207	385	0.68	1.2
	1979	355.0	72.8	878	592	64	644	302	406	0.67	1.7
	1980	370.5	76.0	1073	708	49	606	251	404	0.66	1.9
	1981	399.0	82.1	925	655					0.71	1.6
	1969	438.5		138	106			27	79	0.77	0.2
HADDAM NECK (CONN. YANKEE) Docket 50-213; DPR-61 1st commercial operation 1/68 Type - PWR Capacity - 555 MWe	1970	424.7		734	689			463	226	0.94	1.6
	1971	502.2		289	342			166	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	20	683			0.36	0.4
	1975	494.3	89.9	795	703	5	444	253	196	0.88	1.4
	1976	482.9	82.5	644	449	59	582	440	201	0.70	0.9
	1977	480.7	83.9	894	641	25	92	18	99	0.72	1.3
	1978	563.4	98.6	216	117	73	1088	783	378	0.54	0.2
	1979	493.0	87.5	1226	1161	175	1178	1076	277	0.95	2.4
	1980	426.8	75.0	1860	1353	174	862	809	227	0.73	3.2
	1981	487.5	84.3	1554	1036					0.67	2.1

Appendix A (Continued)
Personnel, Dose and Power Generation Summary

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Total Man-rems	Man-rems per Work Function	Man-rems per Contractor	Man-rems per Station & Utility	Average Dose per Worker (Rems)	Man-rems per MW-Yr
HATCH 1,2 ^a Docket 50-321; DPR-57; NPI-05 1st commercial operation 12/75; 9/79 Type - BWR Capacity - 757, 767 MWe	1976	496.3	83.8	630	134	79	4	130	0.21	0.3
	1977	446.8	66.3	1303	465	96	220	245	0.36	1.0
	1978	513.0	72.8	1304	248	88	52	196	0.19	0.5
	1979	401.0	54.6	2131	582	85	382	200	0.27	1.5
	1980	1008.7	70.9	1930	449	143	163	286	0.23	0.4
	1981	870.9	64.3	2899	1337	200	792	545	0.46	1.5
HUMBOLDT BAY ^b Docket 50-133; DPR-7 1st commercial operation 8/63 Type - BWR Capacity - 63 MWe	1969	44.6		125	164	69	12	152	1.31	3.7
	1970	49.3		115	209	130	37	172	1.82	4.2
	1971	39.6		140	292	114	65	227	2.09	7.4
	1972	43.1		127	253	81	57	196	1.99	5.9
	1973	50.1		210	266	60			1.27	5.3
	1974	43.4	83.8	296	318	103			1.07	7.3
	1975	45.3	83.9	265	339	131	112	227	1.28	7.5
	1976	23.5	46.4	523	683	37	50	633	1.31	29.1
	1977	0	0	1063	1904	24	973	931	1.79	-
	1978	0	0	320	335	13	145	190	1.05	-
	1979	0	0	135	31	11	2	29	0.23	-
	1980	0	0	142	22	10	3	19	0.15	-
	1981	0	0	75	29				0.15	-
INDIAN POINT 1, 2, 3 ^{**} Docket 50-3, 50-247, 50-286; DPR-5, -26, -64 1st commercial operation 10/62, 8/73, 8/76 Type - PWR	1969	206.2			298					1.4
	1970	43.3			1639					37.8
	1971	154.0			768					5.0
	1972	142.3			967					6.8
	1973	0		2998	5262	709	2847	2415	1.75	-
	1974	556.1	59.4	1019	910				0.89	1.6
	1975	584.4	74.8	891	705	166	47	658	0.79	1.2
	1976	273.9	34.8	1590	1950	154	172	1778	1.23	7.1
	1977	1278.3	75.3	1391	1070	189	383	687	0.77	0.8
	1978	1172.3	67.8	1909	2006	260	759	1247	1.05	1.7

^aHatch 2 was counted for the first time in 1980.

^bHumboldt Bay is shutdown indefinitely. It is still included in the count of commercial reactors.

* Indian Point 1 was defueled in 1975. It had a capacity of 265 MWe. It is still included in the count of commercial reactors.

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

Appendix A (Continued)
Personnel, Dose and Power Generation Summary

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Total Man-rem	Man-rem per Work Function Operations	Man-rem per Function Maint. & Others	Man-rem per Contractor	Man-rem per Station & Utility	Average Dose per Worker (Rems)	Man-rem per MW-Yr
INDIAN POINT 1,* 2 Docket 50-3, 50-247, DPR-5, -26 1st commercial operation 10/62, 8/73 Type - PWR Capacity - 0, 864 MWe	1979	574.0	35.7	1349	1279	209	1070	612	667	0.95	2.2
	1980	510.8	32.3	1577	971	181	790	398	573	0.62	1.9
	1981	367.5	23.0	2595	2731	237	2494	1595	1137	1.05	7.4
INDIAN POINT 3** Docket 50-286; DPR-64 1st commercial operation 8/76 Type - PWR Capacity - 965 MWe	1979	568.0	66.5	908	636	63	573	482	154	0.79	1.1
	1980	367.3	53.2	977	308	47	261	210	98	0.32	0.8
	1981	365.8	59.8	677	364	46	318	255	109	0.54	1.0
KEWAUNEE Docket 50-305; DPR-43 1st commercial operation 6/74 Type - PWR Capacity - 512 MWe	1975	401.9	88.2	104	28	1	27	12	16	0.27	0.1
	1976	405.9	78.9	381	270	16	254	193	77	0.71	0.7
	1977	425.0	79.9	312	139	8	131	76	63	0.44	0.3
	1978	466.6	89.5	335	154	11	143	89	65	0.46	0.3
	1979	412.0	79.0	343	127	6	121	79	48	0.37	0.3
	1980	433.8	82.1	401	165	7	158	103	62	0.41	0.4
	1981	451.8	86.7	383	141	7	134	94	47	0.37	0.3
LACROSSE Docket 50-409; DPR-45 1st commercial operation 11/69 Type - BWR Capacity - 48 MWe	1970	15.3		218	111			40	71	0.72	7.2
	1971	33.1		151	158					1.14	4.8
	1972	29.2		157	172					1.41	5.9
	1973	24.4		115	221	89	50	6	133	1.21	9.1
	1974	37.9	81.0	165	139					1.42	7.3
	1975	32.0	69.6	118	234	40	71	6	105	0.94	5.2
	1976	21.2	47.6	141	111	60	164	8	215	1.59	19.8
	1977	11.3	33.7	182	224	69	95	6	158	0.90	7.6
	1978	21.6	62.0	153	164	65	121	21	165	1.22	7.7
	1979	24.0	71.8	124	218	63	155	11	207	1.76	8.3
	1980	26.4	68.5	187	123	62	61	3	120	0.66	4.2
	1981	29.6	76.0								

*INDIAN POINT 1 was defueled in 1975. It had a capacity of 265 MWe.

**INDIAN POINT 3 was purchased by a different utility and now reports separately.

Appendix A (Continued)
Personnel, Dose and Power Generation Summary

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Total Man-rem	Man-rem per Work Function		Man-rem per Personnel Type	Average Dose per Worker (Rems)	Man-rem per MW-Yr
						Operations	Maintenance & Others	Contractor		
MAINE YANKEE Docket 50-309; DPR-36 1st commercial operation 12/72 Type - PWR Capacity - 810 MWe	1973	408.7		782	117			59	0.15	0.3
	1974	432.6	68.7	619	420	64	356	188	0.68	1.0
	1975	542.9	79.9	440	319	15	304	181	0.72	0.6
	1976	712.2	95.0	244	85	27	58	26	0.35	0.1
	1977	617.6	82.2	508	245	46	199	112	0.48	0.4
	1978	642.7	84.1	538	420	54	366	262	0.66	0.6
	1979	537.0	68.4	393	154	70	84	26	0.39	0.3
	1980	527.0	72.2	735	462	117	345	277	0.63	0.9
	1981	624.2	78.2	868	424	11	413	308	0.49	0.7
MILLSTONE POINT 1 Docket 50-245; DPR-21 1st commercial operation 3/71 Type - BWR Capacity - 654 MWe	1972	377.6		612	596	50	546	340	0.97	1.6
	1973	225.1		1184	663	125	538	422	0.56	2.9
	1974	430.3	79.1	2477	1430				0.58	3.3
	1975	465.4	75.6	2587	2022				0.78	4.3
	1976	449.8	76.1	1377	1194	54	1140	955	0.87	2.6
	1977	575.7	89.6	1075	392	118	274	159	0.36	0.7
	1978	556.6	87.6	1391	1239	140	1099	907	0.89	2.2
	1979	505.0	77.3	1769	1793	198	1595	1326	1.01	3.6
	1980	405.8	69.0	3024	2158	100	2058	1864	0.71	5.3
	1981	304.3	51.6	2506	1496	96	1400	1201	0.60	4.9
MILLSTONE POINT 2 Docket 50-336; DPR-65 1st commercial operation 12/75 Type - PWR Capacity - 864 MWe	1976	545.7	78.7	620	158	26	142	73	0.27	0.3
	1977	518.7	65.7	667	242	38	204	153	0.36	0.5
	1978	536.6	67.3	1420	1621	72	1549	1334	1.14	3.0
	1979	520.0	62.8	757	472	81	391	305	0.62	0.9
	1980	579.3	69.2	892	636	76	860	614	0.71	1.1
	1981	722.4	82.6	890	531	44	487	393	0.60	0.7
MONTICELLO Docket 50-263; DPR-22 1st commercial operation 6/71 Type - BWR Capacity - 536 MWe	1972	424.4		99	61	40	21	1	0.62	0.1
	1973	389.5		401	176	48	128	67	0.44	0.4
	1974	349.3	74.9	842	349			91	0.41	1.0
	1975	344.8	72.2	1353	1353				1.00	3.9
	1976	476.4	91.5	325	253	59	204	51	0.81	0.5
	1977	425.6	79.9	860	1000	135	865	661	1.16	2.3
	1978	459.4	87.2	679	375	62	313	165	0.55	0.8
	1979	522.0	97.6	372	157	62	95	51	0.42	0.3
	1980	411.8	78.2	1114	531	82	449	248	0.48	1.3
	1981	389.3	72.6	1446	1004	101	903	756	0.69	2.6

Appendix A (Continued)
Personnel, Dose and Power Generation Summary

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Total Man-rems	Man-rems per Work Operations	Man-rems per Function Maint. & Others	Man-rems per Contractor	Man-rems per Station & Utility	Average Dose per Worker (Rems)	Man-rems per MW-Yr
NINE MILE POINT 1 Docket 50-220; DPR-63 1st commercial operation 12/69 Type - BWR Capacity - 610 MWe	1970	227.0		821	44	12	32	17	27	0.05	0.2
	1971	346.5		1006	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		550	567	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	681	68	613	203	478	1.05	1.9
	1976	404.6	88.8	308	428	82	376	229	199	1.09	0.9
	1977	347.4	59.2	1093	1383	41	1342	883	500	1.26	4.0
	1978	527.7	95.1	561	314	59	255	26	288	0.56	0.6
	1979	354.0	66.1	1326	1497	106	1391	940	557	1.13	4.2
	1980	533.9	92.3	1174	591	75	516	251	340	0.50	1.1
	1981	385.2	66.0	2029	1592	144	1448	1064	528	0.78	4.1
NORTH ANNA 1, 2 Docket 50-338; NPF-04, - 09 1st commercial operation 6/78, Type - PWR Capacity - 865 MWe	1979	507.0	61.7	2025	449	78	371	190	259	0.22	0.9
	1980	681.8	86.5	2086	218	128	90	85	133	0.10	0.3
	1981	1241.9	71.5	2416	680	188	492	343	337	0.28	0.5
OCONEE 1, 2, 3 Docket 50-269, 50-270, 50-287; DPR-38, -47, -55 1st commercial operation 7/73 9/74, 12/74 Type - PWR Capacity - 860, 860, 860 MWe	1974	650.6	60.1	844	517	18	499	144	373	0.61	0.8
	1975	1838.3	75.5	829	497	72	425	90	407	0.60	0.3
	1976	1561.4	63.0	1215	1026	65	961	219	807	0.84	0.6
	1977	1566.4	65.9	1595	1328	244	1084	294	1034	0.83	0.8
	1978	1909.0	75.8	1636	1393	179	1214	340	1053	0.85	0.7
	1979	1708.0	67.7	2100	1001	123	878	181	820	0.48	0.6
	1980	1703.7	70.1	2124	1055	117	938	162	893	0.50	0.6
	1981	1661.5	66.8	2445	1211	113	1098	275	936	0.50	0.7
	1970	413.6		95	63	21	42	11	52	0.66	0.1
	1971	448.9		249	240	50	190	92	148	0.96	0.5
OYSTER CREEK Docket 50-219; DPR-16 1st commercial operation 12/69 Type - BWR Capacity - 620 MWe	1972	515.0		339	582	150	432	167	415	1.72	1.1
	1973	424.6		782	1236	195	1041	683	553	1.58	2.9
	1974	434.5	70.4	935	984	166	818	162	822	1.05	2.3
	1975	373.6	73.3	1210	1140	169	971	271	869	0.94	3.0
	1976	456.5	79.3	1582	1078	70	1008	587	491	0.68	2.4
	1977	385.7	70.1	1673	1614	76	1538	1048	566	0.96	4.2
	1978	431.8	74.3	1411	1279	134	1145	696	583	0.91	3.0
	1979	541.0	85.9	842	467	95	372	135	332	0.55	0.9
	1980	232.9	41.4	1966	1733	97	1636	1182	551	0.88	7.4
	1981	314.8	59.8	1589	917	48	869	479	438	0.54	2.9

Appendix A (Continued)
Personnel, Dose and Power Generation Summary

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Total Man-rem	Man-rem per Work Function		Man-rem per Contractor	Man-rem per Station & Utility	Average Dose per Worker (Rems)	Man-rem per MW-Yr
						Operations	Maint. & Others				
PALISADES Docket 50-255; DPR-20 1st commercial operation 12/71 Type - PWR Capacity - 635 MWe	1972	216.8		975	78	16	1117	661	472	1.16	0.4
	1973	286.8		774	1133					0.81	3.9
	1974	10.7	5.5	495	627					0.62	58.6
	1975	302.0	64.5	742	306	23	673	109	587	0.94	1.0
	1976	346.9	55.2	332	696	13	87	23	77	0.30	2.0
	1977	616.6	91.4	849	100	52	712	173	591	0.90	0.2
	1978	320.2	49.7	1599	764	99	755	360	494	0.53	2.4
	1979	415.0	59.9	1307	854	191	233	312	112	0.32	2.1
	1980	288.3	42.9	2151	424	167	735	737	165	0.42	1.5
	1981	418.2	57.2		902						2.2
PEACH BOTTOM 2, 3 Docket 50-277, 50-278; DPR-44, -56 1st commercial operation 7/74, 12/74 Type - BWR Capacity - 1051, 1035 MWe	1975	1234.3	80.9	971	228	180	660	434	406	0.23	0.2
	1976	1379.2	73.0	2136	840	223	1813	1374	662	0.39	0.6
	1977	1052.4	58.7	2827	2036	162	1165	709	608	0.72	1.9
	1978	1636.3	84.0	2244	1317	245	1143	717	671	0.59	0.8
	1979	1740.0	84.5	2276	1388	311	1991	1596	706	0.61	0.8
	1980	1374.2	66.3	2774	2302	273	2233	1880	626	0.83	1.7
	1981	1161.8	58.0	2857	2506					0.88	2.2
	1973	484.0		230	126	49	77			0.55	0.3
	1974	234.1	39.2	454	415					0.91	1.8
	1975	308.1	71.3	473	798	142	656	412	386	1.69	2.6
PILGRIM 1 Docket 50-293; DPR-35 1st commercial operation 12/72 Type - BWR Capacity - 670 MWe	1976	287.8	60.7	1317	2648	66	2582	2270	378	2.01	9.2
	1977	316.6	61.4	1875	3142	146	2996	2176	966	1.68	9.9
	1978	519.5	83.1	1667	1327	157	1170	895	432	0.80	2.5
	1979	574.0	89.4	2458	1015	131	884	516	499	0.41	1.8
	1980	360.3	56.2	3549	3626	207	3419	3076	550	1.02	10.1
	1981	408.9	65.9	2803	1836	70	1766	1418	418	0.66	4.5

Appendix A (Continued)
Personnel, Dose and Power Generation Summary

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Total Man-rem	Man-rem per Work Function		Man-rem per Contractor	Man-rem per Personnel Type Station & Utility	Average Dose per Worker (Rems)	Man-rem per MW-Yr
						Operations	Maintenance & Others				
POINT BEACH 1, 2 Docket 50-266, 50-301; DPR-24, -27 1st commercial operation 12/70, 10/72 Type - PWR Capacity - 495, 495 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	1.18	0.4
	1977	873.9	87.3	417	429	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	449	195	1.06	0.8
	1980	727.2	82.5	561	598	60	538	420	178	1.07	0.8
PRAIRIE ISLAND 1, 2 Docket 50-282, 50-306; DPR-42, -60 1st commercial operation 12/73, 12/74 Type - PWR Capacity - 503, 500 MWe	1981	760.4	83.6	773	596	83	513	364	232	0.77	0.8
	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	941.1	92.2	546	221	43	178	48	173	0.40	0.2
	1979	865.0	86.0	594	180	29	151	49	131	0.30	0.2
	1980	800.7	79.9	983	353	40	313	141	212	0.36	0.4
	1981	844.9	80.5	836	329	153	176	128	201	0.39	0.4
	1974	958.1	72.3	678	482			36	446	0.71	0.5
QUAD CITIES 1, 2 Docket 50-254, 50-265; DPR-29, -30 1st commercial operation 2/73, 3/73 Type - BWR Capacity - 769, 769 MWe	1975	833.6	68.4	1083	1618	114	1504	692	926	1.49	1.9
	1976	951.2	73.1	1225	1651	269	1382	648	1003	1.35	1.7
	1977	970.1	84.0	907	1031	108	923	373	658	1.14	1.1
	1978	1124.5	88.6	1207	1618	156	1462	722	896	1.34	1.4
	1979	1075.0	84.6	1688	2158	215	1943	1250	908	1.28	2.0
	1980	866.9	64.4	3089	4838	291	4547	3657	1181	1.57	5.6
	1981	1156.9	81.1	2246	3146	100	3046	2623	523	1.40	2.7
	1976	268.1	30.4	297	58	6	52	17	41	0.19	0.2
	1977	706.4	77.1	515	390	61	329	248	142	0.76	0.5
	1978	607.7	80.5	508	323	76	247	176	147	0.64	0.5
RANCHO SECO Docket 50-312; DPR-54 1st commercial operation 4/75 Type - PWR Capacity - 873 MWe	1979	687.0	91.1	287	126	27	99	64	62	0.44	0.2
	1980	530.9	60.4	890	412	110	302	281	131	0.46	0.8
	1981	321.2	40.2	772	402	83	319	266	137	0.52	1.3
	1981	321.2	40.2	772	402	83	319	266	137	0.52	1.3

Appendix A (Continued)
Personnel, Dose and Power Generation Summary

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Total Man-rems	Man-rems per Work Function		Man-rems per Contractor	Man-rems per Station & Utility	Average Dose per Worker (Rems)	Man-rems per MW-Yr
						Operations	Maint. & Others				
ROBINSON 2 Docket 50-261; DPR-23 1st commercial operation 3/71 Type - PWR Capacity - 665 MWe	1972	580.0		245	215	42	173	137	78	0.88	0.4
	1973	455.1		831	695					0.84	1.5
	1974	578.1	83.3	853	672	185	487			0.79	1.2
	1975	501.8	72.7	849	1142					1.34	2.3
	1976	585.5	84.7	597	715	30	685	457	758	1.20	1.2
	1977	511.5	85.2	634	455	52	403	223	232	0.72	0.9
	1978	480.5	72.0	943	963	63	900	529	434	1.02	2.0
	1979	482.0	70.8	1454	1188	60	1128	794	394	0.82	2.5
	1980	387.3	62.2	2009	1852	79	1773	1379	473	0.92	4.8
	1981	426.6	73.0	1462	733	45	688	513	220	0.50	1.7
SALEM 1 Docket 50-272; DPR-70 1st commercial operation 6/77 Type - PWR Capacity - 1079 MWe	1978	546.4	55.6	574	122	28	94	32	90	0.21	0.2
	1979	250.0	25.5	1488	584	100	484	359	225	0.39	2.3
	1980	680.6	69.2	1704	449	55	394	281	168	0.26	0.7
	1981	743.0	78.1	1652	254	4	250	152	102	0.15	0.3
SAN ONOFRE 1 Docket 50-206; DPR-13 1st commercial operation 1/68 Type - PWR Capacity - 436 MWe	1969	314.1		123	42	10	32	5	37	0.34	0.1
	1970	365.9		251	155	13	142	59	96	0.62	0.4
	1971	382.1		121	50	12	38	3	47	0.41	0.1
	1972	338.5		326	256	29	227	117	139	0.78	0.8
	1973	273.7		570	353	40	313	168	185	0.62	1.3
	1974	377.8	86.1	219	71					0.32	0.2
	1975	389.0	87.4	424	292					0.69	0.7
	1976	297.9	70.2	1330	880	147	733	629	251	0.66	2.9
	1977	281.2	63.7	985	847	77	770	451	396	0.86	3.0
	1978	323.2	80.2	764	401	25	376	234	167	0.52	1.2
	1979	401.0	90.2	521	139	23	116	65	74	0.27	0.3
	1980	97.3	22.3	3063	2387	219	2168	2018	369	0.78	24.5
	1981	95.9	26.7	2902	3223	100	3123	3104	119	1.11	33.6
ST. LUCIE 1 Docket 50-335; DPR-67 1st commercial operation 12/76 Type - PWR Capacity - 777 MWe	1977	649.1	84.7	445	152	26	126	92	60	0.34	0.2
	1978	606.4	76.5	797	337	15	322	140	197	0.42	0.6
	1979	592.0	74.0	907	438	25	413	209	229	0.48	0.7
	1980	627.9	77.6	1074	632	82	460	196	337	0.50	0.8
	1981	599.1	72.7	1473	929	20	909	556	373	0.63	1.6

Appendix A (Continued)
Personnel, Dose and Power Generation Summary

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Total Man-rem	Man-rem per Work Function Operations	Man-rem per Maint. & Others	Man-rem per Personnel Type Contractor	Average Dose per Worker (Rems)	Man-rem per MW-Yr
SURREY 1, 2 Docket 50-280, 50-281; DPR-32, -37 1st commercial operation 12/72, 5/73 Type - PWR Capacity - 775, 775 MWe	1973	420.6		936	152	72	812		0.16	0.4
	1974	717.4	49.8	1715	884	27	1622	584	0.51	1.2
	1975	1079.0	70.8	1948	1649	444	2721	1065	0.85	1.5
	1976	930.7	60.4	2753	3165	348	1959	1873	1.15	3.4
	1977	1139.0	72.2	1860	2307	726	1111	1380	1.24	2.0
	1978	1210.6	77.2	2203	1837	173	3411	1029	0.83	1.5
	1979	343.0	42.3	5065	3584	353	3483	2975	0.71	10.4
	1980	568.2	40.3	5317	3836	428	3816	3117	0.72	6.6
	1981	907.6	59.3	3753	4244			3040	1.13	4.7
* THREE MILE ISLAND 1, 2 Docket 50-289; DPR-50, -73 1st commercial operation-9/74, 12/78 Type - PWR Capacity - 776 MWe	1975	675.9	82.2	131	73	23	263	18	0.56	0.1
	1976	530.0	65.4	819	286	15	344	69	0.35	0.5
	1977	664.5	80.9	1122	359	23	481	128	0.32	0.5
	1978	690.0	85.1	1929	504	197	1195	235	0.26	0.7
	1979	266.0	21.9	4024	1392	29	365	967	0.85	5.2
	1980	0.0	0.0	2328	394	50	326	234	0.17	-
	1981	0.0	0.0	2103	376			190	0.18	-
	1977	792.0	92.6	591	174	30	144	105	0.29	0.2
	1978	205.5	20.6	711	119	81	238	124	0.45	1.5
TROJAN Docket 50-344; NPF-1 1st commercial operation 5/76 Type - PWR Capacity - 1080 MWe	1979	631.0	58.1	736	257	74	183	113	0.35	0.4
	1980	727.5	72.5	1159	421	77	344	305	0.36	0.6
	1981	775.6	74.1	1311	609	113	496	363	0.46	0.8
	1973	401.9		444	78	88	366	202	0.18	0.2
	1974	953.6		794	454	270	606	559	0.57	0.5
	1975	1003.7	74.9	1176	876	89	1095	868	0.74	0.9
	1976	974.2	71.2	1647	1184	94	942	522	0.72	1.2
	1977	979.5	72.1	1319	1036	90	942	514	0.78	1.1
	1978	1000.2	78.8	1336	1032	299	1381	546	0.77	1.0
TURKEY POINT 3, 4 Docket 50-250, 50-251; DPR-31, -41 1st commercial operation 12/72, 9/73 Type - PWR Capacity - 646, 646 MWe	1979	811.0	62.4	2002	1680	232	1419	997	0.84	2.1
	1980	990.6	73.6	1803	1651	1977	274	1218	0.92	1.7
	1981	654.0	46.8	2932	2251			1854	0.77	3.4

* Three Mile Island 1 and 2 are shutdown. They are still included in the count of commercial reactors.

Appendix A (Continued)
Personnel, Dose and Power Generation Summary

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Total Man-REMs	Man-REMs per Work Function		Man-REMs per Personnel Type		Average Dose per Worker (REMs)	Man-REMs per MW-Yr
						Operations	Maint. & Others	Contractor	Station & Utility		
VERMONT YANKEE Docket 50-271; DPR-28 1st commercial operation 11/72 Type - BWR Capacity - 504 MWe	1973	222.1		244	85	24	192	103	113	0.35	0.4
	1974	303.5	87.8	357	216	70	83	63	90	0.60	0.7
	1975	429.0	77.1	282	153	36	375	246	165	0.54	0.4
	1976	389.6	85.1	815	411	83	175	90	168	0.50	1.0
	1977	423.5	75.9	641	258	78	261	158	181	0.40	0.6
	1978	387.5	82.1	934	339	646	624	158	181	0.36	0.9
	1979	414.0	71.5	1220	1170	141	1197	926	628	0.96	2.8
	1980	357.8	84.6	1443	1338	121	610	408	323	0.93	3.7
	1981	429.1		1264	731					0.58	1.7
	1969	138.3		193	215	83	132	78	133	1.11	1.5
YANKEE ROWE Docket 50-29; DPR-3 1st commercial operation 7/61 Type - PWR Capacity - 175 MWe	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	55	0.39	0.4
	1977	124.6	73.9	725	356	28	328	174	182	0.49	2.9
	1978	145.0	81.0	565	282	26	256	95	187	0.50	1.9
	1979	149.0	81.6	441	127	16	111	52	75	0.29	0.9
ZION 1, 2 Docket 50-295; 50-304; DPR-39, -48 1st commercial operation 12/73, 9/74 Type - PWR Capacity - 1040, 1040 MWe	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
	1974	425.3	71.1	306	56			13	43	0.18	0.1
	1975	1181.5	74.9	436	127	17	110	49	78	0.29	0.1
	1976	1134.9	61.9	774	571	64	507	257	314	0.74	0.5
	1977	1358.6	75.0	784	1003	43	960	561	442	1.28	0.7
	1978	1613.5	80.2	1104	1017	150	867	418	599	0.92	0.6
	1979	1238.0	67.6	1472	1274	168	1106	747	527	0.87	1.0
	1980	1411.2	74.1	1363	920	97	823	560	360	0.67	0.7
	1981	1366.9	72.3	1754	1720	50	1670	1155	564	0.98	1.3

APPENDIX B
Annual Whole Body Doses at
Licensed Nuclear Power Facilities
1981

APPENDIX B
ANNUAL WHOLE BODY DOSES AT LICENSED NUCLEAR POWER FACILITIES - 1981

Plant Name, Type	Number of Individuals with Wholes Body Doses in the Following Ranges (Rems)															Total Number Moni- tored	Number with Meas- urable Exposure	** Total Man-Rems
	No Meas- urable Exposure	0.10- 0.25	0.25- 0.50	0.50- 0.75	0.75- 1.0	1.0- 2.0	2.0- 3.0	3.0- 4.0	4.0- 5.0	5.0- 6.0	6.0- 7.0	7.0- 8.0	8.0- 9.0	9.0- 10.0				
Arkansas 1, 2 * PWRs	402	802	442	309	179	138	280	65	3	0	5	1	0	0	1	2,627	2,225	1,102
Beaver Valley PWR	704	719	329	87	44	24	31	3								1,941	1,237	229
Big Rock Point BWR	69	317	37	43	18	17	27	15	5							548	479	160
Browns Ferry 1, 2, 3 BWRs	3,393	768	573	471	377	265	646	259	20									
Brunswick 1, 2 BWRs	1,275	1,647	539	365	222	161	431	272	168	48	1					6,772	3,379	2,380***
Calvert Cliffs 1, 2 PWRs	950	485	353	289	207	101	105	15								5,129	3,854	2,638***
Cook 1, 2 PWRs	540	416	224	240	167	115	147	32								2,505	1,555	607
Cooper Station BWR	997	347	89	127	83	69	164	56								1,881	1,341	655
Crystal River PWR	882	453	213	195	101	62	87	6	1	2						1,932	935	579
																2,002	1,120	408

* Arkansas 2 was started for the first time in 1981.

** This item is not usually reported by the facility and is calculated by the NRC staff using the method described in this document.

*** The actual collective dose was provided in the 20,407 report and this value is shown here.

APPENDIX B (Cont.)

Plant Name, Type	No. Meas-urable Exposures	Number of Individuals with Whole Body Doses in the Following Ranges (Rems)												Total Number Moni-tored	Number with Meas-urable Exposure	Total** Man-Rems
		Meas-urable <0.10	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.0	1.0-2.0	2.0-3.0	3.0-4.0	4.0-5.0	5.0-6.0	6.0-7.0	7.0-8.0	8.0-9.0	9.0-10.0	
Davis-Besse 1 PWR	972	417	98	46	13	2	2									1,550 578 58***
Dresden 1, 2, 3 BWRs	676	661	287	197	160	156	370	294	205						(>12) 1	3,084 2,408 2,802
Duane Arnold BWR	596	528	155	117	101	84	214	73	11	3						1,882 1,286 790
Farley 1 PWR	761	592	226	183	108	62	148	12								2,092 1,331 511
Fitzpatrick BWR	687	834	400	395	216	184	329	94	30	8						3,177 2,490 1,425
Fort Calhoun PWR	129	367	89	85	82	35	108	48	8							951 822 458
Ginna PWR	368	278	120	100	71	62	252	41	1							1,293 925 655
Haddam Neck PWR	527	471	279	145	108	108	319	114	8	2						2,081 1,554 1,036***
Hatch 1, 2 BWRs	1,318	1,114	499	427	282	177	316	69	13	0	2					4,217 2,899 1,337

** This item is not usually reported by the facility and is calculated by the NRC staff using the method described in this document.

*** The actual collective dose was provided in the 20 407 report and this is the value shown here.

APPENDIX B (Cont.)

Plant Name, Type	Number of Individuals with Whole Body Doses in the Following Ranges (Rems)																Total Number Monitored	Number with Measurable Exposure	** Total Non-Rems
	No Measurable Exposure	Measurable <0.10	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.0	1.0-2.0	2.0-3.0	3.0-4.0	4.0-5.0	5.0-6.0	6.0-7.0	7.0-8.0	8.0-9.0	9.0-10.0				
Humboldt Bay PWR	69	52	14	8	1											144	75	9	
Indian Point 1, 2 PWRs	443	527	304	333	262	193	554	220	96	106						3,038	2,595	2,731	
Indian Point 3 PWR	433	202	113	129	61	46	106	16	3	1						1,110	677	364***	
Kewaunee PWR	212	141	71	79	37	25	28	2								595	383	141	
LaCrosse BWR	361	103	18	4	5	6	27	20	4							548	187	123	
Maine Yankee PWR	341	319	128	111	95	79	124	12								1,205	868	424	
Millstone 1 BWR	871	809	395	360	246	182	368	125	21							3,377	2,506	1,496	
Millstone 2 PWR	309	288	141	127	87	65	130	44	8							1,199	890	531	
Monticello BWR	1,276	421	214	203	127	96	267	90	15	6	7					2,722	1,446	1,004***	

* Millstone 1 and 2 submitted a combined 20,407 report which was separated in the same proportion as that reported in their 1.18 type reports (see Appendix A).

** This item is not usually entered by the facility and is calculated by the NRC staff using the method described in this document.

*** The actual collective dose was provided in the 20,407 report and is this is the value shown here.

APPENDIX B (Cont.)

Plant Name, Type	Number of Individuals with Wholes Body Doses in the Following Ranges (Rms)																Total ** Man-Rms	
	No Meas- urable Exposure	Meas- urable <0.10	0.10- 0.25	0.25- 0.50	0.50- 0.75	0.75- 1.0	1.0- 2.0	2.0- 3.0	3.0- 4.0	4.0- 5.0	5.0- 6.0	6.0- 7.0	7.0- 8.0	8.0- 9.0	9.0- 10.0	Total Number Moni- tored		Number with Meas- urable Exposure
Nine Mile Point BWR	627	624	292	243	121	129	382	181	52	5						2,656	2,029	1,592
North Anna 1, 2* PWRs	348	1,594	265	196	100	85	122	34	15	4	1					2,764	2,416	680
Oconee 1, 2, 3. PWRs	820	945	371	338	195	138	331	121	6									
Oyster Creek BWR	218	554	322	214	168	125	233	67	6							3,265	2,445	1,211***
Palisades PWR	370	1,047	322	261	153	93	195	55	24	1						1,907	1,689	917
Peach Bottom 2, 3 BWRs	1,634	611	294	479	311	260	564	237	73	25	3				2,521	2,151	902	
Pilgrim BWR	0	753	357	568	280	223	453	123	41	5						4,491	2,857	2,506
Point Beach 1, 2 PWRs	210	149	107	130	83	80	164	57	3							2,803	2,803	1,836
Prairie Island 1, 2 PWRs	363	326	168	153	59	38	75	16	1							983	773	596
																1,199	836	329

* North Anna 2 was counted for the first time in 1981.

** This item is not usually recorded by the plant.

* North Anna 2 was counted for the first time in 1981.

** This item is not usually reported by the facility and is calculated by the NRC staff using the method described in this document.

*** The actual collective dose was provided in the 20,407 report and this value is shown here.

APPENDIX B (Cont.)

Plant Name, Type	Number of Individuals with Wholes Body Doses in the Following Ranges (Rads)													Total Number Monitored	Number with Measurable Exposure	Total ** Total Man-Rads
	No Measurable Exposure	Measurable < 0.10	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.0	1.0-2.0	2.0-3.0	3.0-4.0	4.0-5.0	5.0-6.0	6.0-7.0	7.0-8.0	8.0-9.0	9.0-10.0	
Quad Cities 1, 2 BWRs	707	552	175	148	109	100	407	448	235	72					/	2,953 2,246 3,146
Rancho Seco PWR	282	104	158	136	94	66	113	11								1,054 772 402
Robinson 2 PWR	797	748	182	114	92	61	179	60	25	1						2,259 1,462 733
Salem 1 PWR	1,667	1,123	290	132	53	33	18	2	1							3,319 1,652 254
San Onofre PWR	2,128	849	246	218	174	150	675	240	341	9						5,027 2,902 3,223***
St. Lucie PWR	869	399	239	235	164	97	260	75	4							2,342 1,473 929
Surry 1, 2 PWRs	159	1,095	585	363	185	154	597	354	192	101	45	71	9	2		3,912 3,753 4,244
Three Mile Island 1, 2 PWRs	5,459	1,241	430	273	87	44	27	1								7,562 2,103 376
Trojan PWR	1,852	533	207	152	136	71	189	22	1							3,163 1,311 609

** This item is not usually reported by the facility and is calculated by the NRC staff using the method described in this document.

*** The actual collective dose was provided in the 20,407 report and this is the value shown here.

APPENDIX B (Cont.)

Plant Name, Type	Number of Individuals with Worker Body Doses in the Following Ranges (Rems)															Total Number Monitored	Number with Measurable Exposure	Total** Man-Rems
	No Measurable Exposure <0.10	Measurable 0.10	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.0	1.0-2.0	2.0-3.0	3.0-4.0	4.0-5.0	5.0-6.0	6.0-7.0	7.0-8.0	8.0-9.0	9.0-10.0			
Turkey Point 3, 4 PWRs	1,664	710	422	446	294	213	600	175	60	10	1	1				4,596	2,932	2,251
Vermont Yankee BWR	591	435	209	167	112	92	175	62	12							1,835	1,264	731
Yankee Rowe PWR	1,575	185	63	72	55	27	88	23	2							2,090	515	302
Zion 1, 2 PWRs	445	587	163	113	140	110	339	185	79	25	9	4				2,199	1,754	1,720
BWR Totals	15,345	11,130	4,869	4,536	2,939	2,326	6,373	2,485	911	224	32	4	2		(≥12) 1	50,177	34,832	25,471
PWR Totals	16,971	11,202	7,341	6,790	3,816	2,877	6,303	2,061	882	262	51	77	9	2	1	74,329	47,351	28,671
Fort St. Vrain HTGR	1,096	31																1***

** This item is not usually reported by the facility and is calculated by the NRC staff using the method described in this document.
 *** The actual collective dose was provided in the 20.407 report and this value is shown here.

APPENDIX C
Number of Personnel and Man-rem
by Work and Job Function
1981

**Note: A 't' preceding a plant name indicates that the licensee's input was
recategorized by NRC staff.**

APPENDIX C (Cont.)

PLANT 1. ARKANSAS 1.2 (PWR) NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) 1981				TOTAL MAN-REMS			
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT OTHERS	PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	52	4	21		18,448	1,360	10,905	
OPERATING PERSONNEL	53	0	0		29,756	0.0	0.0	
HEALTH PHYSICS PERSONNEL	22	0	73		11,996	0.0	28,067	
SUPERVISORY PERSONNEL	10	0	1		3,930	0.0	0.163	
ENGINEERING PERSONNEL	1	0	2		0.193	0.0	0.487	
TOTAL	138	4	97	239	64,323	1,360	39,622	105,305
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	88	13	159		38,537	3,575	69,635	
OPERATING PERSONNEL	0	0	0		0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	6	0	12		6,409	0.0	2,961	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	5		0.0	0.0	3,202	
TOTAL	94	13	176	283	44,946	3,575	75,998	124,519
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	1	9	28		0.146	1,174	11,487	
OPERATING PERSONNEL	1	0	0		0.130	0.0	0.0	
HEALTH PHYSICS PERSONNEL	1	0	0		0.142	0.0	0.0	
SUPERVISORY PERSONNEL	0	0	1		0.0	0.0	0.132	
ENGINEERING PERSONNEL	2	1	10		0.258	0.140	2,101	
TOTAL	5	10	39	54	0.676	1,314	13,720	15,710
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	45	1	446		10,894	0.112	217,348	
OPERATING PERSONNEL	0	0	0		0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	13	0	27		7,959	0.0	5,972	
SUPERVISORY PERSONNEL	0	0	2		0.0	0.0	0.329	
ENGINEERING PERSONNEL	1	0	12		0.107	0.0	2,523	
TOTAL	59	1	487	547	18,960	0.112	226,172	245,244
WASTE PROCESSING								
MAINTENANCE PERSONNEL	8	3	19		1,674	0.679	10,759	
OPERATING PERSONNEL	7	0	0		1,253	0.0	0.0	
HEALTH PHYSICS PERSONNEL	7	0	6		4,753	0.0	2,267	
SUPERVISORY PERSONNEL	1	0	0		0.797	0.0	0.0	
ENGINEERING PERSONNEL	0	0	2		0.0	0.0	0.830	
TOTAL	23	3	27	53	8,477	0.679	13,836	23,012
REFUELING								
MAINTENANCE PERSONNEL	75	14	457		44,414	6,035	235,472	
OPERATING PERSONNEL	14	0	0		2,935	0.0	0.0	
HEALTH PHYSICS PERSONNEL	10	0	77		5,524	0.0	47,264	
SUPERVISORY PERSONNEL	9	0	4		2,756	0.0	1,020	
ENGINEERING PERSONNEL	6	0	61		2,859	0.0	28,184	
TOTAL	114	14	599	727	58,488	6,035	311,940	376,463
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	269	44	1130	1443	114,113	12,935	555,806	682,854
OPERATING PERSONNEL	75	0	0	75	34,074	0.0	0.0	34,074
HEALTH PHYSICS PERSONNEL	59	0	195	254	36,783	0.0	86,531	123,314
SUPERVISORY PERSONNEL	20	0	8	28	7,483	0.0	1,644	9,127
ENGINEERING PERSONNEL	10	1	92	103	3,417	0.140	37,327	40,884
GRAND TOTAL	433	45	1425	1903	195,870	13,075	681,308	890,253

* Workers now be counted in more than one category

APPENDIX C (Cont.)

PLANT: BEAVER VALLEY (PWR) NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM)			TOTAL MAN-REMS		
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS
REACTOR OPERATIONS & SURV.						
MAINTENANCE PERSONNEL	44	0	42	2,705	0.0	2,050
OPERATING PERSONNEL	44	0	0	7,520	0.0	0.0
HEALTH PHYSICS PERSONNEL	17	0	52	1,380	0.0	10,200
SUPERVISORY PERSONNEL	0	0	0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	8	0.0	0.0	0,560
TOTAL	105	0	102	11,605	0.0	12,810
ROUTINE MAINTENANCE						
MAINTENANCE PERSONNEL	65	0	95	37,285	0.0	42,080
OPERATING PERSONNEL	34	0	0	1,630	0.0	0.0
HEALTH PHYSICS PERSONNEL	16	1	53	1,375	0.120	12,785
SUPERVISORY PERSONNEL	0	1	0	0.0	0.100	0.0
ENGINEERING PERSONNEL	0	2	14	0.0	0.555	3,350
TOTAL	115	4	162	40,290	0.775	58,215
IN-SERVICE INSPECTION						
MAINTENANCE PERSONNEL	0	0	0	0.0	0.0	0.0
OPERATING PERSONNEL	0	0	0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0.0	0.0	0.0
TOTAL	0	0	0	0.0	0.0	0.0
SPECIAL MAINTENANCE						
MAINTENANCE PERSONNEL	19	0	77	0,490	0.0	12,795
OPERATING PERSONNEL	0	0	0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	27	0.0	0.0	1,605
SUPERVISORY PERSONNEL	0	0	0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	2	3	0.0	0.180	0,490
TOTAL	19	2	107	0,490	0.180	14,890
WASTE PROCESSING						
MAINTENANCE PERSONNEL	21	0	24	1,095	0.0	2,125
OPERATING PERSONNEL	7	0	0	1,085	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	32	0,260	0.0	2,225
SUPERVISORY PERSONNEL	0	0	0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0.0	0.0	0.0
TOTAL	35	0	56	2,440	0.0	4,350
REFUELING						
MAINTENANCE PERSONNEL	0	0	0	0.0	0.0	0.0
OPERATING PERSONNEL	0	0	0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0.0	0.0	0.0
TOTAL	0	0	0	0.0	0.0	0.0
TOTAL BY JOB FUNCTION						
MAINTENANCE PERSONNEL	149	0	238	41,575	0.0	59,050
OPERATING PERSONNEL	85	0	164	10,235	0.0	10,235
HEALTH PHYSICS PERSONNEL	40	1	205	3,015	0.120	29,950
SUPERVISORY PERSONNEL	0	1	1	0.0	0.100	0.100
ENGINEERING PERSONNEL	0	4	25	0.0	0.735	5,135
GRAND TOTAL	274	6	427	54,825	0.955	104,045

*Workers may be counted in more than one category.

PLANT:† BIG ROCK POINT	NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION (RMP)
1	1
2	1
3	1
4	1
5	1
6	1
7	1
8	1
9	1
10	1
11	1
12	1
13	1
14	1
15	1
16	1
17	1
18	1
19	1
20	1
21	1
22	1
23	1
24	1
25	1
26	1
27	1
28	1
29	1
30	1
31	1
32	1
33	1
34	1
35	1
36	1
37	1
38	1
39	1
40	1
41	1
42	1
43	1
44	1
45	1
46	1
47	1
48	1
49	1
50	1
51	1
52	1
53	1
54	1
55	1
56	1
57	1
58	1
59	1
60	1
61	1
62	1
63	1
64	1
65	1
66	1
67	1
68	1
69	1
70	1
71	1
72	1
73	1
74	1
75	1
76	1
77	1
78	1
79	1
80	1
81	1
82	1
83	1
84	1
85	1
86	1
87	1
88	1
89	1
90	1
91	1
92	1
93	1
94	1
95	1
96	1
97	1
98	1
99	1
100	1

Workers may be counted in more than one category.

APPENDIX C (Cont.)

PLANT: BROWNS FERRY 1,2,3 (BWR) NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION 1981

* WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM)			TOTAL			TOTAL MAN-REMS		
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	MAN-REMS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.									
MAINTENANCE PERSONNEL	11	47	2		1,400	19,700	0,300		
OPERATING PERSONNEL	97	2	0		22,000	0,300	0,0		
HEALTH PHYSICS PERSONNEL	19	2	29		3,800	0,200	8,000		
SUPERVISORY PERSONNEL	0	0	0		0,0	0,0	0,0		
ENGINEERING PERSONNEL	34	47	1		6,300	16,700	0,100		
TOTAL	161	98	32	291	33,500	36,900	8,400		78,800
ROUTINE MAINTENANCE									
MAINTENANCE PERSONNEL	364	1352	139		141,300	1040,400	80,900		
OPERATING PERSONNEL	181	9	4		75,000	1,200	2,900		
HEALTH PHYSICS PERSONNEL	56	6	53		22,600	1,000	26,400		
SUPERVISORY PERSONNEL	0	0	0		0,0	0,0	0,0		
ENGINEERING PERSONNEL	66	168	52		36,200	84,300	22,600		
TOTAL	667	1535	248	2450	275,100	1,126,900	132,800		1534,800
IN-SERVICE INSPECTION									
MAINTENANCE PERSONNEL	0	5	4		0,0	0,0	1,800		
OPERATING PERSONNEL	0	0	0		0,0	0,0	0,0		
HEALTH PHYSICS PERSONNEL	1	0	0		0,100	0,0	0,0		
SUPERVISORY PERSONNEL	0	0	0		0,0	0,0	0,0		
ENGINEERING PERSONNEL	0	5	12		0,0	1,700	4,600		
TOTAL	1	10	16	27	0,100	1,700	6,400		8,200
SPECIAL MAINTENANCE									
MAINTENANCE PERSONNEL	4	112	3		0,800	44,700	1,600		
OPERATING PERSONNEL	0	0	0		0,0	0,0	0,0		
HEALTH PHYSICS PERSONNEL	16	0	3		5,600	0,0	0,700		
SUPERVISORY PERSONNEL	0	0	0		0,0	0,0	0,0		
ENGINEERING PERSONNEL	26	7	168		6,700	2,600	160,500		
TOTAL	46	119	174	339	13,100	47,300	162,800		223,200
WASTE PROCESSING									
MAINTENANCE PERSONNEL	14	0	0		3,900	0,0	0,0		
OPERATING PERSONNEL	5	0	0		1,100	0,0	0,0		
HEALTH PHYSICS PERSONNEL	2	0	0		0,200	0,0	0,0		
SUPERVISORY PERSONNEL	0	0	0		0,0	0,0	0,0		
ENGINEERING PERSONNEL	0	0	0		0,0	0,0	0,0		
TOTAL	21	0	0	21	5,200	0,0	0,0		5,200
REFUELING									
MAINTENANCE PERSONNEL	12	58	2		2,000	13,100	0,500		
OPERATING PERSONNEL	17	0	0		5,400	0,0	0,0		
HEALTH PHYSICS PERSONNEL	2	0	2		0,200	0,0	0,200		
SUPERVISORY PERSONNEL	0	0	0		0,0	0,0	8,400		
ENGINEERING PERSONNEL	1	3	25		0,100	0,600	0,0		
TOTAL	32	61	29	122	7,700	13,700	9,100		30,500
TOTAL BY JOB FUNCTION									
MAINTENANCE PERSONNEL	605	1574	150	2129	149,400	1117,900	85,100		1352,400
OPERATING PERSONNEL	300	11	4	315	103,500	1,500	2,900		107,900
HEALTH PHYSICS PERSONNEL	96	8	87	191	32,500	1,200	35,300		69,000
SUPERVISORY PERSONNEL	0	0	0	0	0,0	0,0	8,400		8,400
ENGINEERING PERSONNEL	127	230	258	615	49,300	103,900	187,800		343,000
GRAND TOTAL	928	1823	499	3250	334,700	1226,500	319,500		1880,700

*Workers may be counted in more than one category.

PLANT: BRUNSWICK 1.2 (BWR)
NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION
1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM)				TOTAL MAN-REMS			
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	5	1	0		6,762	0,157	0,356	
OPERATING PERSONNEL	63	0	93		70,739	0,000	23,326	
HEALTH PHYSICS PERSONNEL	17	4	21		19,061	2,650	16,029	
SUPERVISORY PERSONNEL	2	1	0		4,467	0,301	0,428	
ENGINEERING PERSONNEL	9	14	5		6,003	4,914	2,922	
TOTAL	98	20	122	238	103,032	8,022	43,131	154,185
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	79	11	208		124,182	5,665	284,335	
OPERATING PERSONNEL	16	0	0		17,649	0,000	0,000	
HEALTH PHYSICS PERSONNEL	12	2	16		13,914	1,726	13,622	
SUPERVISORY PERSONNEL	1	0	0		0,268	0,000	0,032	
ENGINEERING PERSONNEL	6	5	17		3,827	1,658	9,955	
TOTAL	114	13	241	373	159,840	9,049	307,044	475,933
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	0		0,000	0,000	0,000	
OPERATING PERSONNEL	0	0	0		0,000	0,000	0,000	
HEALTH PHYSICS PERSONNEL	0	0	0		0,000	0,000	0,000	
SUPERVISORY PERSONNEL	0	0	0		0,000	0,000	0,000	
ENGINEERING PERSONNEL	4	7	3		2,338	2,278	3,163	
TOTAL	4	7	3	14	2,338	2,278	3,163	7,779
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	110	66	777		188,044	36,049	1091,104	
OPERATING PERSONNEL	16	0	0		17,649	0,000	0,000	
HEALTH PHYSICS PERSONNEL	32	6	42		35,508	3,820	40,137	
SUPERVISORY PERSONNEL	3	2	3		0,930	0,277	0,834	
ENGINEERING PERSONNEL	36	34	117		22,420	11,202	61,778	
TOTAL	197	108	939	1244	264,551	51,344	1193,853	1509,748
WASTE PROCESSING								
MAINTENANCE PERSONNEL	34	4	198		57,315	1,514	270,157	
OPERATING PERSONNEL	41	0	0		45,414	0,000	0,000	
HEALTH PHYSICS PERSONNEL	11	2	14		12,077	1,447	12,311	
SUPERVISORY PERSONNEL	0	0	0		0,028	0,032	0,032	
ENGINEERING PERSONNEL	6	7	6		3,827	2,357	3,122	
TOTAL	92	13	218	323	118,674	5,346	283,622	409,882
REFUELING								
MAINTENANCE PERSONNEL	0	0	0		0,000	0,000	0,000	
OPERATING PERSONNEL	0	0	0		0,000	0,000	0,000	
HEALTH PHYSICS PERSONNEL	0	0	0		0,000	0,000	0,000	
SUPERVISORY PERSONNEL	0	0	0		0,000	0,000	0,000	
ENGINEERING PERSONNEL	0	0	0		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	229	82	1183	1493	376,303	43,381	1645,952	2065,636
OPERATING PERSONNEL	136	0	93	229	151,451	0,000	23,326	174,777
HEALTH PHYSICS PERSONNEL	72	14	93	179	80,560	9,643	82,099	172,302
SUPERVISORY PERSONNEL	6	3	5	14	1,946	0,606	1,326	3,878
ENGINEERING PERSONNEL	61	67	148	276	38,415	22,409	80,110	140,934
GRAND TOTAL	503	166	1522	2191	688,675	76,039	1832,813	2557,527

APPENDIX C (Cont.)

PLANT, CALVERT CLIFFS 1,2 (PWR)	NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION									
	NUMBER OF PERSONNEL (>100 M-REM) 1981					TOTAL MAN-REMS				
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS	MAN-REMS	TOTAL MAN-REMS
WORK & JOB FUNCTION										
REACTOR OPERATIONS & SURV.										
MAINTENANCE PERSONNEL	6	0	0	0	0.832	0.0	0.0	0.0	0.0	0.0
OPERATING PERSONNEL	43	0	3	3	15.819	0.0	0.0	0.901	0.0	0.901
HEALTH PHYSICS PERSONNEL	18	0	7	7	4.303	0.0	0.0	2.352	0.0	2.352
SUPERVISORY PERSONNEL	1	0	0	0	0.117	0.0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	68	0	10	78	21.071	0.0	3.253	24.324		24.324
ROUTINE MAINTENANCE										
MAINTENANCE PERSONNEL	63	7	50	50	14.681	2.505	11.062			
OPERATING PERSONNEL	16	2	14	14	3.353	0.347	2.993			
HEALTH PHYSICS PERSONNEL	11	0	12	12	2.328	0.0	4.859			
SUPERVISORY PERSONNEL	1	0	3	3	0.327	0.0	0.591			
ENGINEERING PERSONNEL	2	0	0	0	0.308	0.0	1.315			
TOTAL	93	9	86	188	20.997	2.852	20.820	44.669		44.669
IN-SERVICE INSPECTION										
MAINTENANCE PERSONNEL	4	24	14	14	1.134	6.056	3.534			
OPERATING PERSONNEL	1	1	1	1	0.152	0.0	0.975			
HEALTH PHYSICS PERSONNEL	0	0	1	1	0.0	0.0	0.121			
SUPERVISORY PERSONNEL	0	0	1	1	0.0	0.0	0.103			
ENGINEERING PERSONNEL	1	0	1	1	0.203	0.0	0.156			
TOTAL	6	25	24	55	1.689	6.179	4.889	12.357		12.357
SPECIAL MAINTENANCE										
MAINTENANCE PERSONNEL	84	96	535	535	37.020	30.136	233.866			
OPERATING PERSONNEL	28	11	25	25	12.064	4.306	8.566			
HEALTH PHYSICS PERSONNEL	13	0	62	62	6.424	0.0	24.044			
SUPERVISORY PERSONNEL	6	0	10	10	2.274	0.0	2.464			
ENGINEERING PERSONNEL	5	1	13	13	0.814	0.318	4.157			
TOTAL	136	108	645	889	58.616	34.760	273.097	366.473		366.473
WASTE PROCESSING										
MAINTENANCE PERSONNEL	0	0	2	2	0.0	0.0	0.269			
OPERATING PERSONNEL	2	0	0	0	0.486	0.0	0.0			
HEALTH PHYSICS PERSONNEL	11	14	30	30	4.470	2.372	7.758			
SUPERVISORY PERSONNEL	1	0	0	0	0.317	0.0	0.0			
ENGINEERING PERSONNEL	0	0	0	0	0.0	0.0	0.0			
TOTAL	14	14	32	60	5.273	2.372	8.027	15.672		15.672
REFUELING										
MAINTENANCE PERSONNEL	35	28	5	5	15.202	14.124	0.919			
OPERATING PERSONNEL	14	8	0	0	2.321	2.207	0.0			
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.0	0.0	0.0			
SUPERVISORY PERSONNEL	5	0	2	2	2.026	0.0	0.462			
ENGINEERING PERSONNEL	1	0	6	6	0.106	0.0	1.112			
TOTAL	55	36	13	104	19.655	16.331	2.493	38.479		38.479
TOTAL BY JOB FUNCTION										
MAINTENANCE PERSONNEL	192 (127)	155 (116)	606 (570)	953 (812)	68.869	52.821	249.650	371.340		371.340
OPERATING PERSONNEL	104 (84)	22 (17)	49 (47)	175 (148)	34.195	6.983	13.435	54.613		54.613
HEALTH PHYSICS PERSONNEL	53 (38)	14 (17)	112 (86)	179 (161)	17.525	2.372	39.134	59.031		59.031
SUPERVISORY PERSONNEL	14 (12)	0	16 (16)	30 (27)	5.061	0.0	3.620	8.681		8.681
ENGINEERING PERSONNEL	9 (9)	1 (2)	27 (30)	37 (41)	1.451	0.318	6.740	8.509		8.509
GRAND TOTAL	372 (270)	192 (161)	810 (768)	1374 (1178)	127.101	62.494	312.579	502.174		502.174

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

APPENDIX C (Cont.)
 PLANT: COOK 1.2 (PWR) NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION
 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM)		TOTAL		STATION		TOTAL MAN-REMS	
	EMPLOYEES	UTILITY	PERSONS	PERSONS	EMPLOYEES	UTILITY	EMPLOYEES	CONTRACT & OTHERS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	84	0	5		3,830	0.0	0.0	1,855
OPERATING PERSONNEL	69	0	2		28,385	0.0	0.0	0.150
HEALTH PHYSICS PERSONNEL	17	0	29		2,630	0.0	0.0	4,437
SUPERVISORY PERSONNEL	17	2	4		1,950	0.430	0.430	0.330
ENGINEERING PERSONNEL	9	0	1		0,500	0.0	0.0	0.040
TOTAL	196	2	71	269	37,295	0.430	0.430	6,812
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	117	0	192		85,680	0.0	0.0	33,433
OPERATING PERSONNEL	29	0	7		1,380	0.0	0.0	0.942
HEALTH PHYSICS PERSONNEL	17	0	31		2,470	0.0	0.0	6,974
SUPERVISORY PERSONNEL	11	1	11		2,580	0.140	0.140	2,150
ENGINEERING PERSONNEL	7	0	2		0,470	0.0	0.0	0.080
TOTAL	181	1	243	425	92,590	0.140	0.140	43,559
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	78	0	110		16,360	0.0	0.0	15,828
OPERATING PERSONNEL	9	0	11		1,140	0.0	0.0	3,648
HEALTH PHYSICS PERSONNEL	7	0	27		0,630	0.0	0.0	6,840
SUPERVISORY PERSONNEL	11	0	6		0,990	0.0	0.0	0.390
ENGINEERING PERSONNEL	10	0	12		1,170	0.0	0.0	2,990
TOTAL	115	0	166	281	20,290	0.0	0.0	29,696
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	82	1	425		15,080	0.140	0.140	207,965
OPERATING PERSONNEL	8	0	19		0,360	0.0	0.0	8,380
HEALTH PHYSICS PERSONNEL	11	0	34		0,840	0.0	0.0	7,642
SUPERVISORY PERSONNEL	9	5	24		1,650	3,980	3,980	11,182
ENGINEERING PERSONNEL	9	1	3		0,300	0.200	0.200	0.210
TOTAL	119	7	505	631	18,230	4,320	4,320	235,379
WASTE PROCESSING								
MAINTENANCE PERSONNEL	50	0	142		8,140	0.0	0.0	36,321
OPERATING PERSONNEL	26	0	10		1,390	0.0	0.0	8,244
HEALTH PHYSICS PERSONNEL	14	0	24		2,770	0.0	0.0	1,680
SUPERVISORY PERSONNEL	4	0	6		0,550	0.0	0.0	1,760
ENGINEERING PERSONNEL	3	0	1		3,130	0.0	0.0	0.100
TOTAL	97	0	183	280	15,980	0.0	0.0	48,105
REFUELING								
MAINTENANCE PERSONNEL	59	0	92		5,380	0.0	0.0	39,577
OPERATING PERSONNEL	12	0	2		0,770	0.0	0.0	0.410
HEALTH PHYSICS PERSONNEL	2	0	23		0,050	0.0	0.0	3,120
SUPERVISORY PERSONNEL	6	0	7		0,700	0.0	0.0	1,090
ENGINEERING PERSONNEL	2	0	2		0,880	0.0	0.0	0.340
TOTAL	81	0	126	207	7,120	0.0	0.0	44,537
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	470 (117)	1	996 (641)	1467 (669)	134,470	0.140	0.140	334,979
OPERATING PERSONNEL	153 (69)	0	51 (31)	204 (100)	33,425	0.0	0.0	21,774
HEALTH PHYSICS PERSONNEL	68 (18)	0	168 (36)	236 (84)	9,390	0.0	0.0	30,083
SUPERVISORY PERSONNEL	58 (20)	8 (5)	58 (27)	124 (62)	8,420	4,550	4,550	16,902
ENGINEERING PERSONNEL	40 (16)	1	21 (15)	62 (32)	5,790	0.200	0.200	3,740
GRAND TOTAL	789 (240)	10 (7)	1294 (650)	2093 (897)	191,495	4,890	4,890	604,473

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

APPENDIX C (Cont.) NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION 1981

PLANT: COOPER STATION	(BWR)	NUMBER OF PERSONNEL (>100 M-REM)	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
* WORK & JOB FUNCTION										
REACTOR OPERATIONS & SURV.										
MAINTENANCE PERSONNEL	3	0	0	0	0	3	1,091	0.0	0.0	0.0
OPERATING PERSONNEL	43	0	0	0	0	43	31,431	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	13	0	0	0	0	13	7,305	0.0	0.0	0.0
SUPERVISORY PERSONNEL	8	2	1	1	0	12	5,180	0.845	0.272	0.0
ENGINEERING PERSONNEL	19	5	0	0	0	24	12,463	0.382	0.0	0.0
TOTAL	86	7	1	1	1	96	57,470	1,227	0.272	58,969
* ROUTINE MAINTENANCE										
MAINTENANCE PERSONNEL	52	0	0	197	0	249	79,467	0.0	0.0	76,115
OPERATING PERSONNEL	8	0	0	0	0	8	0,493	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	13	0	0	0	0	13	5,780	0.0	0.0	0.0
SUPERVISORY PERSONNEL	6	0	1	1	0	8	1,072	0.0	0.084	0.0
ENGINEERING PERSONNEL	5	1	0	14	0	20	0,751	0.003	2,913	0.0
TOTAL	84	1	1	212	1	299	87,563	0.003	79,112	166,678
* IN-SERVICE INSPECTION										
MAINTENANCE PERSONNEL	0	0	0	13	0	13	0.0	0.0	3,730	0.0
OPERATING PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	1	0	0	0	0	1	0.009	0.0	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	3	0	0	0	0	3	0,459	0.0	0.0	0.0
TOTAL	4	0	0	13	0	17	0,468	0.0	3,730	4,198
* SPECIAL MAINTENANCE										
MAINTENANCE PERSONNEL	13	0	0	339	0	352	8,663	0.0	260,084	0.0
OPERATING PERSONNEL	3	0	0	0	0	3	0,565	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	7	0	0	0	0	7	2,042	0.0	0.0	0.0
SUPERVISORY PERSONNEL	1	6	8	18	0	25	0,073	4,690	4,350	0.0
ENGINEERING PERSONNEL	2	13	19	366	0	411	0,799	9,789	11,705	0.0
TOTAL	26	19	27	723	0	835	12,142	14,479	276,139	302,760
* WASTE PROCESSING										
MAINTENANCE PERSONNEL	2	0	0	0	0	2	0,050	0.0	0.0	0.0
OPERATING PERSONNEL	17	0	0	0	0	17	3,044	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	10	0	0	0	0	10	1,887	0.0	0.0	0.0
SUPERVISORY PERSONNEL	1	0	0	0	0	1	0,014	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0	0.0
TOTAL	30	0	0	0	0	30	4,995	0.0	0.0	4,995
* REFUELING										
MAINTENANCE PERSONNEL	1	0	0	0	0	1	0,579	0.0	0.0	0.0
OPERATING PERSONNEL	33	0	0	0	0	33	4,509	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	12	0	0	0	0	12	0,830	0.0	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	3	0	0	0	0	3	0,411	0.0	0.0	0.0
TOTAL	49	0	0	0	0	49	6,329	0.0	0.0	6,329
* TOTAL BY JOB FUNCTION										
MAINTENANCE PERSONNEL	71	0	0	549	0	620	89,830	0.0	339,929	429,779
OPERATING PERSONNEL	104	0	0	0	0	104	40,042	0.0	0.0	40,042
HEALTH PHYSICS PERSONNEL	56	0	0	0	0	56	17,853	0.0	0.0	17,853
SUPERVISORY PERSONNEL	16	8	10	10	0	34	6,339	5,535	4,706	16,580
ENGINEERING PERSONNEL	32	19	27	33	0	101	14,883	10,174	14,618	39,675
GRAND TOTAL	279	27	47	592	0	845	168,967	15,709	359,253	553,929

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

APPENDIX C (Cont.)

PLANT: CRYSTAL RIVER (PWR) NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION

WORK & JOB FUNCTION	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	2	0	0	2	0.040	0.0	0.030	0.0
OPERATING PERSONNEL	26	3	0	29	7.770	0.730	0.0	8.500
HEALTH PHYSICS PERSONNEL	31	0	0	31	7.600	0.0	0.0	7.600
SUPERVISORY PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
TOTAL	59	3	0	62	15.410	0.730	0.010	16.150
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	61	109	284	454	41.070	65.430	120.440	226.940
OPERATING PERSONNEL	22	2	2	26	5.850	0.460	0.400	6.710
HEALTH PHYSICS PERSONNEL	9	0	59	68	1.130	0.060	34.380	35.570
SUPERVISORY PERSONNEL	8	3	16	27	4.020	0.610	7.720	12.350
ENGINEERING PERSONNEL	3	1	28	32	0.670	0.320	21.640	22.630
TOTAL	103	115	389	607	52.740	66.880	184.580	304.200
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	10	10	0.050	0.050	2.500	2.600
OPERATING PERSONNEL	0	0	1	1	0.0	0.0	0.150	0.150
HEALTH PHYSICS PERSONNEL	0	0	1	1	0.0	0.0	0.380	0.380
SUPERVISORY PERSONNEL	0	0	1	1	0.0	0.0	0.440	0.440
ENGINEERING PERSONNEL	1	0	1	2	1.200	0.0	0.570	1.770
TOTAL	1	0	14	15	1.260	0.050	4.040	5.350
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
OPERATING PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
TOTAL	0	0	0	0	0.0	0.0	0.0	0.0
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	5	11	16	0.110	1.470	7.060	8.640
OPERATING PERSONNEL	0	0	3	3	0.040	0.0	3.300	3.380
HEALTH PHYSICS PERSONNEL	1	0	3	4	0.710	0.0	0.980	1.690
SUPERVISORY PERSONNEL	0	0	1	1	0.070	0.0	0.130	0.200
ENGINEERING PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
TOTAL	1	5	18	24	0.930	1.470	11.470	13.870
REFUELING								
MAINTENANCE PERSONNEL	11	31	14	56	3.400	8.770	5.470	17.640
OPERATING PERSONNEL	0	0	1	1	0.400	0.0	0.170	0.570
HEALTH PHYSICS PERSONNEL	0	0	4	4	0.020	0.0	1.010	1.030
SUPERVISORY PERSONNEL	0	0	1	1	0.170	0.010	0.340	0.520
ENGINEERING PERSONNEL	0	0	9	9	0.180	0.100	2.630	2.910
TOTAL	11	31	29	71	4.170	8.880	9.620	22.670
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	74	165	319	558	44.670	75.720	135.500	255.890
OPERATING PERSONNEL	48	5	7	60	14.060	1.190	4.020	19.270
HEALTH PHYSICS PERSONNEL	41	0	67	108	9.460	0.060	36.750	46.270
SUPERVISORY PERSONNEL	8	3	19	30	4.270	0.620	8.630	13.520
ENGINEERING PERSONNEL	4	1	38	43	2.050	0.420	24.850	27.320
GRAND TOTAL	175	154	450	779	74.510	78.010	209.750	362.270

* Workers may be counted in more than one category.

APPENDIX C (Cont.)

PLANT: DAVIS-BESSE 1 (PWR) NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) 1981				NUMBER OF PERSONNEL (>100 M-REM) 1981				TOTAL MAN-REMS			
	STATION		STATION		STATION		STATION		STATION		STATION	
	EMPLOYEES	UTILITY	EMPLOYEES	UTILITY	EMPLOYEES	UTILITY	EMPLOYEES	UTILITY	EMPLOYEES	UTILITY	EMPLOYEES	UTILITY
REACTION OPERATIONS: SURV.												
MAINTENANCE PERSONNEL	7	1	5	0	0.075	0.025	0.030	0.030	0.025	0.030	0.030	0.030
OPERATING PERSONNEL	15	0	0	0	0.165	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	6	0	5	0	0.205	0.0	0.125	0.125	0.0	0.125	0.125	0.125
SUPERVISORY PERSONNEL	13	0	6	0	0.250	0.0	0.110	0.110	0.0	0.110	0.110	0.110
ENGINEERING PERSONNEL	0	0	2	0	0.0	0.0	0.110	0.110	0.0	0.110	0.110	0.110
TOTAL	41	1	18	0	0.695	0.025	0.375	0.375	0.025	0.375	0.375	0.375
ROUTINE MAINTENANCE												
MAINTENANCE PERSONNEL	109	17	321	0	10.805	0.500	24.395	24.395	0.500	24.395	24.395	24.395
OPERATING PERSONNEL	73	0	3	0	6.515	0.0	0.050	0.050	0.0	0.050	0.050	0.050
HEALTH PHYSICS PERSONNEL	20	0	11	0	7.470	0.0	4.905	4.905	0.0	4.905	4.905	4.905
SUPERVISORY PERSONNEL	40	0	22	0	2.815	0.0	1.805	1.805	0.0	1.805	1.805	1.805
ENGINEERING PERSONNEL	1	4	14	0	0.015	0.390	0.535	0.535	0.390	0.535	0.535	0.535
TOTAL	243	21	371	0	27.620	0.890	31.690	31.690	0.890	31.690	31.690	31.690
IN-SERVICE INSPECTION												
MAINTENANCE PERSONNEL	10	1	0	0	0.135	0.005	0.0	0.0	0.005	0.0	0.0	0.0
OPERATING PERSONNEL	11	0	0	0	0.160	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	2	0	0	0	0.015	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	23	1	0	0	0.310	0.005	0.0	0.0	0.005	0.0	0.0	0.0
SPECIAL MAINTENANCE												
MAINTENANCE PERSONNEL	81	9	169	0	6.780	0.520	12.985	12.985	0.520	12.985	12.985	12.985
OPERATING PERSONNEL	7	0	0	0	0.100	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	8	0	1	0	0.230	0.0	0.065	0.065	0.0	0.065	0.065	0.065
SUPERVISORY PERSONNEL	15	0	12	0	0.365	0.0	0.715	0.715	0.0	0.715	0.715	0.715
ENGINEERING PERSONNEL	0	2	13	0	0.0	0.150	1.025	1.025	0.150	1.025	1.025	1.025
TOTAL	111	11	195	0	7.475	0.670	14.790	14.790	0.670	14.790	14.790	14.790
WASTE PROCESSING												
MAINTENANCE PERSONNEL	6	0	11	0	0.140	0.0	0.240	0.240	0.0	0.240	0.240	0.240
OPERATING PERSONNEL	1	0	0	0	0.125	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	1	0	0	0	0.030	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	4	0	2	0	0.055	0.0	0.025	0.025	0.0	0.025	0.025	0.025
ENGINEERING PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	12	0	13	0	0.350	0.0	0.265	0.265	0.0	0.265	0.265	0.265
REFUELING												
MAINTENANCE PERSONNEL	3	1	0	0	0.035	0.025	0.0	0.0	0.025	0.0	0.0	0.0
OPERATING PERSONNEL	5	0	0	0	0.035	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	1	0	0	0	0.020	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	7	0	0	0	0.080	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	1	0	0.0	0.0	0.010	0.010	0.0	0.010	0.010	0.010
TOTAL	16	1	1	0	0.170	0.025	0.010	0.010	0.025	0.010	0.010	0.010
TOTAL BY JOB FUNCTION												
MAINTENANCE PERSONNEL	216	29	506	0	17.970	1.075	37.650	37.650	1.075	37.650	37.650	37.650
OPERATING PERSONNEL	112	0	115	0	7.100	0.0	0.050	0.050	0.0	0.050	0.050	0.050
HEALTH PHYSICS PERSONNEL	36	0	53	0	7.955	0.0	5.095	5.095	0.0	5.095	5.095	5.095
SUPERVISORY PERSONNEL	81	0	42	0	3.580	0.0	2.655	2.655	0.0	2.655	2.655	2.655
ENGINEERING PERSONNEL	1	6	30	0	0.015	0.540	1.680	1.680	0.540	1.680	1.680	1.680
GRAND TOTAL	446	35	598	0	36.620	1.615	47.130	47.130	1.615	47.130	47.130	47.130

* Workers may be counted in more than one category.

** Doses are based on pocket dosimeter results.

APPENDIX C (Cont.)

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

PLANT: DRESDEN 1,2,3											
WORK & JOB FUNCTION	STATION EMPLOYEES	NUMBER OF PERSONNEL (>100 M-REM)			STATION EMPLOYEES	TOTAL MAN-REMS			TOTAL		
		EMPLOYEES	CONTRACT & OTHERS	PERSONS		UTILITY EMPLOYEES	CONTRACT & OTHERS	MAN-REMS			
REACTOR OPERATIONS & SURV...											
MAINTENANCE PERSONNEL	11	0	0	0	33,300	0.0	0.0	33,300	0.0	33,300	0.0
OPERATING PERSONNEL	32	3	0	0	47,000	1,300	0.0	48,300	0.0	48,300	0.0
HEALTH PHYSICS PERSONNEL	2	4	0	0	4,000	0.400	0.0	4,400	0.0	4,400	0.0
SUPERVISORY PERSONNEL	5	0	0	0	11,700	0.0	0.0	11,700	0.0	11,700	0.0
ENGINEERING PERSONNEL	3	0	0	0	1,200	0.0	0.0	1,200	0.0	1,200	0.0
TOTAL	53	7	0	0	97,200	1,700	0.0	98,900	0.0	98,900	0.0
ROUTINE MAINTENANCE											
MAINTENANCE PERSONNEL	73	26	0	0	218,200	36,200	0.0	254,400	0.0	254,400	0.0
OPERATING PERSONNEL	14	95	0	0	20,900	37,300	0.0	58,200	0.0	58,200	0.0
HEALTH PHYSICS PERSONNEL	26	165	0	0	62,700	20,500	0.0	83,200	0.0	83,200	0.0
SUPERVISORY PERSONNEL	17	0	0	0	39,700	0.0	0.0	39,700	0.0	39,700	0.0
ENGINEERING PERSONNEL	53	0	669	0	21,500	0.0	143,900	165,400	0.0	165,400	0.0
TOTAL	183	236	669	0	363,000	94,000	143,900	599,900	0.0	599,900	0.0
IN-SERVICE INSPECTION											
MAINTENANCE PERSONNEL	9	1	0	0	26,000	1,100	0.0	27,100	0.0	27,100	0.0
OPERATING PERSONNEL	3	3	0	0	4,200	1,300	0.0	5,500	0.0	5,500	0.0
HEALTH PHYSICS PERSONNEL	3	0	0	0	6,000	0.0	0.0	6,000	0.0	6,000	0.0
SUPERVISORY PERSONNEL	1	0	0	0	1,600	0.0	0.0	1,600	0.0	1,600	0.0
ENGINEERING PERSONNEL	7	0	21	0	2,600	0.0	43,600	46,200	0.0	46,200	0.0
TOTAL	23	4	21	0	40,400	2,400	43,600	86,400	0.0	86,400	0.0
SPECIAL MAINTENANCE											
MAINTENANCE PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OPERATING PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WASTE PROCESSING											
MAINTENANCE PERSONNEL	12	0	0	0	37,000	0.0	0.0	37,000	0.0	37,000	0.0
OPERATING PERSONNEL	17	5	0	0	24,000	2,100	0.0	26,100	0.0	26,100	0.0
HEALTH PHYSICS PERSONNEL	9	5	0	0	21,900	0.700	0.0	22,600	0.0	22,600	0.0
SUPERVISORY PERSONNEL	6	0	0	0	13,200	0.0	0.0	13,200	0.0	13,200	0.0
ENGINEERING PERSONNEL	4	0	14	0	1,700	0.0	30,400	32,100	0.0	32,100	0.0
TOTAL	48	10	14	0	97,800	2,800	30,400	131,000	0.0	131,000	0.0
REFUELING											
MAINTENANCE PERSONNEL	18	0	0	0	55,500	0.0	0.0	55,500	0.0	55,500	0.0
OPERATING PERSONNEL	6	0	0	0	8,400	0.0	0.0	8,400	0.0	8,400	0.0
HEALTH PHYSICS PERSONNEL	2	4	0	0	4,000	0.400	0.0	4,400	0.0	4,400	0.0
SUPERVISORY PERSONNEL	5	0	0	0	11,700	0.0	0.0	11,700	0.0	11,700	0.0
ENGINEERING PERSONNEL	36	0	0	0	2,000	0.0	0.0	2,000	0.0	2,000	0.0
TOTAL	67	4	0	0	82,600	0.400	0.0	83,000	0.0	83,000	0.0
TOTAL BY JOB FUNCTION											
MAINTENANCE PERSONNEL	123	27	0	0	370,000	37,300	0.0	407,300	0.0	407,300	0.0
OPERATING PERSONNEL	72	106	0	0	104,500	42,000	0.0	146,500	0.0	146,500	0.0
HEALTH PHYSICS PERSONNEL	42	178	0	0	99,600	22,000	0.0	121,600	0.0	121,600	0.0
SUPERVISORY PERSONNEL	34	0	0	0	77,900	0.0	0.0	77,900	0.0	77,900	0.0
ENGINEERING PERSONNEL	72	0	704	0	29,000	0.0	151,900	180,900	0.0	180,900	0.0
GRAND TOTAL	343	311	704	0	681,000	101,300	151,900	934,200	0.0	934,200	0.0

APPENDIX C (Cont.)

PLANT: DUANE ARNOLD (BWR) NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) 1981				TOTAL MAN-REMS			
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	13	12	39		0.676	1.616	2.407	
OPERATING PERSONNEL	34	3	7		30.218	0.292	0.129	
HEALTH PHYSICS PERSONNEL	10	0	75		2.482	0.0	15.248	
SUPERVISORY PERSONNEL	13	2	18		1.395	0.511	1.511	
ENGINEERING PERSONNEL	4	11	27		0.298	2.238	1.419	
TOTAL	74	28	166	268	35.069	4.429	19.716	59.212
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	27	48	369		20.286	21.767	296.832	
OPERATING PERSONNEL	33	7	8		18.903	6.730	0.320	
HEALTH PHYSICS PERSONNEL	4	0	71		0.075	0.0	13.310	
SUPERVISORY PERSONNEL	20	4	42		2.799	0.523	4.472	
ENGINEERING PERSONNEL	9	17	72		1.075	1.267	10.750	
TOTAL	93	76	562	731	43.138	30.287	325.684	399.109
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	10	14	186		0.235	0.969	24.560	
OPERATING PERSONNEL	14	0	4		1.219	0.0	0.288	
HEALTH PHYSICS PERSONNEL	12	0	41		7.467	0.0	17.001	
SUPERVISORY PERSONNEL	21	6	82		0.533	0.441	4.479	
ENGINEERING PERSONNEL	8	17	122		4.405	2.392	35.349	
TOTAL	65	37	435	537	13.859	3.802	81.677	99.338
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	23	29	358		16.283	19.122	185.939	
OPERATING PERSONNEL	27	3	8		7.786	0.930	0.220	
HEALTH PHYSICS PERSONNEL	1	0	28		0.010	0.0	1.353	
SUPERVISORY PERSONNEL	12	2	26		2.249	0.120	2.425	
ENGINEERING PERSONNEL	7	10	42		0.404	0.636	6.924	
TOTAL	70	44	462	576	26.732	20.808	196.863	244.603
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	5	14		0.0	0.321	1.490	
OPERATING PERSONNEL	8	2	6		17.323	1.320	7.056	
HEALTH PHYSICS PERSONNEL	1	0	3		0.015	0.0	0.025	
SUPERVISORY PERSONNEL	1	0	8		0.005	0.0	0.999	
ENGINEERING PERSONNEL	0	1	0		0.0	0.002	0.0	
TOTAL	10	8	31	49	17.343	1.643	9.570	28.556
REFUELLING								
MAINTENANCE PERSONNEL	3	4	10		0.020	0.518	0.180	
OPERATING PERSONNEL	34	3	5		4.763	0.245	0.806	
HEALTH PHYSICS PERSONNEL	1	0	13		0.010	0.0	0.210	
SUPERVISORY PERSONNEL	5	1	3		0.670	0.020	0.655	
ENGINEERING PERSONNEL	3	1	5		0.220	0.015	0.057	
TOTAL	46	9	36	91	5.683	0.798	1.908	8.389
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	76 (27)	112 (51)	976 (500)	1164 (578)	37.509	44.313	511.408	593.221
OPERATING PERSONNEL	150 (48)	18 (7)	38 (16)	206 (73)	80.212	9.517	8.819	98.548
HEALTH PHYSICS PERSONNEL	29 (14)	0	231 (101)	260 (115)	10.059	0.0	47.147	57.206
SUPERVISORY PERSONNEL	72 (32)	15 (9)	179 (108)	266 (149)	7.651	1.387	13.541	22.579
ENGINEERING PERSONNEL	31 (9)	57 (23)	268 (153)	356 (186)	6.492	6.550	54.501	67.543
GRAND TOTAL	358 (130)	202 (80)	1692 (880)	2252 (1100)	141.824	61.767	635.416	839.007

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

APPENDIX C (Cont.)

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

PLANT: FARLEY											
(PWR)											
NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION											
1981											
NUMBER OF PERSONNEL (>100 M-REM)											
TOTAL											
TOTAL MAN-REMS											
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*Workers may be counted in more than one category.

APPENDIX C (Cont.)

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

PLANT: FITZPATRICK											
(BWR)		NUMBER OF PERSONNEL (>100 M-REM)					TOTAL MAN-REMS				
		STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL		
		EMPLOYEES	EMPLOYEES	& OTHERS	PERSONS	EMPLOYEES	EMPLOYEES	& OTHERS	MAN-REMS		
* WORK & JOB FUNCTION											
REACTOR OPERATIONS & SURV.											
MAINTENANCE PERSONNEL	88	0	142			14,000	0.0	27,000			
OPERATING PERSONNEL	183	0	23			62,000	0.0	2,000			
HEALTH PHYSICS PERSONNEL	25	0	73			10,000	0.0	59,000			
SUPERVISORY PERSONNEL	0	0	0			0.0	0.0	0.0			
ENGINEERING PERSONNEL	34	0	35			3,000	0.0	2,000			
TOTAL	330	0	273		603	89,000	0.0	90,000			179,000
* ROUTINE MAINTENANCE											
MAINTENANCE PERSONNEL	89	0	707			134,000	0.0	238,000			
OPERATING PERSONNEL	74	0	13			11,000	0.0	2,000			
HEALTH PHYSICS PERSONNEL	6	0	3			0.0	0.0	0.0			
SUPERVISORY PERSONNEL	0	0	0			0.0	0.0	0.0			
ENGINEERING PERSONNEL	30	0	123			5,000	0.0	20,000			
TOTAL	199	0	846		1045	150,000	0.0	260,000			410,000
* IN-SERVICE INSPECTION											
MAINTENANCE PERSONNEL	43	0	206			6,000	0.0	26,000			
OPERATING PERSONNEL	49	0	15			8,000	0.0	10,000			
HEALTH PHYSICS PERSONNEL	0	0	4			0.0	0.0	0.0			
SUPERVISORY PERSONNEL	0	0	0			0.0	0.0	0.0			
ENGINEERING PERSONNEL	24	0	77			3,000	0.0	13,000			
TOTAL	116	0	302		418	17,000	0.0	49,000			66,000
* SPECIAL MAINTENANCE											
MAINTENANCE PERSONNEL	69	0	954			12,000	0.0	509,000			
OPERATING PERSONNEL	51	0	46			2,000	0.0	12,000			
HEALTH PHYSICS PERSONNEL	6	0	2			0.0	0.0	0.0			
SUPERVISORY PERSONNEL	0	0	0			0.0	0.0	0.0			
ENGINEERING PERSONNEL	23	0	110			2,000	0.0	35,000			
TOTAL	149	0	1112		1261	16,000	0.0	556,000			572,000
* WASTE PROCESSING											
MAINTENANCE PERSONNEL	104	0	299			19,000	0.0	40,000			
OPERATING PERSONNEL	61	0	12			45,000	0.0	6,000			
HEALTH PHYSICS PERSONNEL	10	0	6			1,000	0.0	0.0			
SUPERVISORY PERSONNEL	0	0	0			0.0	0.0	0.0			
ENGINEERING PERSONNEL	9	0	52			1,000	0.0	25,000			
TOTAL	184	0	369		553	66,000	0.0	71,000			137,000
* REFUELING											
MAINTENANCE PERSONNEL	0	0	0			0.0	0.0	0.0			
OPERATING PERSONNEL	0	0	0			0.0	0.0	0.0			
HEALTH PHYSICS PERSONNEL	0	0	0			0.0	0.0	0.0			
SUPERVISORY PERSONNEL	0	0	0			0.0	0.0	0.0			
ENGINEERING PERSONNEL	0	0	0			0.0	0.0	0.0			
TOTAL	0	0	0		0	0.0	0.0	0.0			0.0
* TOTAL BY JOB FUNCTION											
MAINTENANCE PERSONNEL	393	0	2308		2701	185,000	0.0	840,000			1025,000
OPERATING PERSONNEL	418	0	109		527	128,000	0.0	32,000			160,000
HEALTH PHYSICS PERSONNEL	47	0	88		135	11,000	0.0	59,000			70,000
SUPERVISORY PERSONNEL	0	0	0		0	0.0	0.0	0.0			0.0
ENGINEERING PERSONNEL	120	0	397		517	14,000	0.0	95,000			109,000
GRAND TOTAL	978	0	2902		3880	338,000	0.0	1026,000			1364,000

*Workers may be counted in more than one category.

APPENDIX C (Cont.)

PLANT: FORT CALHOUN 1 (PWR)	NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION									
	1981									
	NUMBER OF PERSONNEL (>100 M-REM)					TOTAL MAN-REMS				
WORK & JOB FUNCTION	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT EMPLOYEES	OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT EMPLOYEES	OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.										
MAINTENANCE PERSONNEL	9	1	11			3,401	1,506	7,873		
OPERATING PERSONNEL	9	8	12			3,222	6,130	7,706		
HEALTH PHYSICS PERSONNEL	1	1	0			0,563	0,191	0,0		
SUPERVISORY PERSONNEL	19	0	0			6,928	0,0	0,0		
ENGINEERING PERSONNEL	10	1	23			5,266	0,287	16,644		
TOTAL	48	11	46		105	19,380	8,114	32,423		59,917
ROUTINE MAINTENANCE										
MAINTENANCE PERSONNEL	44	45	48			24,845	26,970	25,809		
OPERATING PERSONNEL	2	2	10			1,338	0,968	7,100		
HEALTH PHYSICS PERSONNEL	0	0	0			0,040	0,005	0,0		
SUPERVISORY PERSONNEL	1	0	0			0,251	0,0	0,0		
ENGINEERING PERSONNEL	0	0	0			0,070	0,010	0,108		
TOTAL	47	47	58		152	26,544	27,953	33,017		87,514
IN-SERVICE INSPECTION										
MAINTENANCE PERSONNEL	2	1	18			1,460	0,420	11,043		
OPERATING PERSONNEL	1	2	7			0,0	0,284	0,202		
HEALTH PHYSICS PERSONNEL	0	0	0			0,0	0,015	0,0		
SUPERVISORY PERSONNEL	0	0	0			0,023	0,0	0,0		
ENGINEERING PERSONNEL	0	0	0			0,036	0,0	0,145		
TOTAL	3	3	26		32	1,519	0,719	11,390		13,628
SPECIAL MAINTENANCE										
MAINTENANCE PERSONNEL	37	51	168			19,216	28,964	134,940		
OPERATING PERSONNEL	5	13	20			1,844	6,606	7,053		
HEALTH PHYSICS PERSONNEL	1	0	0			0,170	0,022	0,007		
SUPERVISORY PERSONNEL	0	0	0			0,317	0,0	0,0		
ENGINEERING PERSONNEL	4	1	4			1,257	0,130	2,258		
TOTAL	47	65	192		304	22,804	35,722	144,258		202,784
WASTE PROCESSING										
MAINTENANCE PERSONNEL	20	10	0			5,947	2,357	0,080		
OPERATING PERSONNEL	0	0	0			0,0	0,046	0,0		
HEALTH PHYSICS PERSONNEL	0	0	0			0,060	0,010	0,0		
SUPERVISORY PERSONNEL	0	0	0			0,514	0,0	0,0		
ENGINEERING PERSONNEL	2	0	0			2,789	0,0	0,147		
TOTAL	22	10	0		33	9,310	2,413	0,227		11,950
REFUELING										
MAINTENANCE PERSONNEL	24	36	42			13,963	22,987	22,887		
OPERATING PERSONNEL	4	1	8			2,072	0,689	4,337		
HEALTH PHYSICS PERSONNEL	8	0	0			1,521	0,002	0,0		
SUPERVISORY PERSONNEL	14	0	0			3,273	0,0	0,0		
ENGINEERING PERSONNEL	0	0	0			0,070	0,0	0,100		
TOTAL	50	37	50		137	20,899	23,678	27,324		71,901
TOTAL BY JOB FUNCTION										
MAINTENANCE PERSONNEL	136	144	287		567	68,832	83,204	202,632		354,668
OPERATING PERSONNEL	21	26	57		104	8,476	14,723	26,398		49,597
HEALTH PHYSICS PERSONNEL	10	1	0		11	2,354	0,245	0,007		2,606
SUPERVISORY PERSONNEL	34	0	0		34	11,306	0,0	0,0		11,306
ENGINEERING PERSONNEL	16	2	29		47	9,488	0,427	19,602		29,517
GRAND TOTAL	217 (100)	173 (93)	373 (253)		763 (448)	100,456	98,596	248,639		447,694

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

APPENDIX C (Cont.)

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

PLANT: GINNA		(PWR)		NUMBER OF PERSONNEL (>100 M-REM)		1981		TOTAL		STATION		TOTAL		TOTAL		TOTAL	
				EMPLOYEES		CONTRACT & OTHERS		PERSONS		EMPLOYEES		EMPLOYEES		CONTRACT & OTHERS		MAN-REMS	
WORK & JOB FUNCTION		STATION		UTILITY		CONTRACT & OTHERS		PERSONS		EMPLOYEES		EMPLOYEES		CONTRACT & OTHERS		MAN-REMS	
REACTOR OPERATIONS & SURV.		121		34		130				7.276		3.146		5.579			
MAINTENANCE PERSONNEL		0		26		1				0.0		12.023		0.360			
OPERATING PERSONNEL		28		13		1				4.952		5.950		0.061			
HEALTH PHYSICS PERSONNEL		31		15		10				1.813		3.398		0.256			
SUPERVISORY PERSONNEL		33		2		11				0.736		0.205		0.290			
ENGINEERING PERSONNEL		213		90		153		456		14.777		24.722		6.546		46.045	
TOTAL		196		33		180				79.026		22.363		142.907			
ROUTINE MAINTENANCE		0		16		0				0.0		1.045		0.0			
MAINTENANCE PERSONNEL		29		13		1				12.658		7.237		0.065			
OPERATING PERSONNEL		33		12		13				7.385		3.382		5.783			
HEALTH PHYSICS PERSONNEL		58		2		10				35.118		0.119		8.249			
SUPERVISORY PERSONNEL		316		76		204		596		134.187		34.146		157.004		325.337	
ENGINEERING PERSONNEL		39		16		96				3.508		1.405		21.816			
IN-SERVICE INSPECTION		0		1		0				0.0		0.005		0.0			
MAINTENANCE PERSONNEL		18		12		0				1.230		1.172		0.0			
OPERATING PERSONNEL		9		9		9				1.226		0.756		1.782			
HEALTH PHYSICS PERSONNEL		27		1		2				7.058		0.013		0.565			
SUPERVISORY PERSONNEL		93		39		107		239		13.022		3.351		24.163		40.536	
ENGINEERING PERSONNEL		176		34		153				87.829		6.578		39.076			
SPECIAL MAINTENANCE		0		10		0				0.0		0.399		0.0			
MAINTENANCE PERSONNEL		29		11		0				8.511		2.007		0.0			
OPERATING PERSONNEL		32		13		10				7.365		1.148		0.857			
HEALTH PHYSICS PERSONNEL		38		2		7				6.359		0.004		0.859			
SUPERVISORY PERSONNEL		275		70		170		515		110.064		10.136		40.792		160.992	
ENGINEERING PERSONNEL		25		21		21				2.519		1.248		0.227			
WASTE PROCESSING		0		10		0				0.0		0.104		0.0			
MAINTENANCE PERSONNEL		10		6		0				0.722		0.890		0.0			
OPERATING PERSONNEL		2		5		0				0.118		0.017		0.0			
HEALTH PHYSICS PERSONNEL		3		0		3				0.007		0.0		0.0			
SUPERVISORY PERSONNEL		40		44		24		108		3.366		2.259		0.227		5.852	
ENGINEERING PERSONNEL		22		19		36				2.715		0.830		5.438			
REFUELING		0		4		0				0.0		2.363		0.0			
MAINTENANCE PERSONNEL		23		4		0				3.497		0.030		0.0			
OPERATING PERSONNEL		5		5		3				1.513		0.175		0.915			
HEALTH PHYSICS PERSONNEL		20		0		1				17.279		0.0		0.090			
SUPERVISORY PERSONNEL		70		32		40		142		25.004		3.398		6.443		34.845	
ENGINEERING PERSONNEL		579 (214)		157 (34)		616 (185)		1352 (433)		182.873		35.570		215.043		433.486	
TOTAL BY JOB FUNCTION		0		67 (28)		1		68 (27)		0.0		15.939		0.360		16.299	
MAINTENANCE PERSONNEL		137 (29)		61 (13)		2 (1)		200 (43)		31.570		17.286		0.126		48.982	
OPERATING PERSONNEL		112 (35)		59 (15)		45 (13)		216 (83)		19.420		8.876		9.593		37.889	
HEALTH PHYSICS PERSONNEL		179 (82)		7 (2)		34 (11)		220 (75)		66.557		0.341		10.053		76.951	
SUPERVISORY PERSONNEL		1007 (340)		351 (90)		698 (211)		2056 (641)		300.420		78.012		235.175		613.607	
ENGINEERING PERSONNEL		GRAND TOTAL															

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

APPENDIX C (Cont.)
NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION
1981

PLANT: HADDAM NECK									
(PWR)									
NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION									
1981									
NUMBER OF PERSONNEL (>100 M-REM)									
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*Workers may be counted in more than one category.

APPENDIX C (Cont.)

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

1981													
NUMBER OF PERSONNEL (>100 M-REM)													
(BWR)													
PLANT: HATCH 12													
STATION													
EMPLOYEES													
UTILITY													
CONTRACT													
OTHERS													
TOTAL MAN-REMS													
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*Workers may be counted in more than one category. Numbers in parentheses are total numbers of individuals.

APPENDIX C (Cont.)

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

Plant: Humboldt Bay (BWR)

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 mrem)				TOTAL MAN-REMS			
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REM
Reactor Operations & Surv.								
Maintenance Personnel	0				0			
Operating Personnel	6				1.4			
Health Physics Personnel	1				0.2			
Supervisory Personnel	1				0.1			
Engineering Personnel	1				0.2			
TOTAL	9	0	0	9	1.9	0.0	0.0	1.9
Routine Maintenance								
Maintenance Personnel	6				1.2			
Operating Personnel	0				0.0			
Health Physics Personnel	0				0.3			
Supervisory Personnel	0				0.0			
Engineering Personnel	0				0.0			
TOTAL	6	0	0	6	1.5	0.0	0.0	1.5
In-Service Inspection								
Maintenance Personnel								
Operating Personnel								
Health Physics Personnel								
Supervisory Personnel								
Engineering Personnel								
TOTAL	0	0	0	0	0.0	0.0	0.0	0.0
Special Maintenance								
Maintenance Personnel	0		0		0.0		0.0	
Operating Personnel	0		0		0.0		0.0	
Health Physics Personnel	1		0		0.2		0.6	
Supervisory Personnel	0		1		0.0		0.5	
Engineering Personnel	0		2		0.0		0.6	
TOTAL	1	0	3	4	0.2	0.0	1.1	1.3
Waste Processing								
Maintenance Personnel		1			0.0	0.1		
Operating Personnel		0			0.0	0.0		
Health Physics Personnel		0			0.2	0.0		
Supervisory Personnel		0			0.0	0.0		
Engineering Personnel		0			0.0	0.0		
TOTAL	0	1	0	1	0.2	0.1	0.0	0.3
Refueling								
Maintenance Personnel								
Operating Personnel								
Health Physics Personnel								
Supervisory Personnel								
Engineering Personnel								
TOTAL	0	0	0	0	0.0	0.0	0.0	0.0
Total By Job Function								
Maintenance Personnel	6	1	0	7	1.2	0.1	0.0	1.3
Operating Personnel	6	0	0	6	1.4	0.0	0.0	1.4
Health Physics Personnel	2	0	0	2	0.9	0.0	0.0	0.9
Supervisory Personnel	1	0	1	2	0.1	0.0	0.5	0.6
Engineering Personnel	1	0	2	3	0.2	0.0	0.6	0.8
GRAND TOTAL	16	1	3	20	3.8	0.1	1.1	5.0

APPENDIX C (Cont.)

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

PLANT: INDIAN POINT 1.2 (PMR)	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
WORK & JOB FUNCTION								
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	38	0	0	38	5,200	0.0	0.0	5,200
OPERATING PERSONNEL	91	0	0	91	171,600	0.0	0.0	171,600
HEALTH PHYSICS PERSONNEL	8	0	7	15	2,800	0.0	16,400	19,200
SUPERVISORY PERSONNEL	42	0	1	43	24,700	0.0	0.900	25,600
ENGINEERING PERSONNEL	7	16	1	24	4,800	1,700	0.500	6,500
TOTAL	186	16	9	211	209,100	1,700	17,800	228,600
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	34	14	67	115	94,200	11,800	62,500	168,500
OPERATING PERSONNEL	12	0	0	12	9,700	0.0	0.0	9,700
HEALTH PHYSICS PERSONNEL	8	0	19	27	1,800	0.0	11,200	13,000
SUPERVISORY PERSONNEL	12	4	0	16	31,500	7,500	0.0	39,000
ENGINEERING PERSONNEL	2	12	0	14	2,800	1,800	0.0	4,600
TOTAL	68	30	86	184	139,800	21,100	73,700	234,600
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	38	38	0.0	0.0	10,200	10,200
OPERATING PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	1	0	2	3	0.300	0.0	2,900	3,200
SUPERVISORY PERSONNEL	4	0	5	9	3,100	0.0	2,100	5,200
ENGINEERING PERSONNEL	0	1	0	1	0.0	0.300	0.0	0.300
TOTAL	5	1	45	51	3,400	0.300	15,200	18,900
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	302	1084	1386	0.0	495,800	1111,600	1607,400
OPERATING PERSONNEL	15	0	0	15	12,500	0.0	0.0	12,500
HEALTH PHYSICS PERSONNEL	6	0	113	119	17,200	0.0	105,800	123,000
SUPERVISORY PERSONNEL	4	41	37	82	1,400	56,800	94,200	152,400
ENGINEERING PERSONNEL	6	8	10	24	3,200	1,600	1,800	6,600
TOTAL	31	351	1244	1626	34,300	554,000	1263,400	1851,700
WASTE PROCESSING								
MAINTENANCE PERSONNEL	28	0	74	102	16,400	0.0	125,100	141,500
OPERATING PERSONNEL	5	0	8	13	4,700	0.0	6,100	10,800
HEALTH PHYSICS PERSONNEL	5	0	4	9	2,800	0.0	6,400	9,200
SUPERVISORY PERSONNEL	4	0	8	12	6,800	0.0	14,200	21,000
ENGINEERING PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
TOTAL	42	0	94	136	30,700	0.0	151,800	182,500
REFUELING								
MAINTENANCE PERSONNEL	14	34	14	62	21,600	40,900	12,300	74,800
OPERATING PERSONNEL	27	0	0	27	22,800	0.0	0.0	22,800
HEALTH PHYSICS PERSONNEL	1	0	5	6	0.400	0.0	3,200	3,600
SUPERVISORY PERSONNEL	11	4	0	15	8,800	6,200	0.0	15,000
ENGINEERING PERSONNEL	0	1	1	2	0.0	0.300	0.200	0.500
TOTAL	52	39	20	111	53,600	47,400	15,700	116,700
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	114	350	1277	1741	137,400	548,500	1321,700	2007,600
OPERATING PERSONNEL	150	0	8	158	221,300	0.0	6,100	227,400
HEALTH PHYSICS PERSONNEL	29	0	154	183	25,100	0.0	145,900	171,000
SUPERVISORY PERSONNEL	77	49	51	177	76,300	70,500	61,400	208,200
ENGINEERING PERSONNEL	15	38	12	65	10,800	5,500	2,500	18,800
GRAND TOTAL	385	437	1502	2324	470,900	624,500	1537,600	2633,000

APPENDIX C (Cont.)

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

PLANT: INDIAN POINT 3									
(PWR)									
NUMBER OF PERSONNEL (>100 M-REM)									
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STATION									
EMPLOYEES									
UTILITY									
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* Workers may be counted in more than one category.

APPENDIX C (Cont.)

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

1981

PLANT: KEWAUNEE	(PWR)	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
* WORK & JOB FUNCTION									
REACTOR OPERATIONS & SURV.									
MAINTENANCE PERSONNEL	2	0	0	0	2	3,404	0.0	0.0	3,404
OPERATING PERSONNEL	17	1	2	0	20	3,404	0.080	0.171	3,585
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	5	0	1	1	7	1,133	0.0	0.0	1,133
ENGINEERING PERSONNEL	3	2	2	2	9	0,252	0.324	0.408	2,984
TOTAL	27	3	5	3	38	8,193	0.404	0.579	8,772
* ROUTINE MAINTENANCE									
MAINTENANCE PERSONNEL	33	19	49	0	91	8,032	3,743	18,127	29,902
OPERATING PERSONNEL	13	1	4	0	18	1,240	0.035	0.050	1,295
HEALTH PHYSICS PERSONNEL	15	0	11	0	26	3,562	0.0	4,174	7,736
SUPERVISORY PERSONNEL	1	0	13	0	14	0,029	0.0	2,883	2,912
ENGINEERING PERSONNEL	3	1	2	0	6	0,016	0.015	0.032	0,063
TOTAL	65	21	79	2	147	12,879	3,793	25,269	41,941
* IN-SERVICE INSPECTION									
MAINTENANCE PERSONNEL	0	0	25	0	25	0.0	0.0	13,219	13,219
OPERATING PERSONNEL	0	0	7	0	7	0.0	0.0	2,960	2,960
HEALTH PHYSICS PERSONNEL	2	0	0	0	2	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	1	0	0	0	1	0,040	0.0	0.0	0,040
ENGINEERING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
TOTAL	3	0	32	0	35	0,040	0.0	16,179	16,219
* SPECIAL MAINTENANCE									
MAINTENANCE PERSONNEL	32	19	93	0	144	5,085	1,921	31,656	38,662
OPERATING PERSONNEL	7	1	6	0	14	0,708	0.111	0.205	7,904
HEALTH PHYSICS PERSONNEL	5	0	0	0	5	0,003	0.0	0.0	5,003
SUPERVISORY PERSONNEL	2	0	1	0	3	0,078	0.0	0.0	8,078
ENGINEERING PERSONNEL	2	2	3	0	7	0,260	0.085	0.397	3,042
TOTAL	48	22	103	0	173	6,134	2,117	32,258	40,509
* WASTE PROCESSING									
MAINTENANCE PERSONNEL	15	14	10	0	39	0,670	0.086	0.715	7,471
OPERATING PERSONNEL	5	1	2	0	8	2,799	0.0	0.0	2,804
HEALTH PHYSICS PERSONNEL	10	0	0	0	10	1,851	0.0	0.0	1,851
SUPERVISORY PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
TOTAL	30	15	12	0	57	5,320	0.086	0.715	6,121
* REFUELING									
MAINTENANCE PERSONNEL	16	16	8	0	40	2,503	3,208	1,459	7,170
OPERATING PERSONNEL	10	1	12	0	23	0,386	0.0	8,395	8,781
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	2	0	0	0	2	0,101	0.0	0.0	2,101
ENGINEERING PERSONNEL	2	0	0	0	2	0,009	0.0	0.0	2,009
TOTAL	30	17	20	0	67	2,999	3,208	9,854	16,061
* TOTAL BY JOB FUNCTION									
MAINTENANCE PERSONNEL	98	68	185	0	351	16,630	8,938	65,176	90,744
OPERATING PERSONNEL	52	5	33	0	90	8,537	0,226	11,781	20,544
HEALTH PHYSICS PERSONNEL	32	0	11	0	43	5,416	0.0	4,174	9,590
SUPERVISORY PERSONNEL	11	0	15	0	26	1,381	0.0	2,883	4,264
ENGINEERING PERSONNEL	10	5	7	0	22	0,537	0,424	0,840	1,801
GRAND TOTAL	203	78	251	0	532	32,501	9,608	84,854	126,963

Workers may be counted in more than one category.

APPENDIX C (Cont.)

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

PLANT: LACROISE		(BWR)	NUMBER OF PERSONNEL (>100 M-REM)				1981				TOTAL MAN-REMS				
			STATION	UTILITY	CONTRACT	STATION	UTILITY	CONTRACT	STATION	UTILITY	CONTRACT	STATION	UTILITY	CONTRACT	TOTAL
			EMPLOYEES	EMPLOYEES	EMPLOYEES	EMPLOYEES	EMPLOYEES	EMPLOYEES	EMPLOYEES	EMPLOYEES	EMPLOYEES	EMPLOYEES	EMPLOYEES	EMPLOYEES	MAN-REMS
* WORK & JOB FUNCTION															
REACTOR OPERATIONS & SURV.															
MAINTENANCE PERSONNEL		9	0	0	0	0	0	0	3.174	0.0	0.0	0.0	0.0	0.0	
OPERATING PERSONNEL		20	0	0	0	0	0	0	35.208	0.0	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL		7	0	0	0	0	0	0	8.943	0.0	0.0	0.0	0.088	0.0	
SUPERVISORY PERSONNEL		11	0	0	0	0	0	0	8.534	0.0	0.0	0.0	0.213	0.0	
ENGINEERING PERSONNEL		5	0	0	0	0	0	0	2.944	0.029	0.175	0.0	0.0	0.0	
TOTAL		52	0	0	0	0	0	0	57.903	0.029	0.175	0.0	0.0	0.0	58.408
* ROUTINE MAINTENANCE															
MAINTENANCE PERSONNEL		18	0	0	1	0	0	0	23.603	0.0	0.0	0.0	0.256	0.0	
OPERATING PERSONNEL		6	0	0	0	0	0	0	2.076	0.0	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL		6	0	0	0	0	0	0	1.604	0.0	0.0	0.0	0.0	0.0	
SUPERVISORY PERSONNEL		8	0	0	0	0	0	0	4.304	0.0	0.0	0.0	0.002	0.0	
ENGINEERING PERSONNEL		1	0	0	0	0	0	0	0.643	0.0	0.060	0.0	0.0	0.0	
TOTAL		39	0	0	1	0	0	0	32.230	0.0	0.0	0.0	0.258	0.0	32.538
* IN-SERVICE INSPECTION															
MAINTENANCE PERSONNEL		6	0	0	0	0	0	0	1.174	0.0	0.0	0.0	0.0	0.0	
OPERATING PERSONNEL		0	0	0	0	0	0	0	0.172	0.0	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL		0	0	0	0	0	0	0	0.024	0.0	0.0	0.0	0.0	0.0	
SUPERVISORY PERSONNEL		1	0	0	0	0	0	0	0.232	0.0	0.0	0.0	0.0	0.0	
ENGINEERING PERSONNEL		0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL		7	0	0	0	0	0	0	1.602	0.0	0.0	0.0	0.0	0.0	1.602
* SPECIAL MAINTENANCE															
MAINTENANCE PERSONNEL		14	2	0	0	0	0	0	7.472	0.310	0.002	0.0	0.0	0.0	
OPERATING PERSONNEL		7	0	0	0	0	0	0	1.866	0.0	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL		5	0	0	0	0	0	0	1.894	0.0	0.0	0.0	0.0	0.0	
SUPERVISORY PERSONNEL		5	0	0	0	0	0	0	2.006	0.0	0.0	0.0	0.0	0.0	
ENGINEERING PERSONNEL		3	0	0	0	0	0	0	1.922	0.0	0.134	0.0	0.0	0.0	
TOTAL		34	2	0	0	0	0	0	15.160	0.310	0.136	0.0	0.0	0.0	15.606
* WASTE PROCESSING															
MAINTENANCE PERSONNEL		2	0	2	2	0	0	0	0.478	0.0	1.448	0.0	0.0	0.0	
OPERATING PERSONNEL		4	0	0	0	0	0	0	0.821	0.0	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL		3	0	0	0	0	0	0	0.905	0.0	0.0	0.0	0.0	0.0	
SUPERVISORY PERSONNEL		1	0	0	0	0	0	0	0.650	0.0	0.0	0.0	0.0	0.0	
ENGINEERING PERSONNEL		0	0	0	0	0	0	0	0.050	0.0	0.0	0.0	0.0	0.0	
TOTAL		10	0	2	2	0	0	0	2.904	0.0	1.448	0.0	0.0	0.0	4.352
* REFUELING															
MAINTENANCE PERSONNEL		5	0	0	0	0	0	0	1.501	0.0	0.0	0.0	0.0	0.0	
OPERATING PERSONNEL		0	0	0	0	0	0	0	0.555	0.0	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL		3	0	0	0	0	0	0	0.537	0.0	0.0	0.0	0.0	0.0	
SUPERVISORY PERSONNEL		1	0	1	1	0	0	0	0.277	0.0	0.135	0.0	0.0	0.0	
ENGINEERING PERSONNEL		1	0	0	0	0	0	0	0.217	0.0	0.018	0.0	0.0	0.0	
TOTAL		10	0	1	1	0	0	0	3.087	0.0	0.153	0.0	0.0	0.0	3.240
* TOTAL BY JOB FUNCTION															
MAINTENANCE PERSONNEL		54 (18)	2	3	3	0	0	0	37.402	0.310	1.706	0.0	0.0	0.0	39.418
OPERATING PERSONNEL		37 (20)	0	0	0	0	0	0	40.698	0.0	0.0	0.0	0.0	0.0	40.698
HEALTH PHYSICS PERSONNEL		24 (8)	0	0	0	0	0	0	13.907	0.0	0.088	0.0	0.0	0.0	13.995
SUPERVISORY PERSONNEL		27 (18)	0	1	1	0	0	0	16.003	0.0	0.350	0.0	0.0	0.0	16.353
ENGINEERING PERSONNEL		10 (7)	0	0	0	0	0	0	4.876	0.029	0.387	0.0	0.0	0.0	5.292
GRAND TOTAL		152 (71)	2	4	4	0	0	0	112.886	0.339	2.531	0.0	0.0	0.0	115.756

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

APPENDIX C (Cont.)

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

PLANT: MAINE YANKEE	(PMR)	1981					1981				
		NUMBER OF PERSONNEL (>100 M-REM)					NUMBER OF PERSONNEL (>100 M-REM)				
		STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS		STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS	
* WORK & JOB FUNCTION											
REACTOR OPERATIONS & SURV.											
MAINTENANCE PERSONNEL	0	0	0	0	0	0	0.410	0.005	0.115	0.525	
OPERATING PERSONNEL	17	0	0	0	0	0	4.490	0.0	0.030	4.520	
HEALTH PHYSICS PERSONNEL	4	0	0	1	1	1	1.140	0.0	0.210	1.350	
SUPERVISORY PERSONNEL	1	0	0	0	0	0	0.370	0.047	0.122	0.539	
ENGINEERING PERSONNEL	3	0	0	4	4	4	1.140	0.385	1.277	2.802	
TOTAL	25	0	0	5	30	30	7.550	0.437	1.754	9.741	
* ROUTINE MAINTENANCE											
MAINTENANCE PERSONNEL	33	0	0	19	19	19	18.351	0.0	6.414	24.765	
OPERATING PERSONNEL	2	0	0	0	0	0	1.122	0.0	0.105	1.227	
HEALTH PHYSICS PERSONNEL	6	0	0	1	1	1	1.930	0.0	0.230	2.160	
SUPERVISORY PERSONNEL	1	0	0	0	0	0	0.276	0.0	0.005	0.281	
ENGINEERING PERSONNEL	2	0	0	2	2	2	0.550	0.010	0.355	1.215	
TOTAL	44	0	0	22	66	66	22.229	0.010	7.109	29.348	
* IN-SERVICE INSPECTION											
MAINTENANCE PERSONNEL	3	0	0	49	49	49	0.850	0.0	28.478	29.328	
OPERATING PERSONNEL	0	0	0	0	0	0	0.165	0.0	0.005	0.170	
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0	0.0	
SUPERVISORY PERSONNEL	0	0	0	1	1	1	0.0	0.0	0.170	0.170	
ENGINEERING PERSONNEL	1	1	1	20	20	20	0.395	0.355	8.875	9.625	
TOTAL	4	1	1	70	75	75	1.410	0.355	37.528	39.293	
* SPECIAL MAINTENANCE											
MAINTENANCE PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0	0.0	
OPERATING PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0	0.0	
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0	0.0	
TOTAL	0	0	0	0	0	0	0.0	0.0	0.0	0.0	
* WASTE PROCESSING											
MAINTENANCE PERSONNEL	11	0	0	11	11	11	3.870	0.0	4.395	8.265	
OPERATING PERSONNEL	20	0	0	2	2	2	5.892	0.0	0.895	6.787	
HEALTH PHYSICS PERSONNEL	2	0	0	1	1	1	0.265	0.0	0.245	0.510	
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0.090	0.160	0.005	0.255	
ENGINEERING PERSONNEL	0	0	0	0	0	0	0.167	0.0	0.005	0.172	
TOTAL	33	0	0	14	47	47	10.284	0.160	5.545	15.929	
* REFUELLING											
MAINTENANCE PERSONNEL	32	0	0	282	282	282	26.360	0.0	187.953	214.313	
OPERATING PERSONNEL	37	0	0	2	2	2	18.876	0.0	0.237	19.113	
HEALTH PHYSICS PERSONNEL	11	0	0	43	43	43	4.704	0.0	25.654	30.358	
SUPERVISORY PERSONNEL	5	0	0	1	1	1	3.655	0.025	0.496	4.176	
ENGINEERING PERSONNEL	11	6	6	23	23	23	5.295	3.137	9.930	18.362	
TOTAL	96	6	6	351	453	453	58.890	3.162	224.270	286.322	
* TOTAL BY JOB FUNCTION											
MAINTENANCE PERSONNEL	79	0	0	361	440	440	49.841	0.005	227.355	277.201	
OPERATING PERSONNEL	76	0	0	4	80	80	30.545	0.0	1.267	31.812	
HEALTH PHYSICS PERSONNEL	23	0	0	46	69	69	8.039	0.0	26.344	34.383	
SUPERVISORY PERSONNEL	7	0	0	2	9	9	4.391	0.232	0.798	5.421	
ENGINEERING PERSONNEL	17	7	7	49	73	73	7.547	3.887	20.442	31.876	
GRAND TOTAL	202	7	7	462	671	671	100.363	4.124	276.206	380.693	

APPENDIX C (Cont.)

PLANT: MILLSTONE 1 (BWR) NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) 1981				TOTAL MAN-REMS			
	STATION EMPLOYEES		TOTAL PERSONS		STATION EMPLOYEES		TOTAL MAN-REMS	
	EMPLOYEES	CONTRACT EMPLOYEES	EMPLOYEES	CONTRACT EMPLOYEES	EMPLOYEES	CONTRACT EMPLOYEES	EMPLOYEES	CONTRACT EMPLOYEES
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	15	0	2		10.400	0.010	0.690	
OPERATING PERSONNEL	54	0	0		49.990	0.0	0.180	
HEALTH PHYSICS PERSONNEL	15	3	47		9.210	1.920	15.050	
SUPERVISORY PERSONNEL	0	0	0		0.160	0.0	0.0	
ENGINEERING PERSONNEL	1	0	0		0.960	0.090	0.640	
TOTAL	85	3	50		70.720	2.020	16.560	89.300
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	4	0	1		2.380	0.120	0.320	
OPERATING PERSONNEL	0	0	0		0.430	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0		0.060	0.0	0.160	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0		0.0	0.0	0.030	
TOTAL	4	0	1		2.870	0.120	0.510	3.400
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	1	0	45		0.250	0.130	14.020	
OPERATING PERSONNEL	0	0	0		0.440	0.0	0.070	
HEALTH PHYSICS PERSONNEL	0	0	2		0.170	0.050	1.160	
SUPERVISORY PERSONNEL	0	0	0		0.040	0.0	0.010	
ENGINEERING PERSONNEL	3	2	13		1.210	2.290	7.280	
TOTAL	4	2	60		2.110	2.470	22.540	27.120
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	47	40	1178		70.350	26.690	857.680	
OPERATING PERSONNEL	40	0	43		12.590	0.050	48.350	
HEALTH PHYSICS PERSONNEL	16	4	103		11.060	1.830	73.690	
SUPERVISORY PERSONNEL	4	0	7		0.790	0.0	3.190	
ENGINEERING PERSONNEL	19	21	102		8.720	11.340	66.210	
TOTAL	126	65	1433		103.510	39.910	1049.120	1192.540
WASTE PROCESSING								
MAINTENANCE PERSONNEL	2	0	24		0.760	0.100	13.230	
OPERATING PERSONNEL	29	0	1		9.960	0.0	0.770	
HEALTH PHYSICS PERSONNEL	5	2	11		2.260	0.460	3.790	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	1	0	7		0.540	0.0	7.710	
TOTAL	37	2	43		13.520	0.560	25.500	39.380
REFUELING								
MAINTENANCE PERSONNEL	26	12	5		14.450	8.650	3.040	
OPERATING PERSONNEL	35	0	0		10.700	0.0	0.250	
HEALTH PHYSICS PERSONNEL	2	0	10		0.570	0.110	3.390	
SUPERVISORY PERSONNEL	0	0	0		0.130	0.0	0.0	
ENGINEERING PERSONNEL	4	5	4		1.590	2.250	1.690	
TOTAL	67	17	19		27.440	11.010	8.370	46.820
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	95	52	1255		98.590	33.700	888.980	1023.270
OPERATING PERSONNEL	158	0	44		84.110	0.050	49.620	133.780
HEALTH PHYSICS PERSONNEL	38	9	173		23.330	4.370	97.240	124.940
SUPERVISORY PERSONNEL	4	0	7		1.120	0.0	3.200	4.320
ENGINEERING PERSONNEL	28	28	127		13.020	15.970	83.560	112.550
GRAND TOTAL	323	89	1606		220.170	56.090	1122.600	1398.860

* Workers may be counted in more than one category.

APPENDIX C (Cont.)

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

PLANT: MILLSTONE 2 (PMR) 1981

PLANT: MILLSIDE 2	(PK)	NUMBER OF PERSONNEL (>100 M-REM)				STATION EMPLOYEES	UTILITY EMPLOYEES	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	TOTAL MAN-REMS	
		EMPLOYEES	CONTRACT & OTHERS	CONTRACT & OTHERS	MAN-REMS							
* WORK & JOB FUNCTION												
REACTOR OPERATIONS & SURV.												
MAINTENANCE PERSONNEL	3	1	0	0	1,290	0.260	0.030					
OPERATING PERSONNEL	35	0	0	0	17,130	0.0	0.020					
HEALTH PHYSICS PERSONNEL	13	0	41	0	8,910	0.110	11.120					
SUPERVISORY PERSONNEL	0	0	0	0	0.110	0.0	0.0					
ENGINEERING PERSONNEL	3	1	2	0	1,000	0.500	0.610					
TOTAL	54	2	43	99	28,440	0.770	11.780				40,990	
* ROUTINE MAINTENANCE												
MAINTENANCE PERSONNEL	8	0	0	0	1,740	0.020	0.100					
OPERATING PERSONNEL	0	0	0	0	0.010	0.0	0.0					
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.050	0.0	0.0					
SUPERVISORY PERSONNEL	0	0	0	0	0.0	0.0	0.0					
ENGINEERING PERSONNEL	0	0	0	0	0.0	0.0	0.0					
TOTAL	8	0	0	8	1,800	0.020	0.100				1,920	
* IN-SERVICE INSPECTION												
MAINTENANCE PERSONNEL	1	0	25	0	0.640	0.090	12.750					
OPERATING PERSONNEL	0	0	4	0	0.0	0.0	5.060					
HEALTH PHYSICS PERSONNEL	0	0	7	0	0.0	0.0	2.110					
SUPERVISORY PERSONNEL	0	0	0	0	0.0	0.0	0.140					
ENGINEERING PERSONNEL	0	0	12	0	0.0	0.0	7.350					
TOTAL	1	0	48	49	0.640	0.090	27.410				28,140	
* SPECIAL MAINTENANCE												
MAINTENANCE PERSONNEL	49	32	409	0	49,780	11.810	256.310					
OPERATING PERSONNEL	32	0	16	0	8,410	0.0	10.750					
HEALTH PHYSICS PERSONNEL	8	1	52	0	5,250	0.450	18.780					
SUPERVISORY PERSONNEL	0	0	5	0	0.070	0.0	5.460					
ENGINEERING PERSONNEL	9	8	45	0	3,050	2.920	21.280					
TOTAL	98	41	527	666	66,560	15.180	312.580				394,320	
* WASTE PROCESSING												
MAINTENANCE PERSONNEL	7	0	8	0	2,310	0.010	1.980					
OPERATING PERSONNEL	6	0	0	0	1,880	0.0	0.200					
HEALTH PHYSICS PERSONNEL	3	0	0	0	0.810	0.0	0.950					
SUPERVISORY PERSONNEL	0	0	0	0	0.0	0.0	0.0					
ENGINEERING PERSONNEL	0	0	0	0	0.040	0.0	0.020					
TOTAL	16	0	8	24	5,040	0.010	3.150				8,200	
* REFUELING												
MAINTENANCE PERSONNEL	23	0	15	0	10,200	0.020	8.370					
OPERATING PERSONNEL	0	0	0	0	0.580	0.0	0.0					
HEALTH PHYSICS PERSONNEL	0	0	2	0	0.0	0.0	0.610					
SUPERVISORY PERSONNEL	0	0	0	0	0.0	0.0	0.010					
ENGINEERING PERSONNEL	0	0	7	0	0.010	0.060	3.280					
TOTAL	23	0	24	47	10,790	0.080	12.270				23,140	
* TOTAL BY JOB FUNCTION												
MAINTENANCE PERSONNEL	91	33	457	581	65,960	12.210	279.540				357,710	
OPERATING PERSONNEL	73	0	20	93	28,010	0.0	16.030				44,040	
HEALTH PHYSICS PERSONNEL	24	1	102	127	15,020	0.560	33.570				49,150	
SUPERVISORY PERSONNEL	0	0	5	5	0.180	0.0	5.610				5,790	
ENGINEERING PERSONNEL	12	9	66	87	4,100	3.380	32.540				40,020	
GRAND TOTAL	200	43	650	893	113,270	16.150	367.290				496,710	

* Workers may be counted in more than one category.

APPENDIX C (Cont.)

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

1981

(BWR)

PLANT: MONTICELLO

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM)			TOTAL			TOTAL MAN-REMS		
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	MAN-REMS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.									
MAINTENANCE PERSONNEL	52	42	246		16,420	1,811	19,052		
OPERATING PERSONNEL	47	0	2		36,804	0.0	0.043		
HEALTH PHYSICS PERSONNEL	21	0	32		10,062	0.0	5,058		
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0		
ENGINEERING PERSONNEL	25	15	48		4,838	0.766	4,872		
TOTAL	145	57	328	530	68,129	2,577	29,031		99,732
ROUTINE MAINTENANCE									
MAINTENANCE PERSONNEL	59	107	393		19,445	12,121	50,503		
OPERATING PERSONNEL	32	0	0		1,751	0.0	0.0		
HEALTH PHYSICS PERSONNEL	10	0	13		0,415	0.0	1,330		
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0		
ENGINEERING PERSONNEL	21	13	49		1,705	0.545	3,544		
TOTAL	122	120	455	697	23,316	12,686	55,377		91,379
IN-SERVICE INSPECTION									
MAINTENANCE PERSONNEL	10	16	18		0,804	1,254	2,556		
OPERATING PERSONNEL	0	0	0		0.0	0.0	0.0		
HEALTH PHYSICS PERSONNEL	0	0	0		0.0	0.0	0.0		
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0		
ENGINEERING PERSONNEL	8	4	18		0,125	3,507	13,222		
TOTAL	18	20	36	74	0,929	4,761	15,778		21,468
SPECIAL MAINTENANCE									
MAINTENANCE PERSONNEL	55	110	605		25,190	49,508	521,463		
OPERATING PERSONNEL	44	0	0		22,613	0.0	0.0		
HEALTH PHYSICS PERSONNEL	21	0	38		3,881	0.0	26,965		
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0		
ENGINEERING PERSONNEL	22	24	110		7,514	10,948	89,295		
TOTAL	142	134	753	1029	59,198	60,456	637,723		757,377
WASTE PROCESSING									
MAINTENANCE PERSONNEL	23	0	5		1,005	0.0	0,524		
OPERATING PERSONNEL	27	0	2		2,558	0.0	2,285		
HEALTH PHYSICS PERSONNEL	9	0	1		1,023	0.0	0,045		
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0		
ENGINEERING PERSONNEL	2	0	3		0,014	0.0	0,102		
TOTAL	61	0	11	72	4,600	0.0	2,956		7,556
REFUELING									
MAINTENANCE PERSONNEL	22	33	11		1,151	1,740	0,690		
OPERATING PERSONNEL	45	0	0		4,516	0.0	0.0		
HEALTH PHYSICS PERSONNEL	0	0	2		0.0	0.0	0,503		
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0		
ENGINEERING PERSONNEL	5	1	19		0,334	0,109	4,881		
TOTAL	72	34	32	138	6,001	1,849	6,074		13,924
TOTAL BY JOB FUNCTION									
MAINTENANCE PERSONNEL	221	308	1278	1807	64,015	66,434	594,794		725,243
OPERATING PERSONNEL	195	0	4	199	68,242	0.0	2,328		70,570
HEALTH PHYSICS PERSONNEL	61	0	86	147	15,381	0.0	33,901		49,282
SUPERVISORY PERSONNEL	0	0	0	0	0.0	0.0	0.0		0.0
ENGINEERING PERSONNEL	83	57	247	387	14,530	15,895	115,916		146,341
GRAND TOTAL	560	365	1615	2540	162,168	82,329	746,939		991,436

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

**Included maintenance performed in primary containment during plant shutdown, fire penetration upgrade, and torus, core spray pipe, and feedwater sparger modifications.

APPENDIX C (Cont.)

PLANT: ¹NINE MILE POINT (BWR) NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION

* WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM)				1981			
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	137	39	172		19,009	1,818	9,669	
HEALTH PHYSICS PERSONNEL	134	0	8		27,113	0.0	1,174	
SUPERVISORY PERSONNEL	26	0	75		33,158	0.0	32,879	
ENGINEERING PERSONNEL	40	0	15		14,446	0.0	0,829	
TOTAL	21	10	33		1,723	0.213	2,032	
	338	49	303	710	95,449	2,031	46,583	144,063
* ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	269	104	699		78,243	31,654	100,230	
OPERATING PERSONNEL	168	0	10		12,041	0.0	2,785	
HEALTH PHYSICS PERSONNEL	35	0	86		1,711	0.0	10,417	
SUPERVISORY PERSONNEL	43	0	22		2,857	0.0	3,325	
ENGINEERING PERSONNEL	30	14	59		2,342	0.223	3,460	
TOTAL	545	118	876	1539	97,194	31,877	120,217	249,288
* IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	24	23	146		1,013	0.329	107,504	
OPERATING PERSONNEL	18	0	2		0,101	0.0	0,007	
HEALTH PHYSICS PERSONNEL	6	0	14		0,192	0.0	0,154	
SUPERVISORY PERSONNEL	5	0	10		0,155	0.0	5,775	
ENGINEERING PERSONNEL	2	8	12		0,015	0.278	0,706	
TOTAL	59	31	184	274	1,436	0.607	114,146	116,189
* SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	533	369	1201		95,946	71,957	626,861	
OPERATING PERSONNEL	131	0	16		4,823	0.0	4,975	
HEALTH PHYSICS PERSONNEL	49	0	103		1,369	0.0	9,588	
SUPERVISORY PERSONNEL	70	0	33		8,511	0.0	5,744	
ENGINEERING PERSONNEL	51	32	127		3,042	2,138	32,783	
TOTAL	834	401	1480	2715	118,691	74,095	679,953	872,739
* WASTE PROCESSING								
MAINTENANCE PERSONNEL	87	29	74		22,457	1,543	5,586	
OPERATING PERSONNEL	50	0	2		15,521	0.0	0,212	
HEALTH PHYSICS PERSONNEL	20	0	26		4,308	0.0	9,537	
SUPERVISORY PERSONNEL	10	0	1		1,583	0.0	0,100	
ENGINEERING PERSONNEL	4	2	6		0,414	0.030	0,120	
TOTAL	171	31	109	311	44,283	1,573	15,553	61,411
* REFUELING								
MAINTENANCE PERSONNEL	111	62	248		22,700	22,765	64,796	
OPERATING PERSONNEL	48	0	5		8,454	0.0	0,617	
HEALTH PHYSICS PERSONNEL	12	0	28		1,031	0.0	3,104	
SUPERVISORY PERSONNEL	21	0	15		0,984	0.0	3,870	
ENGINEERING PERSONNEL	20	17	44		2,959	0.266	13,117	
TOTAL	212	79	340	631	36,128	23,031	85,504	144,663
* TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	1161	626	2540	4327	239,368	130,066	914,646	1284,029
OPERATING PERSONNEL	549	0	43	592	68,053	0.0	9,770	77,823
HEALTH PHYSICS PERSONNEL	148	0	332	480	41,729	0.0	65,679	107,408
SUPERVISORY PERSONNEL	193	0	96	289	28,536	0.0	19,643	48,179
ENGINEERING PERSONNEL	128	83	281	492	13,493	3,148	52,220	70,863
GRAND TOTAL	2179	709	3292	6180	393,181	133,214	1061,958	1588,353

*Workers may be counted in more than one category.

APPENDIX C (Cont.)

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

PLANT: NORTH ANNA 1,2										
WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM)				TOTAL MAN-REMS					
	STATION		UTILITY		STATION		UTILITY		TOTAL	
	EMPLOYEES	CONTRACT & OTHERS	EMPLOYEES	CONTRACT & OTHERS	EMPLOYEES	CONTRACT & OTHERS	EMPLOYEES	CONTRACT & OTHERS		
REACTOR OPERATIONS & SURV.										
MAINTENANCE PERSONNEL	199	7	518		29,560	0.031	36,424			
OPERATING PERSONNEL	109	3	54		52,307	0.006	1,357			
HEALTH PHYSICS PERSONNEL	54	14	90		41,667	0.357	43,238			
SUPERVISORY PERSONNEL	88	7	1		3,890	0.040	0,109			
ENGINEERING PERSONNEL	29	12	91		1,003	0.139	4,832			
TOTAL	479	43	754		1276	0.573	85,960			214,960
ROUTINE MAINTENANCE										
MAINTENANCE PERSONNEL	158	6	413		133,629	0.638	95,184			
OPERATING PERSONNEL	78	0	51		15,069	0.0	2,834			
HEALTH PHYSICS PERSONNEL	30	0	22		5,868	0.0	4,771			
SUPERVISORY PERSONNEL	51	0	1		5,007	0.0	0,388			
ENGINEERING PERSONNEL	9	5	73		0,201	0.022	7,024			
TOTAL	326	11	562		159,774	0.660	110,201			278,635
IN-SERVICE INSPECTION										
MAINTENANCE PERSONNEL	16	2	122		17,091	0.425	33,478			
OPERATING PERSONNEL	21	0	5		1,421	0.0	0,044			
HEALTH PHYSICS PERSONNEL	13	0	21		2,616	0.0	4,637			
SUPERVISORY PERSONNEL	7	0	0		1,004	0.0	0,0			
ENGINEERING PERSONNEL	4	0	36		0,044	0.0	3,078			
TOTAL	61	2	184		22,198	0.425	41,229			63,852
SPECIAL MAINTENANCE										
MAINTENANCE PERSONNEL	74	0	538		25,452	0.0	118,962			
OPERATING PERSONNEL	26	0	19		0,979	0.0	1,791			
HEALTH PHYSICS PERSONNEL	8	0	18		0,349	0.0	0,805			
SUPERVISORY PERSONNEL	32	1	0		1,834	0.002	0,0			
ENGINEERING PERSONNEL	2	0	46		0,830	0.0	2,652			
TOTAL	142	1	621		27,864	0.002	124,213			152,856
WASTE PROCESSING										
MAINTENANCE PERSONNEL	98	2	92		2,411	0.806	2,558			
OPERATING PERSONNEL	82	1	13		7,379	0.002	8,194			
HEALTH PHYSICS PERSONNEL	34	2	43		8,117	0.007	4,392			
SUPERVISORY PERSONNEL	14	0	0		0,316	0.0	0,0			
ENGINEERING PERSONNEL	10	0	11		0,044	0.0	0,043			
TOTAL	238	5	159		18,269	0.815	15,189			33,473
REFUELING										
MAINTENANCE PERSONNEL	73	0	47		18,997	0.0	9,642			
OPERATING PERSONNEL	78	0	1		4,798	0.0	0,018			
HEALTH PHYSICS PERSONNEL	18	0	28		0,829	0.0	3,784			
SUPERVISORY PERSONNEL	18	1	0		1,273	0.088	0,0			
ENGINEERING PERSONNEL	3	0	18		0,017	0.020	2,241			
TOTAL	190	1	93		25,914	0.408	15,685			42,807
TOTAL BY JOB FUNCTION										
MAINTENANCE PERSONNEL	618	17	1730		227,140	1.100	296,248			524,488
OPERATING PERSONNEL	394	4	143		81,933	0.008	14,238			96,199
HEALTH PHYSICS PERSONNEL	157	16	222		59,446	0.364	61,627			121,437
SUPERVISORY PERSONNEL	210	9	22		12,524	0.130	0,497			13,151
ENGINEERING PERSONNEL	57	23	277		1,363	0.481	18,864			21,708

APPENDIX C (Cont.)

PLANT: DEGREE 1.2.3	(PMR)	NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION										
		1981					1982					
		NUMBER OF PERSONNEL (>100 M-REMS)					* TOTAL MAN-REMS					
WORK & JOB FUNCTION	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL
REACTOR OPERATIONS & SURV.	EMPLOYEES	EMPLOYEES	& OTHERS	PERSONS	EMPLOYEES	EMPLOYEES	& OTHERS	PERSONS	EMPLOYEES	EMPLOYEES	& OTHERS	MAN-REMS
MAINTENANCE PERSONNEL												
MAINTENANCE PERSONNEL	74	152	38		3,935	6,850	4,510		3,935	6,850	4,510	
OPERATING PERSONNEL	97	17	0		46,835	8,675	0.0		46,835	8,675	0.0	
HEALTH PHYSICS PERSONNEL	68	22	111		18,125	0.960	16,385		18,125	0.960	16,385	
SUPERVISORY PERSONNEL	5	2	0		0.260	0.105	0.0		0.260	0.105	0.0	
ENGINEERING PERSONNEL	20	30	25		18,875	3,550	0.855		18,875	3,550	0.855	
TOTAL	334	223	173	731	87,250	20,140	21,750		87,250	20,140	21,750	129,140
ROUTINE MAINTENANCE												
MAINTENANCE PERSONNEL	214	373	88		77,370	71,040	46,275		77,370	71,040	46,275	
OPERATING PERSONNEL	32	8	0		1,845	1,395	0.0		1,845	1,395	0.0	
HEALTH PHYSICS PERSONNEL	63	12	103		6,785	0.440	17,830		6,785	0.440	17,830	
SUPERVISORY PERSONNEL	3	0	0		0.140	0.0	0.0		0.140	0.0	0.0	
ENGINEERING PERSONNEL	59	87	24		9,585	3,087	8,488		9,585	3,087	8,488	
TOTAL	371	455	215	1861	97,745	77,952	64,793		97,745	77,952	64,793	245,282
IN-SERVICE INSPECTION												
MAINTENANCE PERSONNEL	63	250	20		8,775	104,745	1,975		8,775	104,745	1,975	
OPERATING PERSONNEL	9	2	0		0.270	0.085	0.0		0.270	0.085	0.0	
HEALTH PHYSICS PERSONNEL	34	8	91		2,285	0.320	22,550		2,285	0.320	22,550	
SUPERVISORY PERSONNEL	1	0	0		0.030	0.0	0.0		0.030	0.0	0.0	
ENGINEERING PERSONNEL	27	19	77		4,585	3,588	50,450		4,585	3,588	50,450	
TOTAL	134	279	188	681	15,665	108,650	74,975		15,665	108,650	74,975	189,490
SPECIAL MAINTENANCE												
MAINTENANCE PERSONNEL	218	497	55		106,015	330,990	13,445		106,015	330,990	13,445	
OPERATING PERSONNEL	62	14	0		7,225	1,715	0.0		7,225	1,715	0.0	
HEALTH PHYSICS PERSONNEL	56	19	114		16,480	2,045	39,695		16,480	2,045	39,695	
SUPERVISORY PERSONNEL	5	1	0		1,515	0.060	0.0		1,515	0.060	0.0	
ENGINEERING PERSONNEL	74	70	185		27,235	23,570	52,830		27,235	23,570	52,830	
TOTAL	415	601	274	1290	158,390	358,380	106,020		158,390	358,380	106,020	622,790
WASTE PROCESSING												
MAINTENANCE PERSONNEL	38	53	35		4,195	2,030	6,405		4,195	2,030	6,405	
OPERATING PERSONNEL	22	4	0		1,725	0.105	0.0		1,725	0.105	0.0	
HEALTH PHYSICS PERSONNEL	41	2	43		9,735	0.020	1,825		9,735	0.020	1,825	
SUPERVISORY PERSONNEL	2	0	0		0.145	0.0	0.0		0.145	0.0	0.0	
ENGINEERING PERSONNEL	27	1	0		4,850	0.020	0.0		4,850	0.020	0.0	
TOTAL	130	60	78	268	20,650	2,175	8,230		20,650	2,175	8,230	31,855
REFUELING												
MAINTENANCE PERSONNEL	157	276	52		55,665	38,130	11,800		55,665	38,130	11,800	
OPERATING PERSONNEL	76	14	0		9,680	1,750	0.0		9,680	1,750	0.0	
HEALTH PHYSICS PERSONNEL	37	18	86		4,485	2,830	11,935		4,485	2,830	11,935	
SUPERVISORY PERSONNEL	3	1	0		0.915	0.030	0.0		0.915	0.030	0.0	
ENGINEERING PERSONNEL	62	32	66		10,255	3,930	11,690		10,255	3,930	11,690	
TOTAL	335	341	204	880	80,800	45,770	35,425		80,800	45,770	35,425	161,995
TOTAL BY JOB FUNCTION												
MAINTENANCE PERSONNEL	744	1,606	280	8650	285,975	993,785	84,410		285,975	993,785	84,410	894,170
OPERATING PERSONNEL	298	59	0	357	67,580	13,725	0.0		67,580	13,725	0.0	81,305
HEALTH PHYSICS PERSONNEL	299	81	548	928	59,735	6,615	110,220		59,735	6,615	110,220	176,570
SUPERVISORY PERSONNEL	19	4	0	23	3,085	0.195	0.0		3,085	0.195	0.0	3,200
ENGINEERING PERSONNEL	339	199	327	865	74,425	38,727	120,275		74,425	38,727	120,275	233,427
GRAND TOTAL	1719	1949	1163	4831	460,720	1,113,047	314,905		460,720	1,113,047	314,905	1,388,672

PLANT: OYSTER CREEK (BHR)

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM)					TOTAL MAN-REMS			
	STATION		UTILITY		TOTAL				
	EMPLOYEES	CONTRACT	EMPLOYEES	CONTRACT					
REACTOR OPERATIONS & SURV.	EMPLOYEES	CONTRACT	OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT	OTHERS	TOTAL MAN-REMS
MAINTENANCE PERSONNEL	68	4	36		3,292	0.127	4.861		
OPERATING PERSONNEL	87	1	5		19,888	0.0	0.754		
HEALTH PHYSICS PERSONNEL	10	0	31		0.223	0.0	4.240		
SUPERVISORY PERSONNEL	8	0	0		1.210	0.0	0.0		
ENGINEERING PERSONNEL	16	1	8		1.008	0.052	1.163		
TOTAL	189	6	80	275	25,621	0.180	11.018		36,819
ROUTINE MAINTENANCE									
MAINTENANCE PERSONNEL	212	43	401		136,137	19,997	99,819		
OPERATING PERSONNEL	115	2	39		49,239	2,169	2,429		
HEALTH PHYSICS PERSONNEL	34	0	151		11,974	0.0	78,331		
SUPERVISORY PERSONNEL	1	1	3		7,672	0.372	0.008		
ENGINEERING PERSONNEL	45	6	63		3,682	0.288	5,144		
TOTAL	442	52	637	1131	208,504	22,826	185,728		417,858
IN-SERVICE INSPECTION									
MAINTENANCE PERSONNEL	24	0	42		0.522	0.0	5.562		
OPERATING PERSONNEL	11	0	7		0.585	0.0	0.334		
HEALTH PHYSICS PERSONNEL	5	0	8		0.172	0.0	0.418		
SUPERVISORY PERSONNEL	11	0	0		0.213	0.0	0.0		
ENGINEERING PERSONNEL	15	4	16		0.337	0.035	2,265		
TOTAL	66	4	73	143	1,627	0.035	8,579		18,241
SPECIAL MAINTENANCE									
MAINTENANCE PERSONNEL	182	29	477		42,541	7,766	136,303		
OPERATING PERSONNEL	70	2	23		8,503	0.688	3,763		
HEALTH PHYSICS PERSONNEL	17	0	79		1,909	0.0	9,593		
SUPERVISORY PERSONNEL	18	0	0		3,275	0.0	0.0		
ENGINEERING PERSONNEL	18	3	33		1,733	0.035	2,595		
TOTAL	305	34	612	951	57,961	8,489	152,255		218,784
WASTE PROCESSING									
MAINTENANCE PERSONNEL	102	2	37		5,090	0.003	3,729		
OPERATING PERSONNEL	26	0	3		1,758	0.0	0.067		
HEALTH PHYSICS PERSONNEL	3	0	10		0.127	0.0	2,467		
SUPERVISORY PERSONNEL	2	0	1		0.031	0.0	0.0		
ENGINEERING PERSONNEL	0	0	4		0.0	0.0	0.004		
TOTAL	133	2	55	190	7,006	0.003	6,359		13,368
REFUELING									
MAINTENANCE PERSONNEL	3	1	0		0.020	0.005	0.0		
OPERATING PERSONNEL	0	0	0		0.0	0.0	0.0		
HEALTH PHYSICS PERSONNEL	0	0	0		0.0	0.0	0.0		
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0		
ENGINEERING PERSONNEL	1	0	0		0.018	0.0	0.0		
TOTAL	4	1	0	3	0.038	0.005	0.0		0.039
TOTAL BY JOB FUNCTION									
MAINTENANCE PERSONNEL	591 (216)	79 (43)	993 (854)	1663 (812)	187,602	27,899	250,274		465,775
OPERATING PERSONNEL	309 (116)	5 (2)	77 (52)	391 (170)	79,771	2,857	7,347		89,975
HEALTH PHYSICS PERSONNEL	69 (36)	0	259 (136)	328 (170)	14,405	0.0	95,049		109,454
SUPERVISORY PERSONNEL	75 (51)	1 (1)	4 (4)	80 (43)	12,401	0.372	0.008		12,778
ENGINEERING PERSONNEL	95 (51)	11 (6)	124 (78)	233 (128)	6,570	0.510	11,265		18,293
GRAND TOTAL	1159 (666)	99 (66)	1457 (823)	2695 (1333)	308,749	31,538	363,938		696,225

APPENDIX C (Cont.)

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

PLANT: PALISADES	(PMR)	NUMBER OF PERSONNEL (>100 M-REM)				TOTAL MAN-REMS			
		STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
WORK & JOB FUNCTION									
REACTOR OPERATIONS & SURV.									
MAINTENANCE PERSONNEL	1	0	0	7	7	0.342	0.061	2.080	0.061
OPERATING PERSONNEL	45	2	3	4	52	16.852	0.315	0.748	0.315
HEALTH PHYSICS PERSONNEL	40	0	0	152	192	12.667	1.951	89.309	1.951
SUPERVISORY PERSONNEL	5	0	0	9	14	2.227	0.149	9.306	0.149
ENGINEERING PERSONNEL	9	0	0	14	23	1.765	0.073	4.555	0.073
TOTAL	100	2	3	186	291	33.833	2.555	103.978	2.555
ROUTINE MAINTENANCE									
MAINTENANCE PERSONNEL	84	26	0	68	178	41.246	10.170	32.528	10.170
OPERATING PERSONNEL	0	0	0	0	0	0.129	0.007	0.631	0.007
HEALTH PHYSICS PERSONNEL	3	1	1	21	26	0.775	0.247	10.989	0.247
SUPERVISORY PERSONNEL	14	2	2	9	25	4.736	0.653	2.852	0.653
ENGINEERING PERSONNEL	2	0	0	7	9	1.048	0.191	2.986	0.191
TOTAL	103	29	3	105	237	47.934	11.261	49.306	11.261
IN-SERVICE INSPECTION									
MAINTENANCE PERSONNEL	1	0	0	3	4	0.093	0.014	0.478	0.014
OPERATING PERSONNEL	0	0	0	0	0	0.007	0.007	0.007	0.007
HEALTH PHYSICS PERSONNEL	0	0	0	2	2	0.013	0.009	1.791	0.009
SUPERVISORY PERSONNEL	1	0	0	2	3	0.173	0.061	0.940	0.061
ENGINEERING PERSONNEL	2	2	2	26	32	0.425	1.039	6.040	1.039
TOTAL	4	2	2	33	39	0.681	1.114	12.188	1.114
SPECIAL MAINTENANCE									
MAINTENANCE PERSONNEL	33	99	0	840	972	10.348	26.958	404.181	26.958
OPERATING PERSONNEL	0	0	0	4	4	1.006	0.009	0.036	0.009
HEALTH PHYSICS PERSONNEL	0	0	0	4	4	0.009	0.009	1.451	0.009
SUPERVISORY PERSONNEL	1	1	1	22	25	0.694	0.694	7.339	0.694
ENGINEERING PERSONNEL	6	4	4	40	54	1.394	0.744	11.925	0.744
TOTAL	40	104	5	908	1058	12.183	28.398	424.942	28.398
WASTE PROCESSING									
MAINTENANCE PERSONNEL	1	3	0	13	17	0.435	0.654	2.758	0.654
OPERATING PERSONNEL	0	0	0	4	4	0.004	0.007	0.164	0.007
HEALTH PHYSICS PERSONNEL	0	0	0	4	4	0.029	0.006	2.317	0.006
SUPERVISORY PERSONNEL	0	0	0	25	25	0.074	0.001	1.942	0.001
ENGINEERING PERSONNEL	0	0	0	25	25	0.474	0.661	10.683	0.661
TOTAL	1	3	0	25	29	0.974	1.328	11.823	1.328
REFUELING									
MAINTENANCE PERSONNEL	0	0	0	36	36	0.0	0.0	22.484	0.0
OPERATING PERSONNEL	2	0	0	1	3	1.165	0.0	0.159	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	1	1	0.0	0.0	0.372	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0	0.029	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	4	4	0.001	0.0	0.802	0.0
TOTAL	2	0	0	42	44	1.195	0.0	23.817	0.0
TOTAL BY JOB FUNCTION									
MAINTENANCE PERSONNEL	120	128	0	967	1215	52.464	37.857	464.589	37.857
OPERATING PERSONNEL	47	2	0	9	58	18.161	0.315	4.485	0.315
HEALTH PHYSICS PERSONNEL	43	4	181	228	436	13.493	2.205	104.676	2.205
SUPERVISORY PERSONNEL	21	3	46	70	140	7.601	1.557	22.754	1.557
ENGINEERING PERSONNEL	19	6	94	119	238	4.903	2.053	31.090	2.053
GRAND TOTAL	250	133	1297	1690	3560	96.622	43.987	626.914	43.987

Workers may be counted in more than one category.

••Doses were normalized to agree with doses determined by TLD's. About 55% of the total plant exposure resulted from special maintenance, such as primary coolant pump seal replacements, control rod drive seals, and steam generator sparger ring.

APPENDIX C (Cont.)

PLANT: PEACH BOTTOM 2.3 (BWR) NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) 1981				TOTAL MAN-REMS			
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
MAINTENANCE PERSONNEL	5	82	76	163	2,630	37,925	23,081	63,636
OPERATING PERSONNEL	68	8	25	101	45,647	5,201	4,541	55,389
HEALTH PHYSICS PERSONNEL	47	4	73	124	43,854	3,250	42,441	89,545
SUPERVISORY PERSONNEL	0	2	1	3	0.0	0.232	0.305	0.537
ENGINEERING PERSONNEL	30	13	18	61	25,030	4,328	15,224	44,582
TOTAL	150	109	193	452	117,161	50,936	85,592	253,689
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	10	543	1034	1587	3,924	360,312	1274,803	1638,039
OPERATING PERSONNEL	6	3	6	15	1,134	0.684	8,386	10,204
HEALTH PHYSICS PERSONNEL	16	2	33	51	7,993	0.711	20,523	29,227
SUPERVISORY PERSONNEL	0	5	0	5	0.0	1,712	0.0	1,712
ENGINEERING PERSONNEL	6	16	8	30	1,664	7,899	3,181	12,744
TOTAL	38	571	1081	1680	14,717	371,228	1306,813	1822,758
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	8	47	55	0.0	7,424	51,407	58,831
OPERATING PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	0	1	0	1	0.0	0.131	0.0	0.131
ENGINEERING PERSONNEL	0	2	3	5	0.0	1,858	2,001	3,859
TOTAL	0	11	50	61	0.0	9,413	53,408	62,821
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	4	185	189	0.0	1,287	256,445	257,732
OPERATING PERSONNEL	1	0	0	1	0.116	0.0	0.0	0.116
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	1	4	5	0.0	0.132	2,991	3,123
TOTAL	1	5	189	195	0.116	1,419	259,436	260,971
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	5	83	88	0.0	1,857	26,019	27,876
OPERATING PERSONNEL	8	0	1	9	6,612	0.0	0.156	6,768
HEALTH PHYSICS PERSONNEL	7	0	4	11	3,301	0.0	2,330	5,631
SUPERVISORY PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
TOTAL	8	5	88	101	9,913	1,857	28,505	30,275
REFUELLING								
MAINTENANCE PERSONNEL	0	9	34	43	0.0	2,410	9,969	12,379
OPERATING PERSONNEL	1	0	0	1	0.187	0.0	0.0	0.187
HEALTH PHYSICS PERSONNEL	3	0	1	4	1,511	0.0	0.153	1,664
SUPERVISORY PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
TOTAL	4	9	35	48	1,698	2,410	10,122	14,220
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	15	653	1459	2127	6,556	411,215	1641,724	2059,495
OPERATING PERSONNEL	84	11	32	127	53,696	5,885	13,083	72,664
HEALTH PHYSICS PERSONNEL	73	6	111	190	56,659	3,961	65,447	126,067
SUPERVISORY PERSONNEL	0	8	1	9	0.0	2,075	0.305	2,380
ENGINEERING PERSONNEL	36	32	34	102	26,694	14,127	23,761	64,582
GRAND TOTAL	208	710	1637	2555	143,603	437,263	1744,320	2325,186

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

APPENDIX C (Cont.)

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

PLANT: PILGRIM	(BHR)	NUMBER OF PERSONNEL (>100 M-REM)	1981	STATION EMPLOYEES	UTILITY CONTRACT EMPLOYEES	OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY CONTRACT EMPLOYEES	OTHERS	TOTAL MAN-REMS
WORK & JOB FUNCTION											
REACTION OPERATIONS & SURV.											
MAINTENANCE PERSONNEL	85	0	126	8,270	0.0	5,335		8,270	0.0	5,335	
OPERATING PERSONNEL	45	0	0	27,020	0.0	0.0		27,020	0.0	0.0	
HEALTH PHYSICS PERSONNEL	38	0	18	12,680	0.0	5,510		12,680	0.0	5,510	
SUPERVISORY PERSONNEL	24	0	0	3,205	0.0	0.0		3,205	0.0	0.0	
ENGINEERING PERSONNEL	10	0	12	2,135	0.0	0.280		2,135	0.0	0.280	
TOTAL	202	0	156	53,310	0.0	11,125	358	53,310	0.0	11,125	64,435
ROUTINE MAINTENANCE											
MAINTENANCE PERSONNEL	85	0	1256	20,340	0.0	207,440		20,340	0.0	207,440	
OPERATING PERSONNEL	45	0	0	2,290	0.0	0.0		2,290	0.0	0.0	
HEALTH PHYSICS PERSONNEL	38	0	165	12,855	0.0	25,080		12,855	0.0	25,080	
SUPERVISORY PERSONNEL	42	18	46	4,035	1.605	2,400		4,035	1.605	2,400	
ENGINEERING PERSONNEL	12	6	54	5,840	0.195	2,080		5,840	0.195	2,080	
TOTAL	222	24	1521	45,360	1.800	237,000	1767	45,360	1.800	237,000	284,161
IN-SERVICE INSPECTION											
MAINTENANCE PERSONNEL	15	0	67	0,835	0.0	37,005		0,835	0.0	37,005	
OPERATING PERSONNEL	7	0	0	0,265	0.0	0.0		0,265	0.0	0.0	
HEALTH PHYSICS PERSONNEL	11	0	24	1,315	0.0	1,015		1,315	0.0	1,015	
SUPERVISORY PERSONNEL	3	0	8	1,850	0.0	0,450		1,850	0.0	0,450	
ENGINEERING PERSONNEL	2	0	0	0,150	0.0	0.0		0,150	0.0	0.0	
TOTAL	38	0	99	4,415	0.0	38,470	137	4,415	0.0	38,470	42,385
SPECIAL MAINTENANCE											
MAINTENANCE PERSONNEL	85	25	1585	48,945	1,350	893,465		48,945	1,350	893,465	
OPERATING PERSONNEL	45	0	0	7,135	0.0	0.0		7,135	0.0	0.0	
HEALTH PHYSICS PERSONNEL	38	0	103	7,440	0.0	53,560		7,440	0.0	53,560	
SUPERVISORY PERSONNEL	70	146	30	62,900	53,785	3,835		62,900	53,785	3,835	
ENGINEERING PERSONNEL	24	190	92	12,345	19,010	0.0		12,345	19,010	0.0	
TOTAL	264	351	1810	136,765	83,225	949,870	2213	136,765	83,225	949,870	1171,811
WASTE PROCESSING											
MAINTENANCE PERSONNEL	80	0	280	16,985	0.0	12,925		16,985	0.0	12,925	
OPERATING PERSONNEL	38	0	0	20,270	0.0	0.0		20,270	0.0	0.0	
HEALTH PHYSICS PERSONNEL	32	0	41	4,355	0.0	3,325		4,355	0.0	3,325	
SUPERVISORY PERSONNEL	8	0	0	1,215	0.0	0.0		1,215	0.0	0.0	
ENGINEERING PERSONNEL	9	0	0	1,750	0.0	0.0		1,750	0.0	0.0	
TOTAL	167	0	321	44,375	0.0	16,250	488	44,375	0.0	16,250	60,825
REFUELING											
MAINTENANCE PERSONNEL	24	25	150	7,825	8,675	25,065		7,825	8,675	25,065	
OPERATING PERSONNEL	45	0	0	8,450	0.0	0.0		8,450	0.0	0.0	
HEALTH PHYSICS PERSONNEL	21	0	42	0,255	0.0	1,555		0,255	0.0	1,555	
SUPERVISORY PERSONNEL	10	14	0	3,025	2,025	0.0		3,025	2,025	0.0	
ENGINEERING PERSONNEL	14	0	0	1,020	0.0	0.0		1,020	0.0	0.0	
TOTAL	114	39	192	20,575	10,700	26,620	553	20,575	10,700	26,620	57,875
TOTAL BY JOB FUNCTION											
MAINTENANCE PERSONNEL	374 (95)	50 (25)	3464 (1696)	103,200	10,025	1181,235	3888 (1696)	103,200	10,025	1181,235	1294,460
OPERATING PERSONNEL	228 (48)	0	335 (48)	95,410	0.0	0.0	335 (48)	95,410	0.0	0.0	95,410
HEALTH PHYSICS PERSONNEL	178 (36)	0	393 (103)	58,900	0.0	90,045	571 (141)	58,900	0.0	90,045	128,945
SUPERVISORY PERSONNEL	157 (33)	178 (146)	84 (30)	76,230	57,415	6,685	419 (269)	76,230	57,415	6,685	140,330
ENGINEERING PERSONNEL	73 (28)	25 (18)	158 (92)	23,230	8,285	21,370	256 (137)	23,230	8,285	21,370	52,885
GRAND TOTAL	1007 (277)	253 (190)	4099 (1810)	306,970	75,725	1299,335	5359 (2277)	306,970	75,725	1299,335	1682,035

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

APPENDIX C (Cont.)

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

Plant: † Point Beach 1, 2 (PBR)

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 man-rem)				TOTAL MAN-REMS			
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REM
Reactor Operations & Sup.								
Maintenance Personnel					0.0			
Operating Personnel					2,745			
Health Physics Personnel					24,360			
Supervisory Personnel					1,342			
Engineering Personnel					0,239			
TOTAL					78,686		0.703	79,389
Routine Maintenance								
Maintenance Personnel					14,605			
Operating Personnel					0.0			
Health Physics Personnel					0.0			
Supervisory Personnel					0.0			
Engineering Personnel					0.0			
TOTAL					14,605		0.0	14,605
In-Service Inspection								
Maintenance Personnel					20,483			
Operating Personnel					12,338			
Health Physics Personnel					0.0			
Supervisory Personnel					8,426			
Engineering Personnel					0,305			
TOTAL					41,552		96,364	137,916
Special Maintenance								
Maintenance Personnel					39,867			
Operating Personnel					0.0			
Health Physics Personnel					0.0			
Supervisory Personnel					0.0			
Engineering Personnel					0.0			
TOTAL					39,867		249,669	289,536
Waste Processing								
Maintenance Personnel					0.0			
Operating Personnel					8,868			
Health Physics Personnel					3,021			
Supervisory Personnel					0.0			
Engineering Personnel					0.0			
TOTAL					11,889		0.0	11,889
Refueling								
Maintenance Personnel					28,604			
Operating Personnel					2,754			
Health Physics Personnel					2,238			
Supervisory Personnel					0,234			
Engineering Personnel					0,493			
TOTAL					34,323		0.0	34,323
Total By Job Function								
Maintenance Personnel	89				103,559			
Operating Personnel	65				76,705			
Health Physics Personnel	24				29,619			
Supervisory Personnel	12				10,002			
Engineering Personnel	3				1,037			
GRAND TOTAL	193		431		220,922		346,736	567,658

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

- **Workers may be counted in more than one category.**

APPENDIX C (Cont.)

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

PLANT: QUAD CITY'S #2		(BMR)		NUMBER OF PERSONNEL (>100 M-REMS)		1981		TOTAL MAN-REMS		TOTAL	
		STATION		UTILITY		CONTRACT		STATION		UTILITY	
		EMPLOYEES		EMPLOYEES		EMPLOYEES		EMPLOYEES		EMPLOYEES	
		PERSONS		PERSONS		PERSONS		PERSONS		PERSONS	
		OTHERS		OTHERS		OTHERS		OTHERS		OTHERS	
		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL	
		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL	
		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL	
		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL	
		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL	
		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL	
		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL	
		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL	
		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL	
		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL	
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APPENDIX C (Cont.)

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

PLANT: RANCHO SECO 1 (PMR)									
NUMBER OF PERSONNEL AND MAN-REMS BY WORK AND JOB FUNCTION									
19C1									
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*Workers may be counted in more than one category.

APPENDIX C (Cont.)

PLANT: ROBINSON 2	(PMR)	NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION									
		1981									
		NUMBER OF PERSONNEL (>100 M-REM)					TOTAL MAN-REMS				
WORK & JOB FUNCTION	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT EMPLOYEES	OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT EMPLOYEES	OTHERS	TOTAL MAN-REMS	TOTAL MAN-REMS
REACTION OPERATIONS & SURV.											
MAINTENANCE PERSONNEL	2	0	0	0	2	1,258	0.091	0.0	0.0	0.0	0.0
OPERATING PERSONNEL	29	0	0	0	29	22,837	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	7	2	1	1	11	6,938	3.082	0.389	0.0	0.389	0.389
SUPERVISORY PERSONNEL	1	1	1	1	4	0.191	0.015	0.007	0.0	0.022	0.022
ENGINEERING PERSONNEL	8	2	0	0	10	3,736	0.877	0.0	0.0	0.877	0.877
TOTAL	47	3	1	2	53	34,960	4.204	0.796	0.0	5.000	5.000
ROUTINE MAINTENANCE											
MAINTENANCE PERSONNEL	22	1	0	0	23	26,990	0.143	0.0	0.0	0.143	0.143
OPERATING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	6	1	0	0	7	6,254	1.941	0.0	0.0	1.941	1.941
SUPERVISORY PERSONNEL	2	0	0	0	2	0.0	0.0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	2	0	0	0	2	1,050	0.132	0.0	0.0	0.132	0.132
TOTAL	30	1	0	0	31	34,294	2.216	0.0	0.0	2.216	2.216
IN-SERVICE INSPECTION											
MAINTENANCE PERSONNEL	1	0	0	0	1	0.140	0.0	0.0	0.0	0.0	0.0
OPERATING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0.141	0.015	0.0	0.0	0.030	0.030
SUPERVISORY PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	4	0	0	0	4	4,232	0.0	0.0	0.0	0.0	0.0
TOTAL	5	0	0	0	5	4,513	0.015	0.0	0.0	0.015	0.015
SPECIAL MAINTENANCE											
MAINTENANCE PERSONNEL	33	1	0	0	34	40,420	0.303	0.0	0.0	0.303	0.303
OPERATING PERSONNEL	3	0	0	0	3	1,892	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	14	5	0	0	19	17,627	7.781	24.451	0.0	32.232	32.232
SUPERVISORY PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	24	6	0	0	30	14,751	4.142	42.820	0.0	46.962	46.962
TOTAL	74	12	0	0	86	73,690	12.226	67.271	0.0	119.900	119.900
WASTE PROCESSING											
MAINTENANCE PERSONNEL	10	1	0	0	11	11,644	0.085	0.0	0.0	0.085	0.085
OPERATING PERSONNEL	17	0	0	0	17	13,335	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	2	1	0	0	3	2,200	0.687	0.910	0.0	1.597	1.597
SUPERVISORY PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	1	0	0	0	1	0.552	0.055	0.0	0.0	0.107	0.107
TOTAL	30	2	0	0	32	27,731	0.827	12.242	0.0	13.069	13.069
REFUELING											
MAINTENANCE PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
OPERATING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL BY JOB FUNCTION											
MAINTENANCE PERSONNEL	68	3	0	0	71	80,452	0.622	382.676	0.0	383.298	383.298
OPERATING PERSONNEL	49	0	0	0	49	38,084	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	29	9	0	0	38	33,160	13.506	30.792	0.0	44.398	44.398
SUPERVISORY PERSONNEL	1	1	0	0	2	0.191	0.154	0.407	0.0	0.752	0.752
ENGINEERING PERSONNEL	39	8	0	0	47	26,321	5.209	42.820	0.0	48.029	48.029
TOTAL	186	21	0	0	207	175,108	19.491	456.298	0.0	631.395	631.395

APPENDIX C (Cont.)

PLANT, SALE, 1	(CPR)	NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION									
		NUMBER OF PERSONNEL (>100 M-REM)					1981				
		STATION	UTILITY	CONTRACT	TOTAL	STATION	UTILITY	CONTRACT	TOTAL	MAN-REMS	TOTAL
WORK & JOB FUNCTION		EMPLOYEES	EMPLOYEES	& OTHERS	PERSONS	EMPLOYEES	EMPLOYEES	& OTHERS	PERSONS	MAN-REMS	MAN-REMS
REACTOR OPERATIONS & SURV.											
MAINTENANCE PERSONNEL	1	0	0	0	0	0.407	0.0	0.15C		0.0	0.15C
OPERATING PERSONNEL	0	0	0	0	0	1.060	0.0	0.070		0.0	0.070
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0.464	0.0	0.774		0.0	0.774
SUPERVISORY PERSONNEL	0	0	0	0	0	0.010	0.0	0.0		0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0	0.010	0.0	0.0		0.0	0.0
TOTAL	1	0	0	0	0	1.951	0.0	0.934		0.0	0.934
ROUTINE MAINTENANCE											
MAINTENANCE PERSONNEL	6	0	0	0	0	3.280	0.010	0.185		0.0	0.185
OPERATING PERSONNEL	0	0	0	0	0	0.030	0.0	0.020		0.0	0.020
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0.235	0.0	0.445		0.0	0.445
SUPERVISORY PERSONNEL	1	0	0	0	0	0.165	0.0	0.0		0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0		0.0	0.0
TOTAL	7	0	0	0	0	3.710	0.010	0.630		0.0	0.630
IN-SERVICE INSPECTION											
MAINTENANCE PERSONNEL	8	0	0	10	10	3.457	0.0	4.685		0.0	4.685
OPERATING PERSONNEL	0	0	0	0	0	0.235	0.0	0.030		0.0	0.030
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0.232	0.0	0.555		0.0	0.555
SUPERVISORY PERSONNEL	1	0	0	0	0	0.485	0.0	0.235		0.0	0.235
ENGINEERING PERSONNEL	0	0	0	1	1	0.145	0.115	0.460		0.0	0.460
TOTAL	9	0	0	11	11	4.554	0.115	5.965		0.115	5.965
SPECIAL MAINTENANCE											
MAINTENANCE PERSONNEL	102	0	0	171	171	46.098	0.135	73.959		0.135	73.959
OPERATING PERSONNEL	2	0	0	0	0	2.190	0.0	0.265		0.0	0.265
HEALTH PHYSICS PERSONNEL	11	0	0	51	51	4.197	0.0	19.254		0.0	19.254
SUPERVISORY PERSONNEL	7	0	0	1	1	2.619	0.0	1.510		0.0	1.510
ENGINEERING PERSONNEL	0	0	0	4	4	0.237	0.040	0.215		0.040	0.215
TOTAL	122	0	0	227	227	55.341	0.175	95.203		0.175	95.203
WASTE PROCESSING											
MAINTENANCE PERSONNEL	5	0	0	2	2	1.599	0.0	0.915		0.0	0.915
OPERATING PERSONNEL	0	0	0	1	1	0.075	0.0	0.415		0.0	0.415
HEALTH PHYSICS PERSONNEL	3	0	0	1	1	1.365	0.0	0.452		0.0	0.452
SUPERVISORY PERSONNEL	3	0	0	0	0	1.035	0.0	0.0		0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0	0.010	0.0	0.0		0.0	0.0
TOTAL	11	0	0	4	4	4.084	0.0	1.782		0.0	1.782
REFUELING											
MAINTENANCE PERSONNEL	0	0	0	0	0	0.140	0.0	0.0		0.0	0.0
OPERATING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0		0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0.0	0.0	0.0		0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0	0.0	0.0	0.0		0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0		0.0	0.0
TOTAL	0	0	0	0	0	0.140	0.0	0.0		0.0	0.0
TOTAL BY JOB FUNCTION											
MAINTENANCE PERSONNEL	122	0	0	183	305	54.981	0.145	79.894		0.145	135.020
OPERATING PERSONNEL	2	0	0	1	3	3.590	0.0	6.800		0.0	6.800
HEALTH PHYSICS PERSONNEL	14	0	0	53	67	6.493	0.0	21.480		0.0	27.973
SUPERVISORY PERSONNEL	12	0	0	1	13	4.314	0.0	1.745		0.0	6.059
ENGINEERING PERSONNEL	0	0	0	5	5	0.402	0.175	0.675		0.175	1.252
GRAND TOTAL	150	0	0	243	393	69.780	0.320	104.594		0.320	174.694

APPENDIX C (Cont.)

PLANT: SAN ONOFRE 1 (PHR) NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION

1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM)		TOTAL		STATION		TOTAL MAN-REMS	
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	PERSONS	EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	MAN-REMS
MAINTENANCE PERSONNEL	12	0	16		2,980	0.0	6,730	
OPERATING PERSONNEL	14	0	12		14,790	0.0	3,490	
HEALTH PHYSICS PERSONNEL	8	0	96		1,530	0.0	39,970	
SUPERVISORY PERSONNEL	10	0	8		5,210	0.0	7,240	
ENGINEERING PERSONNEL	14	1	17		6,720	0.150	18,540	
TOTAL	58	1	151	210	30,330	0.150	88,230	98,770
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	68	19	1496		63,600	7,830	2736,220	
OPERATING PERSONNEL	9	0	29		1,470	0.0	16,720	
HEALTH PHYSICS PERSONNEL	9	0	187		5,670	0.0	149,120	
SUPERVISORY PERSONNEL	8	1	37		4,460	0.370	19,720	
ENGINEERING PERSONNEL	10	3	88		2,330	0.840	68,280	
TOTAL	104	23	1837	1934	77,530	9,050	2990,040	3076,630
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	0		0.0	0.0	0.0	
OPERATING PERSONNEL	0	0	0		0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0		0.0	0.0	0.0	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0		0.0	0.0	0.0	
TOTAL	0	0	0		0.0	0.0	0.0	0.0
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	0	0		0.0	0.0	0.0	
OPERATING PERSONNEL	0	0	0		0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	3	0	0		0.0	0.0	0.0	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0		0.0	0.0	0.0	
TOTAL	0	0	0		0.0	0.0	0.0	0.0
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	1	3		0.0	0.110	1,250	
OPERATING PERSONNEL	0	0	0		0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	1	0	8		0.120	0.0	1,940	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0		0.0	0.0	0.0	
TOTAL	1	1	11	13	0.120	0.110	3,190	3,420
REFUELING								
MAINTENANCE PERSONNEL	0	0	0		0.0	0.0	0.0	
OPERATING PERSONNEL	0	0	0		0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0		0.0	0.0	0.0	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0		0.0	0.0	0.0	
TOTAL	0	0	0		0.0	0.0	0.0	0.0
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	80 (70)	20 (19)	1515 (1501)	1615 (1590)	63,680	7,940	2744,200	2817,820
OPERATING PERSONNEL	23 (21)	0	41 (46)	64 (87)	16,260	0.0	20,210	36,470
HEALTH PHYSICS PERSONNEL	18 (14)	0	291 (206)	309 (220)	7,320	0.0	191,030	198,350
SUPERVISORY PERSONNEL	18 (11)	1	45 (41)	64 (53)	9,670	0.370	26,960	37,000
ENGINEERING PERSONNEL	24 (18)	4	187 (101)	135 (123)	9,550	0.990	79,140	89,180
GRAND TOTAL	163 (134)	25 (23)	1999 (1896)	2187 (2053)	107,980	9,300	3061,540	3178,820

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

APPENDIX C (Cont.)

PLANT: ST. LUCIE	(CMR)	NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION									
		NUMBER OF PERSONNEL (>100 M-REM)					TOTAL MAN-REMS				
		STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT EMPLOYEES	OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT EMPLOYEES	OTHERS	TOTAL MAN-REMS
WORK A JOB FUNCTION											
REACTION OPERATIONS & SURV.											
MAINTENANCE PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	
OPERATING PERSONNEL	25	0	0	0	0	7.000	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	22	0	17	0	0	6.400	0.0	0.0	0.0	5.300	
SUPERVISORY PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	
TOTAL	47	0	17	0	0	13.400	0.0	0.0	0.0	10.700	
EQUINE MAINTENANCE											
MAINTENANCE PERSONNEL	106	27	0	0	0	35.800	18.000	0.0	0.0	0.0	
OPERATING PERSONNEL	16	0	0	0	0	4.400	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	21	0	2	0	0	6.200	0.0	0.0	0.0	0.0	
SUPERVISORY PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	
TOTAL	143	27	2	0	0	46.400	18.000	0.0	0.0	0.0	
IN-SERVICE INSPECTION											
MAINTENANCE PERSONNEL	43	33	60	0	0	14.600	22.900	49.300	0.0	0.0	
OPERATING PERSONNEL	21	0	0	0	0	5.800	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	12	0	16	0	0	3.500	0.0	0.0	0.0	0.0	
SUPERVISORY PERSONNEL	4	0	5	0	0	3.100	0.0	0.0	0.0	0.0	
ENGINEERING PERSONNEL	2	3	14	0	0	0.300	1.000	5.900	0.0	0.0	
TOTAL	82	36	85	0	0	27.300	23.900	62.100	0.0	0.0	
MAINTENANCE PERSONNEL											
MAINTENANCE PERSONNEL	118	39	54	0	0	39.900	24.800	111.000	0.0	0.0	
OPERATING PERSONNEL	18	0	0	0	0	4.900	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	17	0	52	0	0	4.900	0.0	16.100	0.0	0.0	
SUPERVISORY PERSONNEL	7	0	8	0	0	5.500	0.0	4.200	0.0	0.0	
ENGINEERING PERSONNEL	4	6	15	0	0	0.500	2.100	5.800	0.0	0.0	
TOTAL	164	45	69	0	0	55.300	28.900	45.700	0.0	0.0	
WASTE PROCESSING											
MAINTENANCE PERSONNEL	64	12	0	0	0	21.200	8.400	0.0	0.0	0.0	
OPERATING PERSONNEL	15	0	0	0	0	4.100	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	13	0	11	0	0	3.700	0.0	0.0	0.0	0.0	
SUPERVISORY PERSONNEL	6	0	0	0	0	2.700	0.0	0.0	0.0	0.0	
ENGINEERING PERSONNEL	2	0	0	0	0	0.100	0.0	0.0	0.0	0.0	
TOTAL	100	12	11	0	0	31.800	8.400	0.0	0.0	0.0	
REFUELING											
MAINTENANCE PERSONNEL	119	66	0	0	0	39.900	44.500	0.0	0.0	0.0	
OPERATING PERSONNEL	47	0	0	0	0	12.700	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	18	0	64	0	0	4.900	0.0	19.900	0.0	0.0	
SUPERVISORY PERSONNEL	5	0	6	0	0	2.000	0.0	3.000	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	
TOTAL	189	66	70	0	0	59.500	44.500	22.900	0.0	0.0	
TOTAL BY JOB FUNCTION											
MAINTENANCE PERSONNEL	450 (134)	177 (82)	644 (636)	1271 (852)	151.000	120.300	461.100	732.400	0.0	0.0	
OPERATING PERSONNEL	142 (81)	0	0	142 (81)	38.900	0.0	0.0	50.300	0.0	0.0	
HEALTH PHYSICS PERSONNEL	103 (25)	0	162 (70)	265 (86)	29.600	0.0	0.0	9.600	0.0	0.0	
SUPERVISORY PERSONNEL	22 (9)	0	19 (15)	41 (24)	13.300	0.0	0.0	11.200	0.0	0.0	
ENGINEERING PERSONNEL	8 (7)	10 (8)	29 (27)	47 (42)	0.900	3.100	1.100	15.200	0.0	0.0	
GRAND TOTAL	725 (236)	187 (80)	854 (748)	1768 (1074)	233.700	123.400	532.200	889.300	0.0	0.0	

Numbers in parentheses are total numbers of individuals.

APPENDIX C (Cont.)

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

Plant: Surry 1, 2 (PWR)

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 mrem)				TOTAL MAN-REMS			
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REM
* Reactor Operations & Surv.								
Maintenance Personnel								
Operating Personnel								
Health Physics Personnel								
Supervisory Personnel								
Engineering Personnel								
TOTAL	388	97	0	485	356,308	30,208	0.0	386,516
* Routine Maintenance								
Maintenance Personnel								
Operating Personnel								
Health Physics Personnel								
Supervisory Personnel								
Engineering Personnel								
TOTAL	280	0	0	280	614,315	0.0	0.0	614,315
* In-Service Inspection								
Maintenance Personnel								
Operating Personnel								
Health Physics Personnel								
Supervisory Personnel								
Engineering Personnel								
TOTAL	4	4	42	50	6,884	4,728	21,041	32,653
* Special Maintenance								
Maintenance Personnel								
Operating Personnel								
Health Physics Personnel								
Supervisory Personnel								
Engineering Personnel								
TOTAL	4	141	2945	3090	4,070	60,295	2723,723	2788,088
* Waste Processing								
Maintenance Personnel								
Operating Personnel								
Health Physics Personnel								
Supervisory Personnel								
Engineering Personnel								
TOTAL	4	0	2	6	10,204	0.0	1,749	11,953
* Refueling								
Maintenance Personnel								
Operating Personnel								
Health Physics Personnel								
Supervisory Personnel								
Engineering Personnel								
TOTAL	7	5	1	13	1,304	0,079	0,018	1,401
* Total By Job Function								
Maintenance Personnel								
Operating Personnel								
Health Physics Personnel								
Supervisory Personnel								
Engineering Personnel								
GRAND TOTAL	687	247	2990	3924	983,085	95,310	2746,531	3834,926

* Workers may be counted in more than one category.

** Routine maintenance includes 2840 man-rem from steam generator inspection and repair.

APPENDIX C (Cont.)

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

PLANT: THREE MILE ISLAND 1 (PMR)

1981

NUMBER OF PERSONNEL (>100 M-REM)

WORK & JOB FUNCTION	STATION		TOTAL		TOTAL MAN-REMS	
	EMPLOYEES	UTILITY CONTRACT	PERSONS	EMPLOYEES	UTILITY CONTRACT	MAN-REMS
REACTOR OPERATIONS & SURV.						
MAINTENANCE PERSONNEL	161	8	100	2.145	0.024	0.811
OPERATING PERSONNEL	178	29	40	10.824	0.143	0.351
HEALTH PHYSICS PERSONNEL	81	1	21	11.071	0.0	0.175
SUPERVISORY PERSONNEL	53	5	13	0.439	0.034	0.040
ENGINEERING PERSONNEL	43	31	31	0.735	0.114	0.248
TOTAL	536	77	205	25.214	0.315	1.625
ROUTINE MAINTENANCE						
MAINTENANCE PERSONNEL	181	15	116	19.127	0.217	0.707
OPERATING PERSONNEL	140	5	47	1.241	0.043	0.597
HEALTH PHYSICS PERSONNEL	65	2	18	1.649	0.0	0.140
SUPERVISORY PERSONNEL	47	6	9	0.992	0.057	0.028
ENGINEERING PERSONNEL	36	16	23	0.365	0.010	0.056
TOTAL	469	44	213	23.374	0.327	1.528
IN-SERVICE INSPECTION						
MAINTENANCE PERSONNEL	80	1	73	0.673	0.0	0.820
OPERATING PERSONNEL	104	8	39	0.808	0.175	1.761
HEALTH PHYSICS PERSONNEL	49	3	4	2.709	0.007	0.030
SUPERVISORY PERSONNEL	26	2	5	0.255	0.018	0.012
ENGINEERING PERSONNEL	35	29	48	0.340	0.722	1.119
TOTAL	294	43	169	4.785	0.922	3.742
SPECIAL MAINTENANCE						
MAINTENANCE PERSONNEL	181	23	426	9.830	2.258	105.264
OPERATING PERSONNEL	152	18	63	2.802	0.314	5.176
HEALTH PHYSICS PERSONNEL	61	1	12	1.501	0.0	0.237
SUPERVISORY PERSONNEL	52	5	30	1.531	0.054	2.170
ENGINEERING PERSONNEL	55	41	71	3.454	0.463	6.933
TOTAL	501	88	602	19.118	3.089	119.780
WASTE PROCESSING						
MAINTENANCE PERSONNEL	99	7	47	10.922	0.349	1.200
OPERATING PERSONNEL	79	1	10	7.476	0.009	2.725
HEALTH PHYSICS PERSONNEL	44	0	7	1.011	0.0	0.020
SUPERVISORY PERSONNEL	14	2	3	0.410	0.002	0.160
ENGINEERING PERSONNEL	12	5	4	0.258	0.002	0.140
TOTAL	248	15	71	20.077	0.362	4.245
REFUELING						
MAINTENANCE PERSONNEL	3	0	0	0.0	0.0	0.0
OPERATING PERSONNEL	1	0	1	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0.0	0.0	0.0
TOTAL	4	0	1	0.0	0.0	0.0
TOTAL BY JOB FUNCTION						
MAINTENANCE PERSONNEL	705 (218)	54 (28)	762 (447)	42.697	2.848	198.802
OPERATING PERSONNEL	654 (218)	61 (42)	200 (92)	23.151	0.684	10.010
HEALTH PHYSICS PERSONNEL	300 (87)	7 (4)	62 (42)	17.941	0.007	0.002
SUPERVISORY PERSONNEL	192 (78)	20 (10)	77 (36)	3.627	0.165	2.410
ENGINEERING PERSONNEL	281 (88)	125 (67)	177 (111)	5.152	1.311	8.996
GRAND TOTAL	2032 (684)	267 (149)	1261 (727)	92.568	5.015	228.593

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

APPENDIX C (Cont.)

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

PLANT: THREE MILE ISLAND 2 (PMR)	NUMBER OF PERSONNEL (>100 M-REM)				TOTAL MAN-REMS			
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACTORS	OTHERS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACTORS	OTHERS
WORK & JOB FUNCTION								
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	95	18	52		1,804	0.136	0.508	
OPERATING PERSONNEL	67	6	18		2,863	0.066	0.459	
HEALTH PHYSICS PERSONNEL	38	6	65		4,176	0.022	4.498	
SUPERVISORY PERSONNEL	16	3	7		1,214	0.311	0.040	
ENGINEERING PERSONNEL	7	2	20		0,319	2.339	2.503	
TOTAL	223	42	162		15,732			23,576
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	95	11	57		1,866	0.193	0.487	
OPERATING PERSONNEL	40	3	12		0,683	0.072	0.108	
HEALTH PHYSICS PERSONNEL	12	6	31		0,484	0.106	0.508	
SUPERVISORY PERSONNEL	11	0	7		0,119	0.0	0.032	
ENGINEERING PERSONNEL	5	2	5		0,022	0.101	0.015	
TOTAL	163	21	112		3,174	0.472	1.158	4,796
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	6	1	2		0,080	0.075	0.010	
OPERATING PERSONNEL	12	1	3		0,053	0.0	0.035	
HEALTH PHYSICS PERSONNEL	7	0	5		0,044	0.0	0.090	
SUPERVISORY PERSONNEL	2	0	0		0,002	0.002	0.0	
ENGINEERING PERSONNEL	1	2	1		0,020	0.0	0.085	
TOTAL	28	4	11		0,199	0.075	0.138	0.415
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	150	42	172		16,227	9.960	13.679	
OPERATING PERSONNEL	120	21	54		9,504	5.207	8.107	
HEALTH PHYSICS PERSONNEL	61	19	110		5,992	7.739	17.785	
SUPERVISORY PERSONNEL	48	6	23		3,104	0.247	2.357	
ENGINEERING PERSONNEL	31	29	71		1,570	3.870	9.837	
TOTAL	410	117	430		36,397	26.823	51.765	115,985
WASTE PROCESSING								
MAINTENANCE PERSONNEL	121	23	105		2,416	1.116	0.806	
OPERATING PERSONNEL	142	22	56		4,541	0.158	1.172	
HEALTH PHYSICS PERSONNEL	57	9	93		1,362	0.192	3.560	
SUPERVISORY PERSONNEL	59	12	20		0,993	0.096	0.045	
ENGINEERING PERSONNEL	32	28	69		0,353	0.327	0.928	
TOTAL	411	94	343		9,663	1.889	6.511	18,085
REFUELING								
MAINTENANCE PERSONNEL	5	2	5		0.0	0.009	0.010	
OPERATING PERSONNEL	13	0	4		0,051	0.0	0.030	
HEALTH PHYSICS PERSONNEL	7	0	11		0,079	0.0	0.100	
SUPERVISORY PERSONNEL	0	0	1		0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	1		0.0	0.005	0.002	
TOTAL	25	2	22		0,110	0.014	0.142	0.266
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	472 (169)	97 (45)	393 (178)		26,749	13.157	15.500	55.406
OPERATING PERSONNEL	394 (164)	53 (34)	594 (288)		17,675	5.573	9.911	33.159
HEALTH PHYSICS PERSONNEL	182 (87)	38 (21)	315 (116)		12,137	8.103	26.541	46.781
SUPERVISORY PERSONNEL	136 (68)	21 (13)	58 (31)		5,432	0.365	2.434	8.231
ENGINEERING PERSONNEL	76 (37)	72 (36)	167 (104)		2,284	4.414	15.827	19.525
GRAND TOTAL	1260 (485)	281 (148)	1080 (508)		64,277	31.612	67.213	163,102

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

APPENDIX C (Cont.)

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

PLANT: TROJAN	(CPR)	1981					TOTAL MAN-REMS				
		NUMBER OF PERSONNEL (>100 M-REMS)					UTILITY CONTRACT OTHERS				
		STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT EMPLOYEES	OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT EMPLOYEES	OTHERS	TOTAL MAN-REMS
WORK & JOB FUNCTION											
REACTOR OPERATIONS & SURV.											
MAINTENANCE PERSONNEL	0	9	0	0	0	9	0.0	4.970	0.210	0.050	5.230
OPERATING PERSONNEL	38	0	0	0	0	38	15.210	0.030	0.030	51.910	67.180
HEALTH PHYSICS PERSONNEL	32	0	0	92	0	124	17.300	0.030	4.390	0.000	21.720
SUPERVISORY PERSONNEL	2	0	0	4	0	6	1.150	0.000	0.000	0.000	1.150
ENGINEERING PERSONNEL	15	12	0	0	0	27	8.780	0.000	0.000	0.000	8.780
TOTAL	87	24	0	96	0	120	42.440	4.970	4.420	0.050	51.880
ROUTINE MAINTENANCE											
MAINTENANCE PERSONNEL	38	16	0	0	0	54	23.630	6.580	3.560	0.000	33.770
OPERATING PERSONNEL	0	0	0	0	0	0	0.000	0.130	0.070	0.000	0.200
HEALTH PHYSICS PERSONNEL	0	1	0	0	0	1	0.150	0.000	0.000	0.000	0.150
SUPERVISORY PERSONNEL	1	0	0	0	0	1	0.250	0.000	0.000	0.000	0.250
ENGINEERING PERSONNEL	2	2	0	0	0	4	0.490	0.000	0.000	0.000	0.490
TOTAL	41	19	0	0	0	19	24.620	6.710	3.630	0.000	34.960
IN-SERVICE INSPECTION											
MAINTENANCE PERSONNEL	0	0	0	0	0	0	0.000	0.000	0.000	0.000	0.000
OPERATING PERSONNEL	0	0	0	0	0	0	0.000	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0	0.000	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0.000	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0	0	0.000	0.000	0.000	0.000	0.000
TOTAL	0	0	0	0	0	0	0.000	0.000	0.000	0.000	0.000
SPECIAL MAINTENANCE											
MAINTENANCE PERSONNEL	59	120	0	341	0	520	33.420	101.750	257.850	0.020	393.040
OPERATING PERSONNEL	0	0	0	0	0	0	0.060	0.060	1.650	0.000	2.770
HEALTH PHYSICS PERSONNEL	0	0	0	6	0	6	0.060	1.680	12.810	0.000	14.550
SUPERVISORY PERSONNEL	0	5	0	32	0	37	0.060	0.020	2.650	0.000	2.730
ENGINEERING PERSONNEL	2	0	0	7	0	9	0.580	0.000	0.000	0.000	0.580
TOTAL	61	125	0	386	0	512	34.720	103.430	274.510	0.020	412.680
WASTE PROCESSING											
MAINTENANCE PERSONNEL	0	0	0	0	0	0	0.000	0.000	0.050	0.000	0.050
OPERATING PERSONNEL	0	0	0	1	0	1	0.030	0.000	0.770	0.000	0.800
HEALTH PHYSICS PERSONNEL	9	0	0	0	0	9	3.610	0.000	0.000	0.000	3.610
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0.040	0.000	0.000	0.000	0.040
ENGINEERING PERSONNEL	0	0	0	0	0	0	0.010	0.000	0.000	0.000	0.010
TOTAL	9	0	0	1	0	10	3.690	0.000	0.820	0.000	4.510
REFUELING											
MAINTENANCE PERSONNEL	5	11	19	0	0	35	3.720	17.040	24.600	0.000	45.360
OPERATING PERSONNEL	0	0	0	0	0	0	0.000	0.000	1.240	0.000	1.240
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0	0.000	0.000	3.520	0.000	3.520
SUPERVISORY PERSONNEL	2	0	0	0	0	2	0.970	0.000	2.580	0.000	3.550
ENGINEERING PERSONNEL	0	0	0	0	0	0	0.010	0.000	0.000	0.000	0.010
TOTAL	7	11	19	0	0	36	4.700	17.040	29.940	0.000	51.680
TOTAL BY JOB FUNCTION											
MAINTENANCE PERSONNEL	102	156	366	624	0	1148	60.770	130.340	286.270	0.000	477.380
OPERATING PERSONNEL	38	0	6	44	0	88	15.260	0.220	57.150	0.000	72.630
HEALTH PHYSICS PERSONNEL	41	1	106	148	0	296	21.120	1.710	19.820	0.000	42.650
SUPERVISORY PERSONNEL	5	5	42	52	0	104	2.470	10.030	16.270	0.000	28.770
ENGINEERING PERSONNEL	19	17	16	52	0	104	9.870	10.030	6.270	0.000	26.170
GRAND TOTAL	205	179	536	920	0	1740	109.470	142.360	371.590	0.000	623.420

*Workers may be counted in more than one category.

APPENDIX C (Cont.)

PLANT: TURKEY POINT 3.4 (PMR) NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION

WORK & JOB FUNCTION	1981				1982				1983			
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT EMPLOYEES	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT EMPLOYEES	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT EMPLOYEES	TOTAL PERSONS
REACTOR OPERATIONS & SURV.												
MAINTENANCE PERSONNEL	141	17	387		65,620	4,335	122,889		65,620	4,335	122,889	
OPERATING PERSONNEL	26	1	0		35,112	0,210	0,0		35,112	0,210	0,0	
HEALTH PHYSICS PERSONNEL	27	0	98		18,647	0,020	55,975		18,647	0,020	55,975	
SUPERVISORY PERSONNEL	19	0	7		8,196	0,125	2,415		8,196	0,125	2,415	
ENGINEERING PERSONNEL	27	2	93		11,921	0,891	29,407		11,921	0,891	29,407	
TOTAL	240	20	585	845	139,496	5,801	210,686	355,983	139,496	5,801	210,686	355,983
ROUTINE MAINTENANCE												
MAINTENANCE PERSONNEL	100	15	166		63,649	6,260	186,867		63,649	6,260	186,867	
OPERATING PERSONNEL	4	0	0		1,888	0,0	0,0		1,888	0,0	0,0	
HEALTH PHYSICS PERSONNEL	4	0	84		0,971	0,0	52,494		0,971	0,0	52,494	
SUPERVISORY PERSONNEL	1	0	0		1,090	0,060	0,035		1,090	0,060	0,035	
ENGINEERING PERSONNEL	4	0	3		8,988	0,020	2,048		8,988	0,020	2,048	
TOTAL	113	15	253	381	76,523	6,340	181,441	238,304	76,523	6,340	181,441	238,304
IN-SERVICE INSPECTION												
MAINTENANCE PERSONNEL	68	8	336		49,170	9,130	332,963		49,170	9,130	332,963	
OPERATING PERSONNEL	7	0	1		2,560	0,065	0,420		2,560	0,065	0,420	
HEALTH PHYSICS PERSONNEL	7	0	40		2,495	0,0	32,340		2,495	0,0	32,340	
SUPERVISORY PERSONNEL	8	2	12		4,380	0,375	6,906		4,380	0,375	6,906	
ENGINEERING PERSONNEL	3	3	23		2,380	0,070	16,450		2,380	0,070	16,450	
TOTAL	93	13	414	522	60,985	10,440	389,079	460,504	60,985	10,440	389,079	460,504
SPECIAL MAINTENANCE												
MAINTENANCE PERSONNEL	80	10	1227		45,111	5,020	1359,871		45,111	5,020	1359,871	
OPERATING PERSONNEL	14	0	0		3,992	0,0	0,0		3,992	0,0	0,0	
HEALTH PHYSICS PERSONNEL	10	1	148		5,378	0,595	164,809		5,378	0,595	164,809	
SUPERVISORY PERSONNEL	11	1	18		3,100	0,210	5,740		3,100	0,210	5,740	
ENGINEERING PERSONNEL	19	6	67		10,630	1,439	60,759		10,630	1,439	60,759	
TOTAL	134	18	1460	1612	68,231	7,264	1591,179	1666,674	68,231	7,264	1591,179	1666,674
WASTE PROCESSING												
MAINTENANCE PERSONNEL	16	2	11		19,261	1,030	5,706		19,261	1,030	5,706	
OPERATING PERSONNEL	2	0	0		0,501	0,0	0,0		0,501	0,0	0,0	
HEALTH PHYSICS PERSONNEL	6	0	25		7,846	0,0	18,780		7,846	0,0	18,780	
SUPERVISORY PERSONNEL	2	0	0		0,648	0,0	0,0		0,648	0,0	0,0	
ENGINEERING PERSONNEL	1	0	1		1,333	0,0	0,0		1,333	0,0	0,0	
TOTAL	27	2	36	65	29,591	1,030	24,546	55,167	29,591	1,030	24,546	55,167
REFUELING												
MAINTENANCE PERSONNEL	72	6	55		85,180	12,340	18,950		85,180	12,340	18,950	
OPERATING PERSONNEL	19	1	0		9,695	0,330	0,0		9,695	0,330	0,0	
HEALTH PHYSICS PERSONNEL	1	0	18		0,455	0,0	11,945		0,455	0,0	11,945	
SUPERVISORY PERSONNEL	5	0	0		1,319	0,0	0,0		1,319	0,0	0,0	
ENGINEERING PERSONNEL	103	8	76	187	4,678	0,108	1,888	158,489	4,678	0,108	1,888	158,489
TOTAL	103	8	76	187	103,119	12,773	32,519	158,489	103,119	12,773	32,519	158,489
TOTAL BY JOB FUNCTION												
MAINTENANCE PERSONNEL	477 (166)	58 (22)	2182 (1808)	2717 (1698)	327,991	38,335	1947,246	2313,572	327,991	38,335	1947,246	2313,572
OPERATING PERSONNEL	72 (44)	2 (1)	413 (207)	75 (46)	55,748	0,605	0,420	56,773	55,748	0,605	0,420	56,773
HEALTH PHYSICS PERSONNEL	55 (30)	1 (1)	37 (25)	469 (238)	35,792	0,615	336,343	372,750	35,792	0,615	336,343	372,750
SUPERVISORY PERSONNEL	46 (32)	3 (3)	191 (134)	86 (60)	18,733	0,770	15,136	34,639	18,733	0,770	15,136	34,639
ENGINEERING PERSONNEL	62 (38)	12 (10)	2824 (1878)	265 (182)	35,681	3,323	110,301	149,307	35,681	3,323	110,301	149,307
GRAND TOTAL	712 (308)	76 (37)	2824 (1878)	3612 (2222)	471,945	53,650	2409,446	2925,041	471,945	53,650	2409,446	2925,041

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

APPENDIX C (Cont.)

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

PLANT: VERMONT YANKEE (BWR)	STATION EMPLOYERS	UTILITY EMPLOYERS	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYERS	UTILITY EMPLOYERS	CONTRACT & OTHERS	TOTAL MAN-REMS
	1981							
WORK & JOB FUNCTION								
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	13	2	10	25	8,950	1,530	3,650	14,130
OPERATING PERSONNEL	56	0	0	56	49,640	0.0	0.0	49,640
HEALTH PHYSICS PERSONNEL	24	0	35	59	21,260	0.0	15,620	36,880
SUPERVISORY PERSONNEL	1	0	0	1	0.530	0.0	0.0	0.530
ENGINEERING PERSONNEL	24	0	7	31	11,370	2,510	0.0	13,880
TOTAL	118	2	52	172	91,750	4,040	19,270	115,060
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	51	112	575	742	74,642	56,490	246,469	377,601
OPERATING PERSONNEL	27	0	0	27	11,250	0.0	0.0	11,250
HEALTH PHYSICS PERSONNEL	7	0	15	22	2,164	0.0	7,193	9,357
SUPERVISORY PERSONNEL	2	1	1	4	1,422	0.163	0.140	1,725
ENGINEERING PERSONNEL	13	0	1	14	3,582	0.0	0.440	4,022
TOTAL	100	113	592	805	93,060	56,653	254,242	403,955
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	26	31	57	0.110	47,205	37,374	84,589
OPERATING PERSONNEL	0	0	0	0	0.110	0.0	0.0	0.220
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.0	0.0	0.030	0.030
SUPERVISORY PERSONNEL	0	0	0	0	0.055	0.0	0.0	0.055
ENGINEERING PERSONNEL	2	2	0	4	1,120	1,970	0.0	3,090
TOTAL	2	28	31	61	1,525	49,175	37,404	88,104
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	2	110	112	0.0	0.320	73,885	74,205
OPERATING PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.0	0.0	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
TOTAL	0	2	110	112	0.060	0.320	73,885	74,265
WASTE PROCESSING								
MAINTENANCE PERSONNEL	2	5	0	7	0.829	1,410	0.040	2,279
OPERATING PERSONNEL	17	0	0	17	3,225	0.0	0.0	3,225
HEALTH PHYSICS PERSONNEL	1	0	0	1	0.260	0.0	0.0	0.260
SUPERVISORY PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
TOTAL	20	5	0	25	4,314	1,410	0.040	5,764
REFUELING								
MAINTENANCE PERSONNEL	10	16	3	29	2,420	3,640	0.910	6,970
OPERATING PERSONNEL	0	0	0	0	0.820	0.0	0.0	0.820
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.020	0.0	0.090	0.110
SUPERVISORY PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	3	0	0	3	0.620	0.0	0.060	0.680
TOTAL	13	16	3	32	3,880	3,640	1,060	8,580
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	76	163	729	968	86,951	110,595	362,328	559,874
OPERATING PERSONNEL	100	0	0	100	65,045	0.0	0.0	65,045
HEALTH PHYSICS PERSONNEL	32	0	50	82	23,764	0.0	22,933	46,697
SUPERVISORY PERSONNEL	3	1	1	5	2,007	0.163	0.140	2,310
ENGINEERING PERSONNEL	42	2	8	52	16,722	1,970	3,010	21,702
GRAND TOTAL	253	166	788	1207	194,489	112,728	388,411	695,628

Workmen may be counted in more than one category.

APPENDIX C (Cont.)

PLANT: YANKEE-ROHE (PMR) NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM)		NUMBER OF PERSONNEL (>100 M-REM)		TOTAL MAN-REMS		TOTAL MAN-REMS	
	STATION EMPLOYEES	STATION EMPLOYEES	STATION EMPLOYEES	STATION EMPLOYEES	CONTRACT EMPLOYEES	CONTRACT EMPLOYEES	CONTRACT EMPLOYEES	CONTRACT EMPLOYEES
MAINTENANCE PERSONNEL	2	0	0	0	0.693	1.356	0.020	0.020
OPERATING PERSONNEL	6	0	0	0	2.156	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	4	0	1	1	0.910	0.0	0.638	0.638
SUPERVISORY PERSONNEL	0	0	0	0	0.030	0.0	0.147	0.147
ENGINEERING PERSONNEL	0	0	0	0	0.143	0.0	0.0	0.0
TOTAL	12	0	2	22	3.933	1.356	0.805	6.695
ROUTINE MAINTENANCE	15	24	6	6	6.305	7.343	3.070	3.070
MAINTENANCE PERSONNEL	9	0	0	0	2.165	0.0	0.0	0.0
OPERATING PERSONNEL	5	0	12	12	1.465	0.0	3.390	3.390
HEALTH PHYSICS PERSONNEL	1	0	0	0	0.350	0.0	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0.120	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.0	0.0	0.0
TOTAL	30	24	18	72	10.039	7.343	3.460	20.842
IN-SERVICE INSPECTION	1	0	0	0	0.230	2.764	5.955	5.955
MAINTENANCE PERSONNEL	0	0	0	0	0.105	0.0	0.0	0.0
OPERATING PERSONNEL	2	0	0	0	0.990	0.0	0.265	0.265
HEALTH PHYSICS PERSONNEL	0	0	1	1	0.090	0.040	0.150	0.150
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	3	0	1	4	1.310	2.764	6.470	6.470
SPECIAL MAINTENANCE	24	70	63	63	19.166	54.011	29.501	29.501
MAINTENANCE PERSONNEL	22	0	0	0	7.277	0.0	0.0	0.0
OPERATING PERSONNEL	9	0	39	39	3.172	0.0	24.094	24.094
HEALTH PHYSICS PERSONNEL	1	0	4	4	0.375	0.0	1.098	1.098
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	31	70	106	208	22.533	54.011	25.193	101.737
WASTE PROCESSING	5	5	1	1	1.304	1.760	0.710	0.710
MAINTENANCE PERSONNEL	14	0	0	0	4.252	0.0	0.0	0.0
OPERATING PERSONNEL	5	0	32	32	2.487	0.0	34.425	34.425
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.065	0.065
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	24	5	33	62	8.043	1.760	5.200	45.137
REFUELING	10	5	3	3	2.410	1.895	0.930	0.930
MAINTENANCE PERSONNEL	22	0	0	0	10.055	0.0	0.0	0.0
OPERATING PERSONNEL	4	0	24	24	0.835	0.0	9.250	9.250
HEALTH PHYSICS PERSONNEL	1	0	0	0	0.190	0.0	0.120	0.120
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	37	5	27	71	13.435	1.895	10.370	25.700
TOTAL BY JOB FUNCTION	57	122	81	260	30.108	69.729	40.186	140.023
MAINTENANCE PERSONNEL	73	0	0	73	26.010	0.0	0.0	26.010
OPERATING PERSONNEL	29	0	108	137	9.859	0.0	72.062	81.921
HEALTH PHYSICS PERSONNEL	3	0	6	9	1.035	0.040	1.580	2.655
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	102	122	201	501	71.954	71.954	119.578	263.486

Workers may be counted more than one category.

APPENDIX C (Cont.)

PLANT: ZION 1.2 (PHR)

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REPS)			TOTAL MAN-REPS		
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT OTHERS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT OTHERS
ROUTINE MAINTENANCE						
MAINTENANCE PERSONNEL	106	36	435	229,000	38,100	711,800
OPERATING PERSONNEL	31	0	0	52,900	0.0	0.0
HEALTH PHYSICS PERSONNEL	26	0	15	34,000	0.0	27,000
SUPERVISORY PERSONNEL	44	0	0	30,300	0.0	0.0
ENGINEERING PERSONNEL	208	36	7	1,500	0.0	4,000
TOTAL	415	72	457	348,200	38,100	752,800
IN-SERVICE INSPECTION						
MAINTENANCE PERSONNEL	0	0	89	0.0	0.0	203,000
OPERATING PERSONNEL	0	0	0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	22	0	35	17,000	0.0	63,000
SUPERVISORY PERSONNEL	11	0	0	4,800	0.0	0.0
ENGINEERING PERSONNEL	0	26	51	0.0	7,200	34,800
TOTAL	33	26	175	21,800	7,200	320,800
SPECIAL MAINTENANCE						
MAINTENANCE PERSONNEL	0	0	0	0.0	0.0	0.0
OPERATING PERSONNEL	0	0	0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0.0	0.0	0.0
TOTAL	0	0	0	0.0	0.0	0.0
WASTE PROCESSING						
MAINTENANCE PERSONNEL	0	0	0	0.0	0.0	0.0
OPERATING PERSONNEL	12	0	0	16,300	0.0	0.0
HEALTH PHYSICS PERSONNEL	7	0	0	7,200	0.0	0.0
SUPERVISORY PERSONNEL	1	0	0	2,200	0.0	0.0
ENGINEERING PERSONNEL	11	0	0	9,300	0.0	0.0
TOTAL	31	0	0	35,000	0.0	0.0
REFUELING						
MAINTENANCE PERSONNEL	5	0	0	10,800	0.0	0.0
OPERATING PERSONNEL	5	0	0	4,700	0.0	0.0
HEALTH PHYSICS PERSONNEL	3	0	0	3,600	0.0	0.0
SUPERVISORY PERSONNEL	3	0	0	4,300	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0.0	0.0	0.0
TOTAL	16	0	0	23,400	0.0	0.0
TOTAL BY JOB FUNCTION						
MAINTENANCE PERSONNEL	113	56	524	243,000	38,100	914,800
OPERATING PERSONNEL	109	0	39	74,100	0.0	63,000
HEALTH PHYSICS PERSONNEL	70	0	50	23,800	0.0	90,000
SUPERVISORY PERSONNEL	60	0	50	42,300	0.0	31,000
ENGINEERING PERSONNEL	282	72	632	1,500	7,200	78,800
TOTAL	634	128	1,236	394,200	45,300	1,177,600