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Occupational Radiation Exposure at Commercial Nuclear Power Reactors 1981

Annual Report

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Management Information Branch
Office of Resource Management
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

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Occupational Radiation Exposure at Commercial Nuclear Power Reactors - 1981

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Washington, DC

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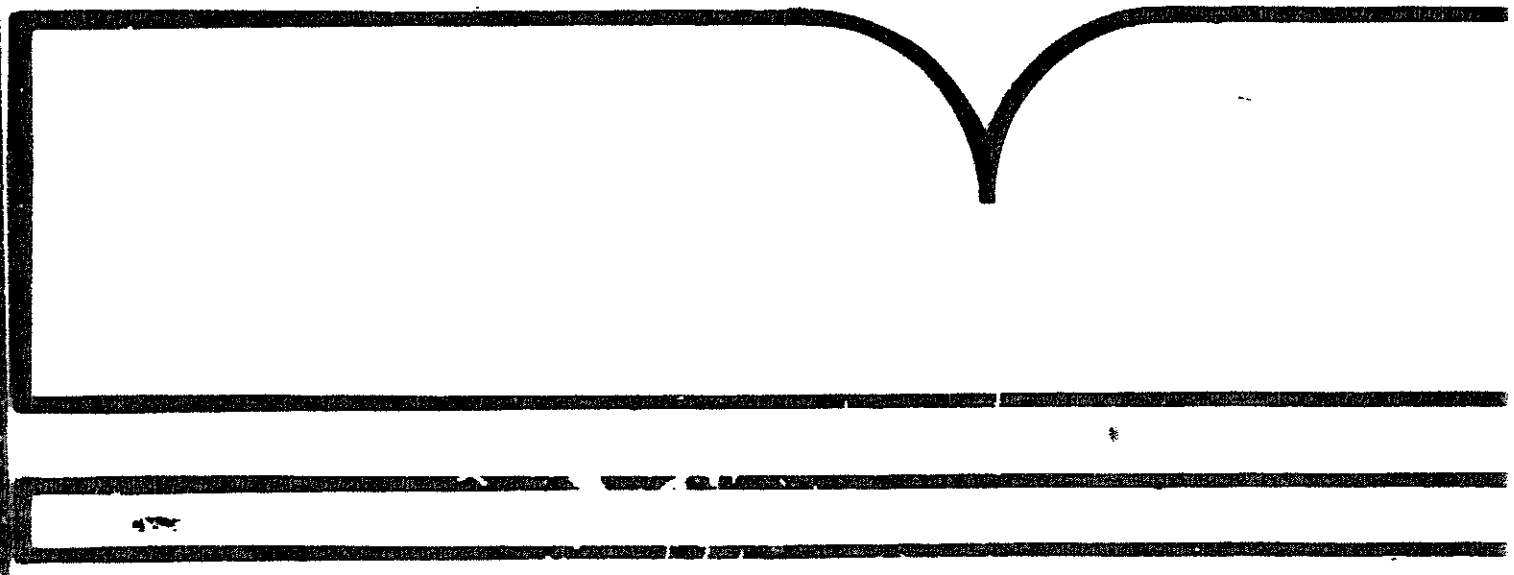

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This report summarizes the occupational radiation exposure information that has been reported to the U.S.N.R.C. by commercial nuclear power reactors during the years 1969 through 1981. The bulk of the data presented in the report was obtained from annual radiation exposure reports submitted in accordance with the requirements of 10 CFR 20.407 and license technical specifications. Data on workers terminating their employment at nuclear power facilities was obtained from reports submitted pursuant to 10 CFR 20.408. The annual reports submitted by the 71 nuclear power plants that had completed at least one full year of operation as of December 31, 1981, indicated that the number of personnel monitored during 1981 was 124,506 persons and the annual collective dose incurred by these individuals was 54,142 man-rems. The average annual dose for each worker that received a measurable dose was 0.7 rems, and the average collective dose per reactor was 773 man-rems. The termination reports revealed that some 64,500 individuals completed their employment with one or more reactor facilities during 1980.* Approximately 5,500 of these workers could be considered transients and they received an average dose of about one rem.

* The most recent year for which all of the termination data are available for analysis.

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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-rems, which is only about 350 man-rems more than that reported in 1980. The result was that the average dose per worker decreased slightly to 0.66 rems, and the average collective dose per reactor decreased by about 20 man-rems to a value of 773 man-rems. The collective dose per megawatt-year of generated electricity by each reactor also decreased slightly to an average value of 1.7 man-rems 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 rems 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 rems and some 5,500 yearly transient* workers who incurred an average dose of 1.11 rems. The collective dose (about 6,000 man-rems) 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.

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*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-rems) 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-rems) 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-rems)	No. of Workers With Measurable Doses	Gross MW-Yrs Electricity Generated	Average Dose Per Worker (Rems)	Average Collective Dose Per Reactor (Man-rems)	Average No. Personnel With Measurable Doses Per Reactor	Average Man-rems Per MW-Yr	Average MW-Yrs Generated Per Reactor	Average Rated Capacity Net (MWe)
1969	3 (2)	586 (300)	290*	102	1.03*	195	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)	2,268 (2,130)	2,258*	3,058	0.94*	286	323*	0.9	306	434
1973	12	4,564	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	15,096	20,278	11,774	0.74	604	811	1.3	471	668
1979	26	18,322	26,246	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	26,471	34,832	10,899	0.73	990	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 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 2
SUMMARY OF ANNUAL INFORMATION REPORTED BY COMMERCIAL PRESSURIZED WATER REACTORS
1969 - 1981

Year	Number Of Reactors Included	Annual Collective Doses (Man-rems)	No. of Workers With Measurable Doses	Gross MW-Yrs Electricity Generated	Average Dose Per Worker (Rems)	Average Collective Dose Per Reactor (Man-rems)	Average No. Personnel With Measurable Doses Per Reactor	Average Man-rems Per MW-Yr	Average MW-Yrs Generated Per Reactor	Average Rated Capacity Net (MWe)
1969	4 (3)	661 (363)	454*	1,097	0.80*	165	151*	0.6	274	349
1970	4 (3)	2,738 (1,099)	1,340*	979	0.82*	684	447*	2.8	245	349
1971	6 (4)	1,844 (912)	906*	1,912	1.01*	307	226*	1.0	319	399
1972	8 (5)	3,708 (2,083)	1,885*	2,544	1.11*	464	377*	1.5	318	446
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	11,983	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	21,659	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	435	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 REPORTED BY COMMERCIAL LIGHT WATER COOLED REACTORS

1969 - 1981

Year	Number Of Reactors Included	Annual Collective Doses (Man-rems)	No. of Workers With Measurable Doses	Gross MW-Yrs Electricity Generated	Average Dose Per Worker (Rems)	Average Collective Dose Per Reactor (Man-rems)	Average No. Personnel With Measurable Doses Per Reactor	Average Man-rems Per MW-Yr	Average MW-Yrs Generated Per Reactor	Average Rated Capacity Net (MWe)
1969	7 (5)	1,247 (663)	744*	1,289	0.89*	178	149*	1.0	184	247
1970	10 (7)	3,502 (1,609)	2,661*	1,892	0.60*	350	380*	1.9	189	300
1971	13 (9)	3,628 (1,981)	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*	365	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	20,879	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	663
1977	57	32,511	42,266	26,444	0.77	570	742	1.2	464	677
1978	64	31,809	45,998	31,614	0.69	497	719	1.0	494	702
1979	67	39,981	64,122	29,920	0.62	597	956	1.3	447	705
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

uring 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 t 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 bers 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 valu[illegible] from se 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-rems shown in the column headed "Operations" in Appendix A. (3) The number of man-rems 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-rems shown in this column of Appendix A. (4) A similar procedure was followed in determining the number of man-rems 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-rems 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 been 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-rems, 0.73 rems, and 2.3 man-rems 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-rems per reactor, 0.61 rems per worker, and 1.4 man-rems 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.

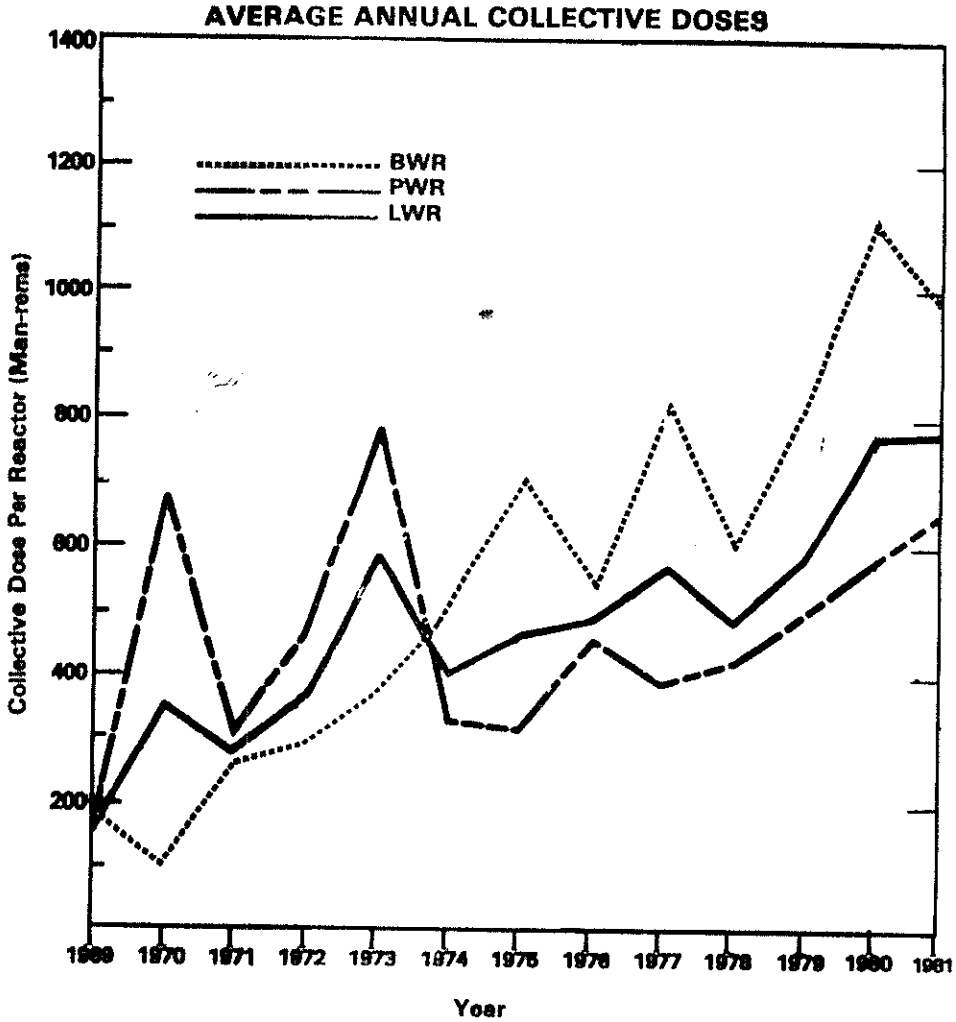
To further assist in the identification of any trends that might exist, Fig. 4 displays the average and the median* values of the collective dose per reactor for BWRs and for PWRs for the years 1973 through 1981. The ranges of the values reported each year are shown by the vertical lines with a small 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-rems, while for BWRs, it has generally increased and reached a high of 940 man-rems 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



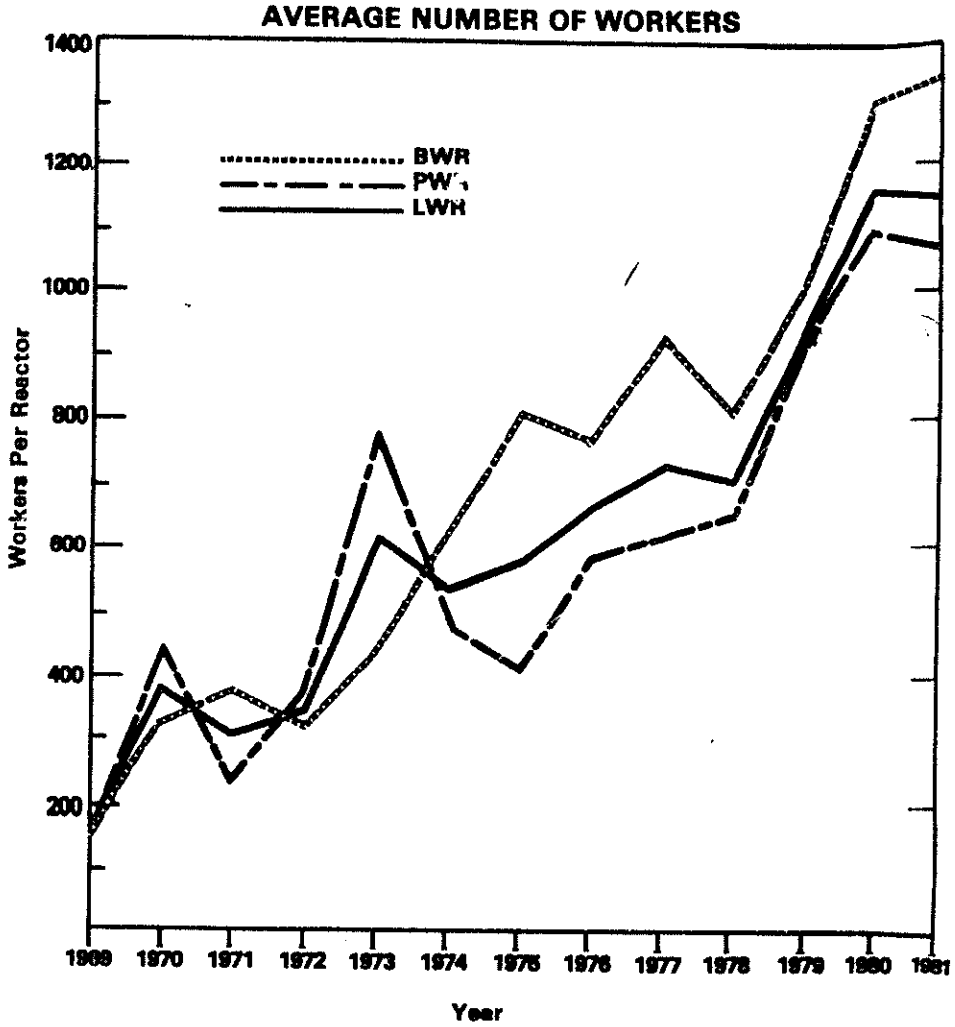


FIGURE 2

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

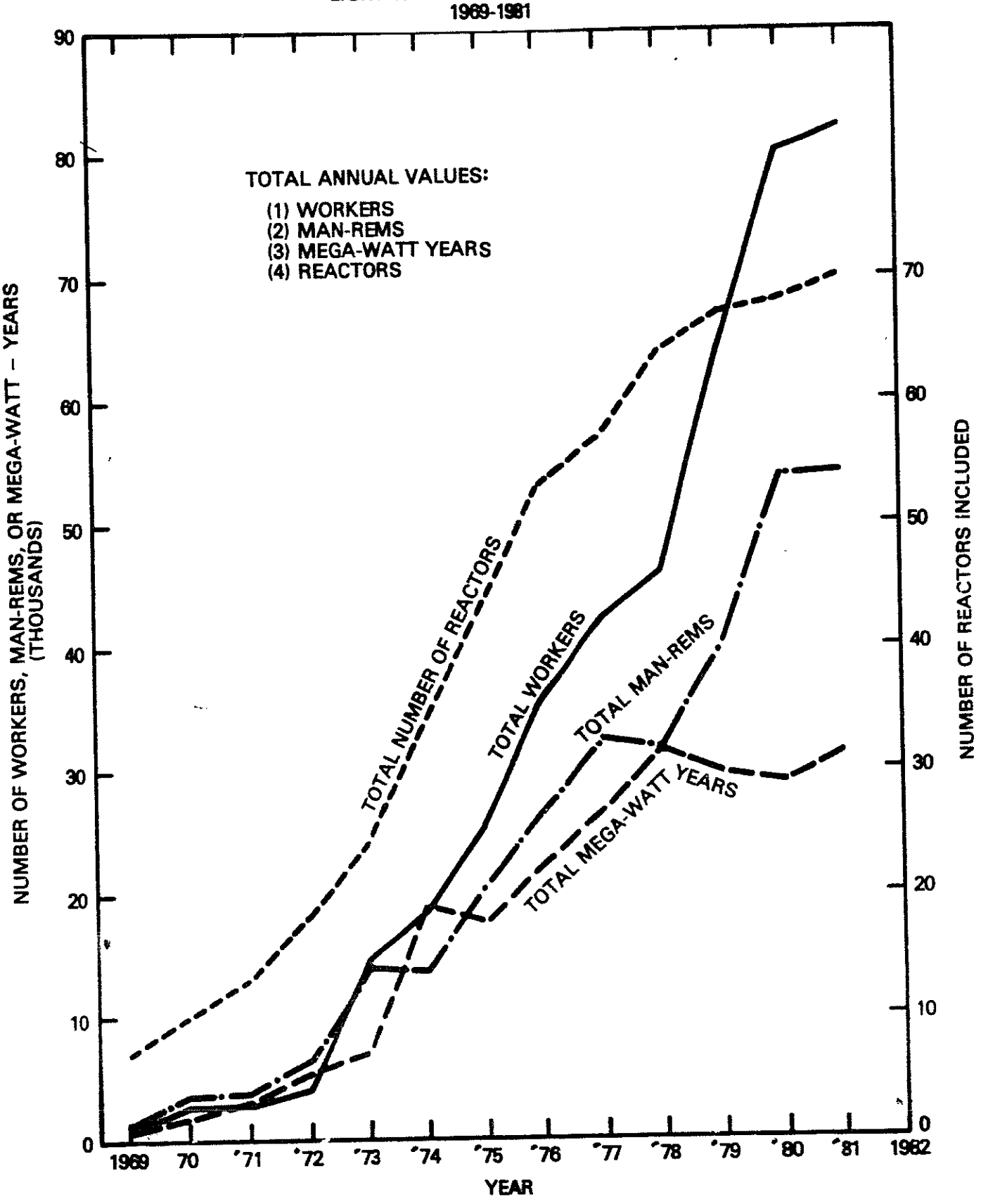


FIGURE 3

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

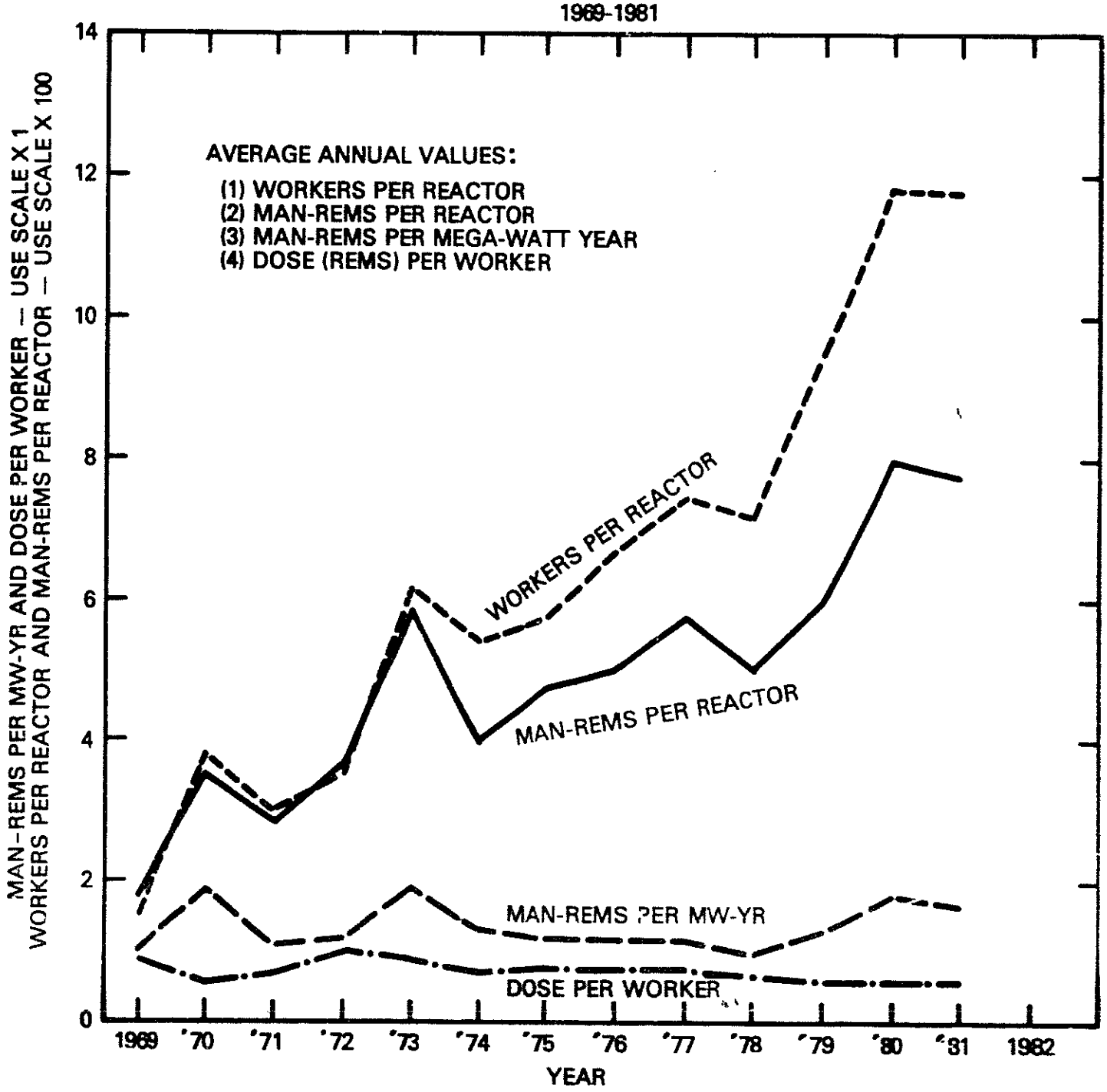
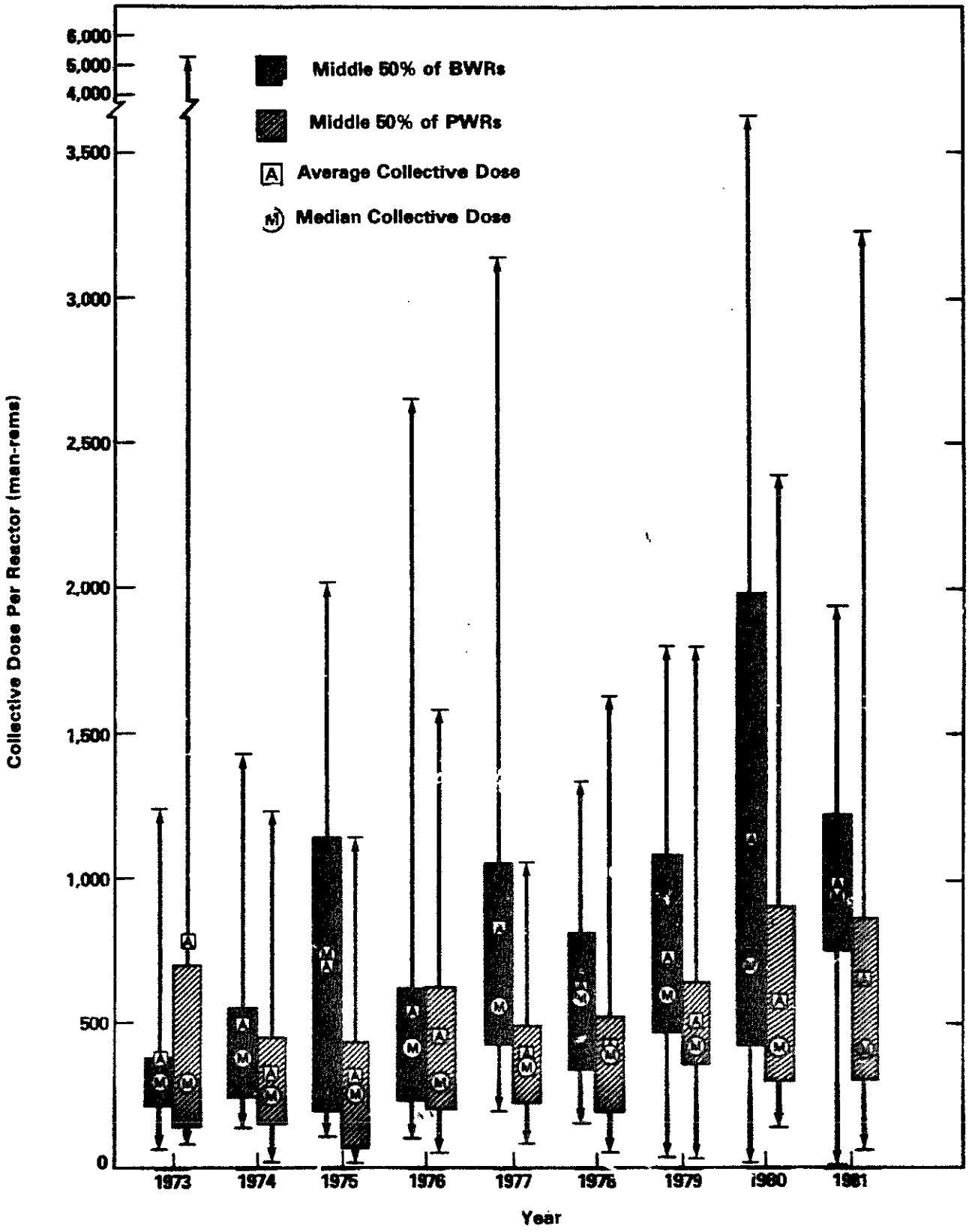


FIGURE 4
AVERAGE, MEDIAN AND EXTREME VALUES OF THE COLLECTIVE DOSE PER REACTOR
1973 - 1981



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-rems 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-rems 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-rems 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				1979				1980				1981				
Site Name	[1]Man-Rems per Site	Dose per Worker (Rems)	Man-Rems per MW-Yr.	Site Name	[1]Man-Rems per Site	Dose per Worker (Rems)	Man-Rems per MW-Yr.	Site Name	[1]Man-Rems per Site	Dose per Worker (Rems)	Man-Rems per MW Yr.	Site Name	[1]Man-Rems per Site	Dose per Worker (Rems)	Man-Rems per MW-Yr.	Site Name	[1]Man-Rems per Site	Dose per Worker (Rems)	Man-Rems per MW-Yr.	CR[2]
Cooper Station	198	0.63	0.37	Cooper Station	158	0.53	0.27	Humboldt Bay	31	0.23	[illegible]	Humboldt Bay	22	0.15	[illegible]	Humboldt Bay	9	0.12	---	0.00
La Crosse	226	1.59	20.38	La Crosse	164	0.80	7.60	Monticello	157	0.42	0.30	La Crosse	219	1.78	8.24	La Crosse	123	0.86	4.2	0.66
Vermont Yankee	258	0.40	0.61	Big Rock Point	175	0.61	3.60	La Crosse	186	1.22	7.75	Hatch 1,2	449	0.23	0.45	Big Rock Point	160	0.33	2.8	0.47
Duane Arnold	288	0.56	0.84	Hatch 1	248	0.19	0.48	Cooper	221	0.62	0.37	Big Rock Point	384	0.59	7.24	Cooper Station	579	0.82	1.3	0.45
Big Rock Point	334	0.72	7.58	Nine Mile Point	314	0.56	0.58	Duane Arnold	275	0.36	0.78	Monticello	531	0.48	1.29	Hatch 1,2	1,337	0.46	1.5	0.35
Millstone Point 1	364	0.37	0.68	Humboldt Bay	335	1.05	–	Big Rock Point	455	0.73	35.00	Nine Mile Point	581	0.50	1.11	Vermont Yankee	731	0.58	1.7	0.45
Browns Ferry 1&2	883	0.46	0.65	Vermont Yankee	339	0.36	0.87	Oyster Creek	467	0.55	0.86	Browns Ferry 1,2,3	1,825	0.67	0.84	Duane Arnold	790	0.61	2.8	0.50
Hatch 1	488	0.36	1.04	Monticello	375	0.68	0.82	Browns Ferry 1,2,3	1,667	0.62	0.70	Duane Arnold	871	0.61	1.98	Browns Ferry 1,2,3	2,360	0.70	1.1	0.49
Quad Cities 1&2	1031	1.14	1.06	Brunswick 1&2	1004	0.89	0.88	Hatch	582	0.27	1.45	Dresden 1,2,3	2,105	0.77	1.96	Oyster Creek	917	0.54	2.9	0.40
Dresden 1,2&3	1684	0.91	1.49	Dresden 1, 2&3	1529	0.78	1.23	Dresden 1,2,3	1,800	0.76	1.78	Cooper Station	859	1.09	1.82	Dresden 1,2,3	2,820	1.16	2.7	0.76
Monticello	1000	1.16	2.34	Browns Ferry 1,2,&3	1792	0.75	0.90	Peach Bottom 2,3	1,388	0.61	0.80	Peach Bottom 2,3	2,302	0.83	1.88	Monticello	1,004	0.88	2.6	0.62
Peach Bottom 2&3	2036	0.72	1.94	Peach Bottom 2&3	1317	0.59	0.80	Fitzpatrick	859	1.01	2.48	Vermont Yankee	1,338	0.93	3.74	Peach Bottom 2,3	2,506	0.88	2.2	0.56
Fitzpatrick	1060	0.79	2.34	Quad Cities 1&2	1618	1.34	1.44	Pilgrim	1,016	0.41	1.77	Oyster Creek	1,723	0.86	7.44	Brunswick 1,2	2,638	0.68	2.9	0.66
Brunswick 2	1129	0.74	3.66	Fitzpatrick	908	1.00	1.83	Quad Cities 1,2	2,158	1.28	2.01	Brunswick 1,2	3,870	1.02	5.63	Fitzpatrick	1,425	0.87	2.8	0.44
Nine Mile Point	1283	1.27	3.99	Duane Arnold	1074	0.85	6.53	Vermont Yankee	1,170	0.86	2.85	Fitzpatrick	2,040	0.99	4.00	Millstone 1	1,496	0.90	4.9	0.44
Oyster Creek	1614	0.86	4.18	Millstone 1	1239	0.89	2.23	Brunswick 1,2	2,603	0.90	3.21	Millstone Point 1	2,158	0.71	5.32	Quad Cities 1,2	3,148	1.40	2.7	0.61
Humboldt Bay	1906	1.79	-	Oyster Creek	1278	0.91	2.96	Nine Mile Point	1,497	1.13	4.23	Quad Cities 1,2	4,838	1.57	5.58	Nine Mile Point	1,582	0.78	4.1	0.58
Pilgrim 1	3142	1.87	8.91	Pilgrim	1327	0.00	2.56	Millstone Point 1	1,783	1.01	3.56	Pilgrim	3,828	1.02	10.08	Pilgrim	1,836	0.66	4.5	0.44
Averages per Reactor	828	0.89	2.1	Averages per Reactor	804	0.74	1.35	Averages per Reactor	733	0.73	1.57	Averages per Reactor	1,136	0.87	2.72	Averages per Reactor	980	0.73	2.3	0.57

[1]For those sites with more than one operating reactor, the numbers of man-rems per reactor is obtained by dividing the number of man-rems reported by the site by the number of reactors.

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

TABLE 5

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

Site Name	1977 [1]Man-Rems per Site	Dose per Worker (Rems)	Man-Rems per MW-Yr.
Beaver Valley	87	0.26	0.27
Palisades	100	0.30	0.16
Kewaunee	140	0.45	0.33
Prairie Island 1&2	300	0.42	0.33
St. Lucie	152	0.34	0.23
Trojan	174	0.29	0.22
Point Beach 1&2	430	1.03	0.49
Millstone Point 2	243	0.36	0.47
Maine Yankee	245	0.48	0.40
Arkansas 1	256	0.43	0.42
Fort Calhoun	287	0.56	0.84
Cook 1	300	0.37	0.66
Yankee Rowe	384	0.48	2.86
Indian Point 1*,2&3	1071	0.77	0.84
Three Mile Island 1	360	0.32	0.54
Rancho Seco	391	0.76	0.55
Ginna	401	0.78	1.10
Oconee 1,2&3	1329	0.83	0.86
Robinson 2	455	0.72	0.89
Zion 1&2	1003	1.28	0.78
Turkey Point 3&4	1036	0.79	1.06
Calvert Cliffs 1	547	0.24	0.66
Haddam Neck	642	0.72	1.33
San Onofre	847	0.66	3.01
Surry 1&2	2307	1.24	2.02
Averages per Reactor	396	0.65	0.78

Site Name	1978 [1]Man-Rems per Site	Dose per Worker (Rems)	Man-Rems per MW-Yr.
Davis Besse	48	0.11	0.15
Farley 1	108	0.20	0.16
Prairie Island 1&2	221	0.40	0.24
Haddam Neck	117	0.54	0.21
Salem 1	122	0.21	0.22
Kewaunee	154	0.46	0.33
Point Beach 1&2	320	0.95	0.33
Arkansas 1	189	0.26	0.30
Beaver Valley	190	0.29	0.83
Calvert Cliffs 1 & 2	500	0.36	0.42
Yankee Rowe	282	0.50	1.94
Trojan	312	0.45	1.55
Crystal River	321	0.50	1.03
Rancho Seco	323	0.64	0.53
Cook 1	336	0.43	0.45
St. Lucie	337	0.42	0.56
San Onofre	401	0.52	1.24
Fort Calhoun	410	0.89	1.20
Maine Yankee	420	0.86	0.85
Ginna	460	0.88	1.17
Oconee 1, 2&3	1393	0.85	0.73
Three Mile Island 1	504	0.26	0.73
Zion 1 & 2	1017	0.92	0.83
Turkey Point 3&4	1032	0.77	1.03
Indian Point 1*,2 & 3	2006	1.05	1.71
Palisades	764	0.90	1.45
Surry 1&2	1637	0.83	1.52
Robinson 2	883	1.02	2.01
Millstone 2	1621	1.14	3.02
Average per Reactor	428	0.65	0.84

Site Name	1979 [1]Man-Rems per Site	Dose per Worker (Rems)	Man-Rems per MW-Yr.
Davis Besse	30	0.10	0.09
Prairie Island 1,2	180	0.30	0.21
Fort Calhoun	126	0.28	0.29
Rancho Seco	126	0.44	0.18
Kewaunee	127	0.37	0.31
Yankee Rowe	127	0.29	0.86
Beaver Valley	132	0.19	0.80
San Onofre	139	0.27	0.35
Maine Yankee	154	0.39	0.29
Trojan	267	0.39	0.41
Point Beach 1,2	544	1.06	0.80
Oconee 1,2,3	1,001	0.48	0.69
Cook 1,2	718	0.50	0.52
Arkansas	369	0.28	0.93
Calvert Cliffs 1,2	805	0.56	0.69
St. Lucie	438	0.48	0.74
North Anna	449	0.22	0.69
Millstone Point 2	472	0.62	0.91
Crystal River	495	0.43	1.08
Salem	584	0.39	2.34
Three Mile Island 1,2	1,170	0.29	4.40
Ginna	592	0.67	1.67
Indian Point 3	636	0.79	1.12
Zion 1,2	1,274	0.87	1.03
Indian Point 1*,2	1,279	0.95	2.23
Farley	643	0.52	3.05
Turkey Point 3,4	1,680	0.84	2.07
Palisades	854	0.93	2.08
Haddam Neck	1,161	0.86	2.36
Robinson 2	1,188	0.82	2.46
Surry 1,2	3,584	0.71	10.46
Average per Reactor	510	0.56	1.17

Site Name	1980 [1]Man-Rems per Site	Dose per Worker (Rems)	Man-Rems per MW-Yr.
Davis Besse	164	0.12	0.60
Kewaunee	165	0.41	0.38
Prairie Island 1,2	353	0.36	0.44
Three Mile Island 1,2	394	0.17	
Yankee Rowe	213	0.42	5.96
North Anna 1	218	0.10	0.32
Cook 1,2	483	0.37	0.32
Point Beach 1,2	598	1.07	0.82
Indian Point 3	308	0.32	0.84
Calvert Cliffs 1,2	677	0.45	0.52
Arkansas 1	342	0.26	0.76
Oconee 1,2,3	1,066	0.50	0.62
Rancho Seco	412	0.48	0.78
Trojan	421	0.36	0.58
Palisades	424	0.32	1.47
Farley	435	0.33	0.78
Salem 1	449	0.26	0.66
Zion 1,2	920	0.68	0.65
Maine Yankee	482	0.63	0.88
Indian Point 1,2	971	0.62	1.90
St. Lucie	532	0.50	0.65
Beaver Valley	553	0.30	13.89
Crystal River	625	0.59	1.55
Millstone point 2	636	0.71	1.10
Ft. Calhoun	668	0.75	2.76
Ginna	706	0.66	1.91
Turkey Point 3,4	1,851	0.92	1.67
Haddam Neck	1,353	0.73	3.17
Robinson 2	1,862	0.82	4.78
Surry 1,2	3,836	0.72	8.75
San Onofre 1	2,387	0.78	24.53
Averages per Reactor	578	0.52	1.33

Site Name	1981 [1]Man-Rems per Site	Dose per Worker (Rems)	Man-Rems per MW-Yr.	CR [2]
Davis-Besse	58	0.10	0.1	0.04
Kewaunee	141	0.37	0.3	0.18
Prairie Island 1,2	329	0.39	0.4	0.30
Three Mile Island 1,2	376	0.18	---	0.06
Beaver Valley	229	0.19	0.4	0.13
Salem 1	264	0.15	0.3	0.09
Point Beach 1,2	596	0.77	0.8	0.48
Yankee Rowe	302	0.59	2.8	0.43
Calvert Cliffs 1,2	607	0.36	0.4	0.19
Cook 1,2	665	0.49	0.4	0.29
North Anna 1,2	680	0.28	0.5	0.37
Indian [illegible]	384	0.54	1.0	0.36
Rancho [illegible]	402	0.52	1.3	0.28
Oconee 1,2,3	1,211	0.50	0.7	0.45
Crystal River 3	408	0.36	0.6	0.23
Maine Yankee	424	0.49	0.7	0.29
Fort Calhoun	458	0.56	1.8	0.80
Farley	511	0.38	1.6	0.26
Millstone 2	531	0.80	0.7	0.44
Arkansas 1,2	1,102	0.50	1.0	0.39
Trojan	609	0.46	0.8	0.33
Ginna	665	0.71	1.6	0.45
Robinson 2	733	0.50	1.7	0.51
Zion 1, 2	1,720	0.98	1.3	0.69
Palisades	902	0.42	2.2	0.41
St. Lucie	929	0.63	1.6	0.43
Haddam Neck	1,036	0.67	2.1	0.52
Turkey Point 3,4	2,251	0.77	3.4	0.61
Indian Point 1,2	2,731	1.06	7.4	0.66
Surry 1,2	4,244	1.13	4.7	0.77
San Onofre	3,223	1.11	33.6	0.72
Averages per Reactor	662	0.61	1.4	0.52

*Indian Point 1 was defueled in 1974.

[1]For those sites with more than one operating reactor, the numbers of man-rems per reactor is obtained by dividing the number of man-rems reported by the site by the number of reactors.

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

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

[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-rems per MW-Yr.
La Crosse	915	787	1.16	112.9	8.1
Big Rock Point	1478	2451	0.60	210.9	7.0
Cooper	2014	2758	0.73	2610.6	0.8
Humboldt Bay	2301	1735	1.33	0.0	---
Duane Arnold	3009	4801	0.63	1471.6	2.0
Monticello	3067	4471	0.69	2208.1	1.4
Vermont Yankee	3836	5502	0.70	2011.9	1.9
Peach Bottom 2,3	9549	12978	0.74	6964.7	1.4
Nine Mile Point	5377	6183	0.87	2148.2	2.5
Oyster Creek	6010	7581	0.79	1906.2	3.2
Fitzpatrick	6313	7680	0.82	2378.9	2.6
Quad Cities 1,2	12791	9137	1.40	5193.4	2.5
MillstonePoint 1	7078	9765	0.72	2347.4	3.0
Dresden 1,2,3	9929	11340	0.88	5498.2	1.8
Pilgrim	10946	12352	0.89	2179.3	5.0
Grand Totals and	84,613	99,521		37,242.3	
Averages per Reactor-year	891	1048	0.85	392	2.3

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	Avera Man-rems per MW-Y
Prairie Island 1,2	1383	3677	0.38	4374.6	0.3
Kewaunee	726	1774	0.41	2189.2	0.3
Beaver Valley	1191	4735	0.25	1494.0	0.8
Yankee Rowe	1280	2748	0.47	563.2	2.3
Point Beach 1,2	2587	2697	0.96	4083.9	0.6
Rancho Seco	1653	2972	0.56	2553.2	0.6
Maine Yankee	1705	3142	0.54	2946.5	0.6
Trojan	1780	4508	0.39	3131.6	0.6
Fort Calhoun	1959	3295	0 59	1637.3	1.2
Oconee 1,2,3	5988	9900	0.60	8548.6	0.7
St. Lucie	2388	4696	0.51	3074.5	0.8
Ginna	2906	4063	0.69	1876.6	1.5
Zion 1,2	5934	6477	0.92	6988.2	0.8
Palisades	3044	6238	0.49	2068.3	1.5
Millstone Point 2	3502	4626	0.76	2877.0	1.2
Turkey Point 3,4	7660	9392	0.81	4436.3	1.7
Haddam Neck	4308	5750	0.75	2451.4	1.8
Robinson 2	5191	6502	0.80	2287.9	2.8
San Onofre	6997	8235	0.85	1198.6	5.8
Surry 1,2	15808	18198	0.87	4168.4	3.8
Grand Totals and	77,880	113,626		62,940.3	
Averages per Reactor-year	557	842	0.69	466	1.2

[1]For those sites with more than one operating reactor, the number of man-rems per reactor is obtained by dividing the number of man-rems 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 DOSES AT COMMERCIAL LIGHT WATER COOLED REACTORS

1969 - 1981

Year	Number of Individuals with Whole Body Exposures in the Indicated Ranges (Rems)																Total Number Monitored	**Annual Collective Doses (Man-rems)	***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	25	5	2					2,838		
1970	6,839			148				166	163	89	98	8	1				7,509		
1971	8,586			410				315	137	105	17	11					9,581		
1972	14,095			688				532	199	111	46	21	9	6	6		15,713		
1973	19,043	5,494	1,698	1,214	740	662	2,468	1,584	422	251	125	71	38	16	7		33,823	13,963	0.72
1974	20,472	6,735	2,887	2,056	1,182	908	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	169	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	1	61,151	26,433	0.62
1977	24,868	13,970	6,534	5,050	3,258	2,486	6,162	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		(11-12) 1	105,313	39,981	0.54
1980	47,377	29,638	11,750	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	1,793	486	93	91	11	2	1	(>12) 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.

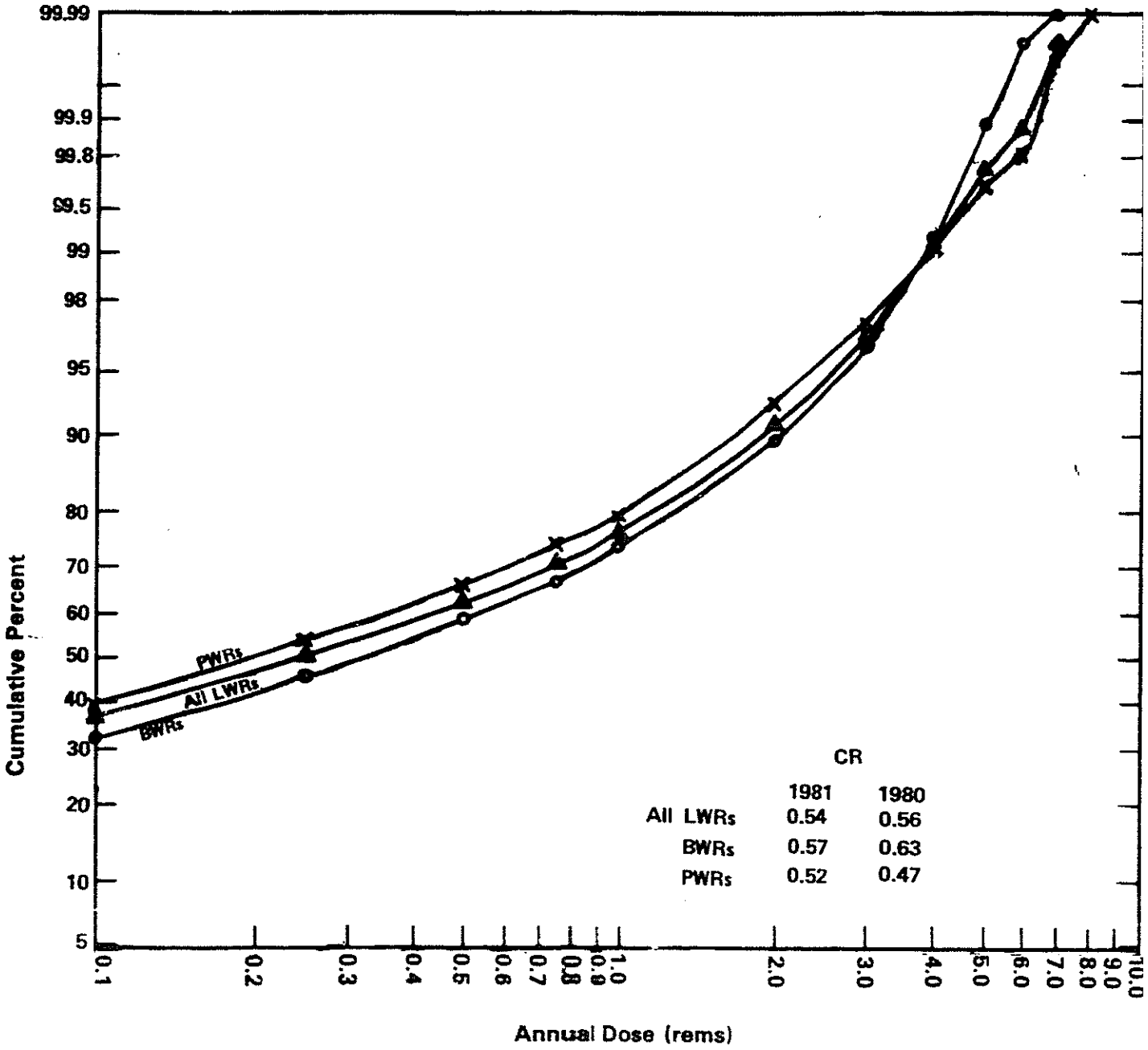
**The collective dose and CR were not reported by the facilities but were calculated by the NRC staff using methods described in this document.

***CR is the ratio of the annual collective dose delivered at individual doses exceeding 1.5 rems 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 d

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 yar), 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 be 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	STATION EMPLOYEES MAN-REMS	% OF TOTAL	UTILITY EMPLOYEES MAN-REMS	% OF TOTAL	CONTRACT WORKERS & OTHERS MAN-REMS	% OF TOTAL	TOTAL PER FUNCTION MAN-REMS	% OF TOTAL
BOILING 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 %	2061.513	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 %
PRESSURIZED WATER REACTORS								
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								
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	STATION EMPLOYEES MAN-REMS	% OF TOTAL	UTILITY EMPLOYEES MAN-REMS	% OF TOTAL	CONTRACT WORKERS & OTHERS MAN-REMS	% OF TOTAL	TOTAL PER FUNCTION MAN-REMS	% OF TOTAL
BOILING WATER REACTORS								
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	335.883	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 %
PRESSURIZED 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	685.458	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 %	[A] 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 %	[A] 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	No. of Commercial Reactors	No. of Workers Terminated by Two or More Licensees	Collective Dose (Man-rems)	Average Dose (Rems)
1972	18	57	57	1.00
1973	24	146	123	0.84
1974	34	285	157	0.55
1975	44	684	493	0.72
1976	53	1,267	889	0.71
1977	57	1,435	851	0.59
1978	64	1,500	680	0.45
1979	67	1,754	802	0.46
1980*	69	2,186	1,006	0.46

Year	No. of Workers Terminated by Two Licensees	Collective Dose (Man-rems)	Average Dose (Rems)	No. of Workers Terminated by Three Licensees	Collective Dose (Man-rems)	Average Dose (Rems)	No. of Workers Terminated by Three Licensees	Collective Dose (Man-rems)	Average Dose (Rems)
1972	54	52	0.96	2	3	1.50	1	2	2.00
1973	133	108	0.81	11	13	1.18	2	2	1.00
1974	255	132	0.52	28	24	0.86	2	1	0.50
1975	609	427	0.70	70	62	0.89	5	4	0.80
1976	1,095	720	0.66	145	146	1.01	17	23	1.35
1977	1,271	718	0.56	147	115	0.78	17	18	1.06
1978	1,303	590	0.45	165	75	0.45	32	15	0.47
1979	1,527	647	0.43	178	130	0.73	49	25	0.51
1980*	1,871	832	0.44	253	138	0.55	62	36	0.58

*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-rems)	Average Dose (Rems)
1977	57	3,161	3,776	1.29
*1978	64	3,202	3,231	1.01
*1979	67	4,022	3,891	0.97
*1980	69	5,463	6,028	1.10

Year	No. of Workers Terminated by Two Licensees	Collective Dose (Man-rems)	Average Dose (Rems)	No. of Workers Terminated by Three Licensees	Collective Dose (Man-rems)	Average Dose (Rems)	No. of Workers Terminated by Four or More Licensees	Collective Dose (Man-rems)	Average Dose (Rems)
1977	2,166	1,987	0.92	572	842	1.47	423	947	2.24
*1978	2,119	1,490	0.73	621	792	1.30	462	949	2.06
*1979	2,761	2,097	0.76	688	805	1.17	493	989	2.01
*1980	3,444	3,772	0.91	959	1,245	1.30	732	1,339	1.83

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

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 Individuals	Total Man-Rems	Avg. Dose (Rems)	Avg. Meas. 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	>12.0					
Actual Distribution of Transients – 1977	220	782	300	236	184	151	500	381	213	100	50	23	11	2						3,161	[b]3,776	1.19	1.29
Compiled Distribution of Transients – 1977	1,694	2,357	804	768	552	417	1,013	362	55	8	5									7,935	[b]3,776	0.48	0.60
Actual Distribution of Transients – 1978	308	885	317	282	177	131	463	307	168	107	42	13	1		1					3,202	[b]3,231	1.01	1.12
Compiled Distribution of Transients – 1978	2,079	2,423	918	780	488	382	873	262	51	11	0	2								8,277	[b]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	[b]3,888	0.99	1.09
Compiled Distribution of Transients – 1979	2,130	2,676	1,250	1,048	673	480	1,040	313	46	3	1									9,649	[b]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					5,463	[b]6,028	1.10	1.22
Compiled Distribution of Transients – 1980	3,207	3,910	1,639	1,398	900	681	1,632	503	74	29	4	4	4							13,965	[b]6,028	0.43	0.56

TABLE 15b

EFFECTS OF TRANSIENT WORKERS ON ANNUAL STATISTICAL COMPILATIONS

[a] Compiled Statistical Distribution – 1977	27,671	15,623	6,780	5,179	3,300	2,600	6,174	2,838	1,130	569	141	66	36	21	6				71,904	32,731	0.46	0.74
[c] Adjusted Statistical Distribution – 1977	26,305	13,948	6,246	4,647	2,932	2,234	5,661	2,857	1,288	661	186	89	47	23	6				67,130	32,643	0.49	0.80
[a] Compiled Statistical Distribution – 1978	31,039	16,673	6,943	5,504	3,399	2,498	6,405	2,989	1,090	418	67	26	8					2		77,051	31,806	0.41	0.69
[c] Adjusted Statistical Distribution – 1978	29,268	16,135	6,342	4 998	3.088	2,247	5,995	3,034	1,197	514	109	37	9		1			2		71 978	31,688	0.45	0.74
[a] Compiled Statistical Distribution – 1979	42,340	24,632	9,883	8,090	5,147	3,426	7,898	3,306	1,255	477	86	28	13	2			1			106,584	39,987	0.38	0.62
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	0.66
[a] Compiled Statistical Distribution – 1980	47,377	29,695	11,751	9,820	6,092	4,516	11,474	4,615	1,637	686	192	98	18	3						128,668	53,799	0.42	0.67
[c] Adjusted Statistical Distribution – 1980	44,703	26,960	10,677	8,904	5,570	4,134	10,671	4,607	1,816	831	235	119	29	7	1					120,166	53,626	0.45	0.72

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

[b] Collective dose found by summing the actual doses reported for these workers on their termination reports.

[c] Distribution 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.

* Figures 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-rems, an average dose of 1.11 rems, and an average measurable dose of 1.23 rems.

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 rems, while the adjusted distribution indicated that there were at least 351 such workers. This resulted in an average measurable dose of 0.80 rems rather than the 0.74 rems obtained from the compiled reports. Although the number of these transient workers has continued to increase, the number of them with doses exceeding five rems 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 rems 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 rems was also considerably less than the overall average of 0.72 rems.

TABLE 16

TEMPORARY WORKERS PER CALENDAR YEAR

(Indididuals terminated by only one employer)

YEAR	No. of Reactors	Total No. Monitored	No. with Meas'ble Dose	Collective Dose	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	2.00-3.00	3.00-4.00	4.00-5.00	5.00-10.00		
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	3,699	885
15 - 21	564	601	260	160	87	43	92	27	4	1	0	1,839	429
22 - 28	2,170	1,006	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	463	526	281	157	110	80	204	129	78	25	29	2,082	1,428
271 - 365	157	210	116	102	79	47	84	68	41	23	3	927	695
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

1971 - 1980

Year	Number of Workers Overexposed to External Radiation	Sum of Whole Body Doses (Man-rems)	Maximum Whole Body Dose (Rems)	Number of Workers Exposed to Excessive Concentrations of Radioactive Material	Maximum Exposure
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	155.9	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 Availa-bility Factor	Total Personnel With Measur-able Doses	Total Man-rems	Man-rems per Work Function		Man-rems per Personnel Type		Average Dose per Worker (Rems)	Man-rems per MW-Yr
						Opera-tions	Maint. & Others	Contrac-tor	Station & Utility		
ARKANSAS 1, 2	1975	588.0	76.5	147	21					0.14	0.0
Docket 50-313; DPR-51, NPF-6	1976	464.6	56.6	476	289	27	262	100	189	0.61	0.6
1st commercial operation 12/74,-3/80	1977	610.3	76.8	601	256	28	228	111	145	0.43	0.4
Type - PWR	1978	627.2	77.5	722	189	32	157	109	80	0.26	0.3
Capacity - 836, 858 MWe	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	1977	355.6	57.0	331	87	8	79	58	29	0.26	0.2
Docket 50-334; DPR-66	1978	304.2	40.8	646	190	11	179	152	38	0.29	0.6
1st commercial operation 10/76	1979	221.0	40.0	704	132	22	110	67	65	0.19	0.6
Type - PWR	1980	39.8	6.8	1817	553	76	477	477	76	0.30	13.9
Capacity - 810 MWe	1981	573.4	73.6	1237	229	38	191	142	87	0.19	.4
BIG ROCK POINT	1969	48.1		165	136					0.82	2.8
Docket 50-155, DPR-6	1970	43.5		290	194					0.67	4.5
1st commercial operation 3/63	1971	44.4		260	184					0.71	4.1
Type - BWR	1972	43.5		195	181					0.93	4.2
Capacity - 64 MWe	1973	50.9		241	285			119	166	1.18	5.6
	1974	40.7	70.3	281	276	54	222	42	234	0.98	6.8
	1975	35.1	59.8	300	180	58	122	20	160	0.60	5.1
	1976	29.5	50.1	488	289	82	207	105	184	0.59	9.8
	1977	43.6	73.4	465	334	94	240	60	274	0.72	7.7
	1978	48.5	77.9	285	175	93	82	9	166	0.61	3.6
	1979	13.0	23.5	623	455	89	366	102	353	0.73	35.0
	1980	48.9	79.0	599	354	16	338	91	263	0.59	7.2
	1981	56.9	90.6	479	160	58	102	38	122	.33	2.8
BROWNS FERRY 1, 2, 3	1975	161.7	17.8	2380	325					0.14	2.0
Docket 50-259, 50-260, 50-296; DPR-33, -52, -68	1976	337.6	26.9	2207	234					0.11	0.7
	1977	1327.5	73.0	1858	863	60	803	249	614	0.46	0.6
1st commercial operation 8/74, 3/75, 3/77	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
Type - BWR	1980	2182.1	73.6	2712	1825	4	1821	49	1776	0.67	0.8
Capacity - 1065, 1065, 1065 MWe	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 Availa-bility Factor	Total Personnel With Measur-able Doses	Total Man-rems	Man-rems per Work Function		Man-rems per Personnel Type		Average Dose per Worker (Rems)	Man-rems per MW-Yr
						Opera-tions	Maint. & Others	Contrac-tor	Station & Utility		
BRUNSWICK 2, 1	1976	297.2	56.0	1265	326	15	311	222	104	0.26	1.1
Docket 50-324, 50-325; DPR-62, -71	1977	291.1	55.7	1512	1119	48	1071	782	337	0.74	3.8
1st commercial operation 11/75, 3/77	1978	1173.1	83.7	1458	1004	99	905	695	309	0.69	0.8
Type - BWR	1979	810.0	60.1	2891	2602	97	2505	2074	528	0.90	3.2
Capacity - 790, 790 MWe	1980	687.2	52.2	3788	3870	111	3759	3098	772	1.02	5.6
	1981	925.2	56.9	3854	2638	159	2479	1890	748	0.68	2.9
CALVERT CLIFFS 1, 2	1976	753.4	95.2	507	74	28	46	8	66	0.15	0.1
Docket 50-317, 50-318; DPR-53, -69	1977	583.0	72.1	2265	547	36	511	224	323	0.24	0.9
1st commercial operation 5/75, 4/77	1978	1188.5	75.8	1391	500	13	487	143	357	0.36	0.4
Type - PWR	1979	1161.0	74.0	1428	805	33	772	423	382	0.56	0.7
Capacity 825, 825 MWe	1980	1309.9	84.1	1496	677	15	662	402	275	0.45	0.5
	1981	1379.7	83.1	1555	607	29	578	378	229	0.39	0.4
COOK 1, 2	1976	807.4	83.1	395	116	13	103	71	45	0.29	0.1
Docket 50-315; DPR-58, -74	1977	573.0	76.1	802	299	21	278	138	161	0.37	0.5
1st commercial operation 8/75,7/78	1978	744.8	73.6	778	336	49	287	139	197	0.43	0.4
Type - PWR	1979	1373.0	65.3	1445	718	45	673	454	264	0.50	0.5
Capacity - 1044 MWe, 1082 MWe	1980	1552.4	74.1	1345	493	46	447	323	170	0.37	0.3
	1981	1557.3	73.4	1341	655	48	607	442	213	.49	0.4
COOPER STATION	1975	456.4	83.6	579	117	30	87	19	98	0.20	0.2
Docket 50-298; DPR-46	1976	433.3	75.5	763	350	39	311	210	140	0.46	0.8
1st commercial operation 7/74	1977	538.2	96.2	315	197	50	147	66	131	0.63	0.4
Type - BWR	1978	576.0	91.0	297	158	40	118	58	100	0.53	0.3
Capacity - 764 MWe	1979	591.0	87.6	426	221	50	171	89	132	0.52	0.4
	1980	448.3	71.2	785	859	70	789	644	215	1.09	1.9
	1981	457.1	71.2	935	579	63	516	382	197	0.62	1.3
CRYSTAL RIVER 3	1978	311.5	41.4	643	321	8	313	244	77	0.50	1.0
Docket 50-302; DPR-72	1979	453.0	58.9	1150	495	29	466	346	149	0.43	1.1
1st commercial operation 3/77	1980	402.1	53.2	1053	625	24	601	382	243	0.59	1.6
Type - PWR	1981	490.4	62.2	1120	408	18	340	236	172	0.36	0.8
Capacity - 782 MWe											

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

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Total Man-rems	Man-rems per Work Function		Man-rems per Personnel Type		Average Dose per Worker (Rems)	Man-rems per MW-Yr
						Opera-tions	Maint. & Others	Contrac-tor	Station & Utility		
DAVIS-BESSE 1	1978	326.4	48.7	421	48	13	35	14	34	0.11	0.1
Docket 50-346; NPF-3	1979	381.0	67.0	304	30	8	22	5	25	0.10	0.1
1st commercial operation 11/77	1980	256.4	36.2	1283	154	4	150	121	33	0.12	0.6
Type - PWR	1981	531.4	67.4	578	58	1	57	32	26	0.10	0.1
Capacity - 874 MWe											
DRESDEN 1*, 2, 3	1969	99.7			286						2.9
Docket 50-010, 50-237, 50-249;	1970	163.1			143						0.9
DPR-2, -19, -25	1971	394.5			715						1.8
1st commercial operation 7/60,	1972	1243.7			728						0.6
7/70, 11/71	1973	1112.2		1341	939	143	796	344	595	0.70	0.8
Type - BWR	1974	842.5	54.9	1594	1662			57	1605	1.04	2.0
Capacity - 197, 772, 773 MWe	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	65.0	2717	2105	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	1976	305.2	78.0	350	105	14	91	62	43	0.30	0.3
Docket 50-331; DPR-49	1977	353.6	78.9	538	299	36	263	220	79	0.56	0.8
1st commercial operation 2/75	1978	149.2	33.2	1112	974	59	915	932	42	0.88	6.5
Type - BWR	1979	352.0	78.0	757	275	35	240	219	56	0.36	0.8
Capacity - 515 MWe	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	1978	713.8	86.5	527	108	39	69	34	74	0.20	0.1
Docket 50-348; NPF-2	1979	211.0	28.6	1227	643	108	535	460	183	0.52	3.0
1st commercial operation 12/77	1980	557.3	69.3	1330	435	106	329	185	250	0.33	0.8
Type - PWR	1981	310.2	41.4	1331	511	96	415	270	241	0.38	1.6
Capacity - 804 MWe											

*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 Availa-bility Factor	Total Personnel With Measur-able Doses	Total Man-rems	Man-rems per Work Function		Man-rems per Personnel Type		Average Dose per Worker (Rems)	Man-rems per MW-Yr
						Opera-tions	Maint. & Others	Contrac-tor	Station & Utility		
FITZPATRICK	1976	489.0	71.6	600	202					0.34	0.4
Docket 50-333; DPR-59	1977	460.5	68.4	1380	1080	14	1066	937	143	0.78	2.3
1st commercial operation 7/75	1978	497.0	72.1	904	909	166	743	597	312	1.00	1.8
Type - BWR	1979	349.0	50.8	850	859	169	690	538	321	1.01	2.5
Capacity - 810 MWe	1980	509.5	70.3	2056	2040	118	1922	1808	232	0.99	4.0
	1981	562.9	74.7	2490	1425	187	1238	1072	353	0.57	2.5
FORT CALHOUN	1974	294.0	83.5	327	71			24	47	0.22	0.2
Docket 50-285; DPR-40	1975	252.3	67.4	469	294			92	202	0.63	1.2
1st commercial operation 9/73	1976	265.9	69.5	516	313	28	285	38	275	0.61	1.2
Type - PWR	1977	351.8	79.4	535	297	33	264	72	225	0.56	0.8
Capacity - 478 MWe	1978	342.3	75.1	596	410	59	351	151	259	0.69	1.2
	1979	440.0	95.7	451	126	19	107	47	79	0.28	0.3
	1980	242.3	60.4	891	668	38	630	426	242	0.75	2.8
	1981	260.9	72.3	822	458	61	397	254	204	0.56	1.8
GINNA	1971	327.8		340	430	69	361	108	322	1.26	1.3
Docket 50-244; DPR-18	1972	293.6		677	1032	71	961	278	754	1.52	3.5
1st commercial operation 7/70	1973	409.5		319	224	55	169	84	140	0.70	0.5
Type - PWR	1974	253.7	62.4	884	1225					1.39	4.8
Capacity - 470 MWe	1975	365.2	76.7	685	538					0.78	1.5
	1976	248.8	58.2	758	636	29	607	210	426	0.84	2.5
	1977	365.6	85.5	530	401	15	386	120	281	0.76	1.1
	1978	386.5	80.6	657	450	20	430	98	352	0.68	1.2
	1979	355.0	72.8	878	592	68	524	207	385	0.67	1.7
	1980	370.5	76.0	1073	708	64	644	302	406	0.66	1.9
	1981	399.0	82.1	925	655	49	606	251	404	0.71	1.6
HADDAM NECK (CONN. YANKEE)	1969	438.5		138	106			27	79	0.77	0.2
Docket 50-213; DPR-61	1970	424.7		734	689			463	226	0.94	1.6
1st commercial operation 1/68	1971	502.2		289	342			166	176	1.18	0.7
Type - PWR	1972	515.6		355	325			181	144	0.91	0.6
Capacity - 555 MWe	1973	293.1		951	697			544	153	0.73	2.4
	1974	521.4	91.2	550	201					0.36	0.4
	1975	494.3	89.9	795	703	20	683			0.88	1.4
	1976	482.9	82.5	644	449	5	444	253	196	0.70	0.9
	1977	480.7	83.9	894	641	59	582	440	201	0.72	1.3
	1978	563.4	98.6	216	117	25	92	18	99	0.54	0.2
	1979	493.0	87.5	1226	1161	73	1088	783	378	0.95	2.4
	1980	426.8	75.0	1860	1353	175	1178	1076	277	0.73	3.2
	1981	487.5	84.3	1554	1036	174	862	809	227	0.67	2.1

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

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Total Man-rems	Man-rems per Work Function		Man-rems per Personnel Type		Average Dose per Worker (Rems)	Man-rems per MW-Yr
						Opera-tions	Maint. & Others	Contrac-tor	Station & Utility		
HATCH 1,2[a]	1976	496.3	83.8	630	134	79	55	4	130	0.21	0.3
Docket 50-321; DPR-57; NPF-05	1977	446.8	66.3	1303	465	96	369	220	245	0.36	1.0
1st commercial operation 12/75, 9/79	1978	513.0	72.8	1304	248	88	160	52	196	0.19	0.5
Type - BWR	1979	401.0	54.6	2131	582	85	497	382	200	0.27	1.5
Capacity - 757, 767 MWe	1980	1008.7	70.9	1930	449	143	306	163	286	0.23	0.4
	1981	870.9	64.3	2899	1337	200	1137	792	545	0.46	1.5
HUMBOLDT BAY[b]	1969	44.6		125	164	69	95	12	152	1.31	3.7
Docket 50-133; DPR-7	1970	49.3		115	209	130	79	37	172	1.82	4.2
1st commercial operation 8/63	1971	39.6		140	292	114	178	65	227	2.09	7.4
Type - BWR	19.2	43.1		127	253	81	172	57	196	1.99	5.9
Capacity - 63 MWe	1973	50.1		210	266	60	206			1.27	5.3
	1974	43.4	83.8	296	318	103	215			1.07	7.3
	1975	45.3	83.9	265	339	131	208	112	227	1.28	7.5
	1976	23.5	46.4	523	683	37	646	50	633	1.31	29.1
	1977	0	0	1063	1904	24	1880	973	931	1.79	-
	1978	0	0	320	335	13	322	145	190	1.05	-
	1979	0	0	135	31	11	20	2	29	0.23	-
	1980	0	0	142	22	10	12	3	19	0.15	-
	1981	0	0	75	9					0.12	-
INDIAN POINT 1*, 2, 3**	1969	206.2			298						1.4
Docket 50-3, 50-247, 50-286;	1970	43.3			1639						37.8
DPR-5, -26, -64	1971	154.0			768						5.0
1st commercial operation 10/62,	1972	142.3			967						6.8
8/73, 8/76	1973	0		2998	5262	709	4553	2847	2415	1.75	-
Type - PWR	1974	556.1	59.4	1019	910					0.89	1.6
	1975	584.4	74.8	891	705	166	539	47	658	0.79	1.2
	1976	273.9	34.8	1590	1950	154	1796	172	1778	1.23	7.1
	1977	1278.3	75.3	1391	1070	189	881	383	687	0.77	0.8
	1978	1172.3	67.8	1909	2006	260	1746	759	1247	1.05	1.7

[a] Hatch 2 was counted for the first time in 1980.

[b] Humboldt 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 Availa-bility Factor	Total Personnel With Measur-able Doses	Total Man-rems	Man-rems per Work Function		Man-rems per Personnel Type		Average Dose per Worker (Rems)	Man-rems per MW-Yr
						Opera-tions	Maint. & Others	Contrac-tor	Station & Utility		
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	[illegible]	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			111			40	71		7.2
	1971	33.1		218	158					0.72	4.8
	1972	29.2		151	172					1.14	5.9
	1973	24.4		157	221					1.41	9.1
	1974	37.9	81.0	115	139	89	50	6	133	1.21	3.7
	1975	32.0	69.6	165	234					1.42	7.3
	1976	21.2	47.6	118	111	40	71	6	105	0.94	5.2
	1977	11.3	33.7	141	224	60	164	8	215	1.59	19.8
	1978	21.6	62.0	182	164	69	95	6	158	0.90	7.6
	1979	24.0	71.8	153	186	65	121	21	165	1.22	7.7
	1980	26.4	68.5	124	218	63	155	11	207	1.76	8.3
	1981	29.6	76.0	187	123	62	61	3	120	0.66	4.2

*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 Availa-bility Factor	Total Personnel With Measur-able Doses	Total Man-rems	Man-rems per Work Function		Man-rems per Personnel Type		Average Dose per Worker (Rems)	Man-rems per MW-Yr
						Opera-tions	Maint. & Others	Contrac-tor	Station & Utility		
MAINE YANKEE	1973	408.7		782	117			59	58	0.15	0.3
Docket 50-309; DPR-36	1974	432.6	68.7	619	420	64	356	188	232	0.68	1.0
1st commercial operation 12/72	1975	542.9	79.9	440	319	15	304	181	138	0.72	0.6
Type - PWR	1976	712.2	95.0	244	85	27	58	26	59	0.35	0.1
Capacity - 810 MWe	1977	617.6	82.2	508	245	46	199	112	133	0.48	0.4
	1978	642.7	84.1	638	420	54	366	262	158	0.66	0.6
	1979	537.0	68.4	393	154	70	84	26	128	0.39	0.3
	1980	527.0	72.2	735	462	117	345	277	185	0.63	0.9
	1981	624.2	78.2	868	424	11	413	308	116	0.49	0.7
MILLSTONE POINT 1	1972	377.6		612	596	50	546	340	256	0.97	1.6
Docket 50-245; DPR-21	1973	225.1		1184	663	125	538	422	241	0.56	2.9
1st commercial operation 3/71	1974	430.3	79.1	2477	1430					0.58	3.3
Type - BWR	1975	465.4	75.6	2587	2022					0.78	4.3
Capacity - 654 MWe	1976	449.8	76.1	1377	1194	54	1140	955	239	0.87	2.6
	1977	575.7	89.6	1075	392	118	274	159	233	0.36	0.7
	1978	556.6	87.6	1391	1239	140	1099	907	332	0.89	2.2
	1979	505.0	77.3	1769	1793	198	1595	1326	467	1.01	3.6
	1980	405.8	69.0	3024	2158	100	2058	1864	294	0.71	5.3
	1981	304.3	51.6	2506	1496	96	1400	1201	295	0.60	4.9
MILLSTONE POINT 2	1976	545.7	78.7	620	168	26	142	73	95	0.27	0.3
Docket 50-336; DPR-65	1977	518.7	65.7	667	242	38	204	153	89	0.36	0.5
1st commercial operation 12/75	1978	536.6	67.3	1420	1621	72	1549	1534	87	1.14	3.0
Type - PWR	1979	520.0	62.8	757	472	81	391	305	167	0.62	0.9
Capacity - 864 MWe	1980	579.3	69.2	892	636	76	560	514	122	0.71	1.1
	1981	722.4	82.6	890	531	44	487	393	138	0.60	0.7
MONTICELLO	1972	424.4		99	61	40	21	1	60	0.62	0.1
Docket 50-263; DPR-22	1973	389.5		401	176	48	128	67	109	0.44	0.4
1st commercial operation 6/71	1974	349.3	74.9	842	349			91	258	0.41	1.0
Type - BWR	1975	344.8	72.2	1353	1353					1.00	3.9
Capacity - 536 MWe	1976	476.4	91.5	325	263	59	204	51	212	0.81	0.5
	1977	425.6	79.9	860	1000	135	865	661	339	1.16	2.3
	1978	459.4	87.2	679	375	62	313	165	210	0.55	0.8
	1979	522.0	97.6	372	157	62	95	51	106	0.42	0.3
	1980	411.8	78.2	1114	531	82	449	248	283	0.48	1.3
	1981	389.3	72.6	1446	1004	101	903	756	248	0.69	2.6

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

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Total Man-rems	Man-rems per Work Function		Man-rems per Personnel Type		Average Dose per Worker (Rems)	Man-rems per MW-Yr
						Opera-tions	Maint. & Others	Contrac-tor	Station & Utility		
NINE MILE POINT 1	1970	227.0		821	44	12	32	17	27	0.05	0.2
Docket 50-220; DPR-63	1971	346.5		1006	195	43	152	63	132	0.19	0.6
1st commercial operation 12/69	1972	381.8		735	285	59	226	28	257	0.39	0.7
Type - BWR	1973	411.0		550	567	139	428	118	449	1.03	1.4
Capacity - 610 MWe	1974	385.9	70.5	740	824	42	782	279	545	1.11	2.1
	1975	359.0	72.1	649	681	68	613	203	478	1.05	1.9
	1976	484.6	88.5	308	428	52	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	1979	507.0	61.7	2025	449	78	371	190	259	0.22	0.9
Docket 50-338; NPF-04, - 09	1980	681.8	86.5	2086	218	128	90	85	133	0.10	0.3
1st commercial operation 6/78,	1981	1241.9	71.5	2416	680	188	492	343	337	0.28	0.5
Type - PWR											
Capacity - 865 MWe											
OCONEE 1, 2, 3	1974	650.6	60.1	844	517	18	499	144	373	0.61	0.8
Docket 50-269, 50-270, 50-287;	1975	1838.3	75.5	829	497	72	425	90	407	0.60	0.3
DPR-38, -47, -55	1976	1561.4	63.0	1215	1026	65	961	219	807	0.84	0.6
1st commercial operation 7/73	1977	1566.4	65.9	1595	1328	244	1084	294	1034	0.83	0.8
9/74, 12/74	1978	1909.0	75.8	1636	1393	179	1214	340	1053	0.85	0.7
Type - PWR	1979	1708.0	67.7	2100	1001	123	878	181	820	0.48	0.6
Capacity - 860, 860, 860 MWe	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
OYSTER CREEK	1970	413.6		95	63	21	42	11	52	0.66	0.1
Docket 50-219; DPR-16	1971	448.9		249	240	50	190	92	148	0.96	0.5
1st commercial operation 12/69	1972	515.0		339	582	150	432	167	415	1.72	1.1
Type - BWR	1973	424.6		782	1236	195	1041	683	553	1.58	2.9
Capacity - 620 MWe	1974	434.5	70.4	935	984	166	818	162	822	1.05	2.3
	1975	373.6	73.3	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	1689	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 Availa-bility Factor	Total Personnel With Measur-able Doses	Total Man-rems	Man-rems per Work Function		Man-rems per Personnel Type		Average Dose per Worker (Rems)	Man-rems per MW-Yr
						Opera-tions	Maint. & Others	Contrac-tor	Station & Utility		
PALISADES	1972	216.8			78						0.4
Docket 50-255; DPR-20	1973	286.8		975	1133	16	1117	661	472	1.16	3.9
1st commercial operation 12/71	1974	10.7	5.5	774	627					0.81	58.6
Type - PWR	1975	302.0	64.5	495	306					0.62	1.0
Capacity - 635 MWe	1976	346.9	55.2	742	696	23	673	109	587	0.94	2.0
	1977	616.6	91.4	332	100	13	87	23	77	0.30	0.2
	1978	320.2	49.7	849	764	52	712	173	591	0.90	2.4
	1979	415.0	59.9	1599	854	99	755	360	494	0.53	2.1
	1980	288.3	42.9	1307	424	191	233	312	112	0.32	1.5
	1981	418.2	57.2	2151	902	167	735	737	165	0.42	2.2
PEACH BOTTOM 2, 3	1975	1234.3	80.9	971	228					0.23	0.2
Docket 50-277, 50-278; DPR-44, -56	1976	1379.2	73.0	2136	840	180	660	434	406	0.39	0.6
1st commercial operation 7/74, 12/74	1977	1052.4	58.7	2827	2036	223	1813	1374	662	0.72	1.9
	1978	1636.3	84.0	2244	1317	162	1155	709	608	0.59	0.8
Type - BWR	1979	1740.0	84.5	2276	1388	245	1143	717	671	0.61	0.8
Capacity - 1051, 1035 MWe	1980	1374.2	66.3	2774	2302	311	1991	1596	706	0.83	1.7
	1981	1161.8	58.0	2857	2506	273	2233	1880	626	0.88	2.2
PILGRIM 1	1973	484.0		230	126	49	77			0.55	0.3
Docket 50-293; DPR-35	1974	234.1	39.2	454	415					0.91	1.8
1st commercial operation 12/72	1975	308.1	71.3	473	798	142	656	412	386	1.69	2.6
Type - BWR	1976	287.8	60.7	1317	2648	66	2582	2270	378	2.01	9.2
Capacity - 670 MWe	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 Availa-bility Factor	Total Personnel With Measur-able Doses	Total Man-rems	Man-rems per Work Function		Man-rems per Personnel Type		Average Dose per Worker (Rems)	Man-rems per MW-Yr
						Opera-tions	Maint. & Others	Contrac-tor	Station & Utility		
POINT BEACH 1, 2	1971	393.4			164						0.4
Docket 50-266, 50-301; DPR-24, -27	1972	378.3			580						1.5
1st commercial operation 12/70, 10/72	1973	693.7		501	588	72	516			1.17	0.8
Type - PWR	1974	760.2	81.3	400	295	70	225	81	214	0.74	0.4
Capacity - 495, 495 MWe	1975	801.2	82.9	339	459					1.35	0.6
	1976	857.3	86.7	313	370	58	312	107	263	1.18	0.4
	1977	873.9	87.3	417	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
	1981	760.4	83.6	773	596	83	513	364	232	0.77	0.8
PRAIRIE ISLAND 1, 2	1974	181.9	43.9	150	18			5	13	0.12	0.1
Docket 50-282, 50-306; DPR-42, -60	1975	836.0	83.3	477	123					0.26	0.1
1st commercial operation 12/73, 12/74	1976	725.2	76.6	818	447	68	379	235	212	0.55	0.6
Type - PWR	1977	922.9	87.2	718	300	73	227	60	240	0.42	0.3
Capacity - 503, 500 MWe	1978	941.1	92.2	546	221	43	178	48	173	0.40	0.2
	1979	865.0	86.0	594	180	29	151	49	131	0.30	0.2
	1980	800.7	79.9	983	353	40	313	141	212	0.36	0.4
	1981	844.9	80.6	836	329	153	176	128	201	0.39	0.4
QUAD CITIES 1, 2	1974	958.1	72.3	678	482			36	446	0.71	0.5
Docket 50-254, 50-265; DPR-29, -30	1975	833.6	68.4	1083	1618	114	1504	692	926	1.49	1.9
1st commercial operation 2/73, 3/73	1976	951.2	73.1	1225	1651	269	1382	648	1003	1.35	1.7
Type - BWR	1977	970.1	84.0	907	1031	108	923	373	658	1.14	1.1
Capacity - 769, 769 MWe	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
RANCHO SECO	1976	268.1	30.4	297	58	6	52	17	41	0.19	0.2
Docket 50-312; DPR-54	1977	706.4	77.1	515	390	61	329	248	142	0.76	0.5
1st commercial operation 4/75	1978	607.7	80.5	508	323	76	247	176	147	0.64	0.5
Type - PWR	1979	687.0	91.1	287	126	27	99	64	62	0.44	0.2
Capacity - 873 MWe	1980	530.9	60.4	890	412	110	302	281	131	0.46	0.8
	1981	321.2	40.2	772	402	83	319	266	137	0.52	1.3

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

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availa-bility Factor	Total Personnel With Measur-able Doses	Total Man-rems	Man-rems per Work Function		Man-rems per Personnel Type /		Average Dose per Worker (Rems)	Man-rems per MW-Yr
						Opera-tions	Maint. & Others	Contrac-tor	Station & Utility		
ROBINSON 2	1972	580.0		245	215	42	173	137	78	0.88	0.4
Docket 50-261; DPR-23	1973	455.1		831	695					0.84	1.5
1st commercial operation 3/71	1974	578.1	83.3	853	672	185	487			0.79	1.2
Type - PWR	1975	501.8	72.7	849	1142					1.34	2.3
Capacity - 665 MWe	1976	585.5	84.7	597	715	30	685	457	758	1.20	1.2
	1977	511.5	85.2	634	455	52	403	223	232	0.72	0.9
	1978	480.5	72.0	943	963	63	900	529	434	1.02	2.0
	1979	482.0	70.8	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	1978	546.4	55.6	574	122	28	94	32	90	0.21	0.2
Docket 50-272; DPR-70	1979	250.0	25.5	1488	584	100	484	359	225	0.39	2.3
1st commercial operation 6/77	1980	680.6	69.2	1704	449	55	394	281	168	0.26	0.7
Type - PWR	1981	743.0	78.1	1652	254	4	250	152	102	0.15	0.3
Capacity - 1079 MWe											
SAN ONOFRE 1	1969	314.1		123	42	10	32	5	37	0.34	0.1
Docket 50-206; DPR-13	1970	365.9		251	155	13	142	59	96	0.62	0.4
1st commercial operation 1/68	1971	362.1		121	50	12	38	3	47	0.41	0.1
Type - PWR	1972	338.5		326	256	29	227	117	139	0.78	0.8
Capacity - 436 MWe	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	1977	649.1	84.7	445	152	26	126	92	60	0.34	0.2
Docket 50-335; DPR-67	1978	606.4	76.5	797	337	15	322	140	197	0.42	0.6
1st commercial operation 12/76	1979	592.0	74.0	907	438	25	413	209	229	0.48	0.7
Type - PWR	1980	627.9	77.6	1074	532	82	450	196	337	0.50	0.8
Capacity - 777 MWe	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 Availa-bility Factor	Total Personnel With Measur-able Doses	Total Man-rems	Man-rems per Work Function		Man-rems per Personnel Type		Average Dose per Worker (Rems)	Man-rems per MW-Yr
						Opera-tions	Maint. & Others	Contrac-tor	Station & Utility		
SURRY 1, 2	1973	420.6		936	152					0.16	0.4
Docket 50-280, 50-281; DPR-32, -37	1974	717.4	49.8	1715	884	72	812			0.51	1.2
1st commerical operation 12/72, 5/73	1975	1079.0	70.8	1948	1649	27	1622	1065	584	0.85	1.5
Type - PWR	1976	930.7	60.4	2753	3165	444	2721	1873	1292	1.15	3.4
Capacity - 775, 775 MWe	1977	1139.0	72.2	1860	2307	348	1959	1380	927	1.24	2.0
	1978	1210.6	77.2	2203	1837	726	1111	1029	808	0.83	1.5
	1979	343.0	42.3	5065	3584	173	3411	2975	609	0.71	10.4
	1980	568.2	40.3	5317	3836	353	3483	3117	719	0.72	6.6
	1981	907.6	59.3	3753	4244	428	3816	3040	1204	1.13	4.7
*THREE MILE ISLAND 1,2	1975	675.9	82.2	131	73			18	55	0.56	0.1
Docket 50-289; DPR-50, -73	1976	530.0	65.4	819	286	23	263	69	217	0.35	0.5
1st commercial operation-9/74,	1977	664.5	80.9	1122	359	15	344	128	231	0.32	0.5
Type - PWR 12/78	1978	690.0	85.1	1929	504	23	481	235	269	0.26	0.7
Capacity - 776 MWe	1979	266.0	21.9	4024	1392	197	1196	907	485	0.85	5.2
	1980	0.0	0.0	2328	394	29	365	234	160	0.17	-
	1981	0.0	0.0	2103	376	50	326	190	186	0.18	-
TROJAN	1977	792.0	92.6	591	174	30	144	105	69	0.29	0.2
Docket 50-344; NPF-1	1978	205.5	20.6	711	319	81	238	124	195	0.45	1.5
1st commercial operation 5/76	1979	631.0	58.1	736	257	74	183	113	144	0.35	0.4
Type - PWR	1980	727.5	72.5	1159	421	77	344	305	116	0.36	0.6
Capacity - 1080 MWe	1981	775.6	74.1	1311	609	113	496	363	246	0.46	0.8
TURKEY POINT 3, 4	1973	401.9		444	78					0.18	0.2
Docket 50-250, 50-251; DPR-31, -41	1974	953.6		794	454	88	366	202	252	0.57	0.5
1st commercial operation 12/72, 9/73	1975	1003.7	74.9	1176	876	270	606	559	317	0.74	0.9
Type - PWR	1976	974.2	71.2	1647	1184	89	1095	868	316	0.72	1.2
Capacity - 646, 646 MWe	1977	979.5	72.1	1319	1036	94	942	522	514	0.78	1.1
	1978	1000.2	78.8	1336	1032	90	942	546	486	0.77	1.0
	1979	811.0	62.4	2002	1680	299	1381	997	683	0.84	2.1
	1980	990.6	73.6	1803	1651	232	1419	1218	433	0.92	1.7
	1981	654.0	46.8	2932	2251	1977	274	1854	397	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 Availa-bility Factor	Total Personnel With Measur-able Doses	Total Man-rems	Man-rems per Work Function		Man-rems per Personnel Type		Average Dose per Worker (Rems)	Man-rems per MW-Yr
						Opera-tions	Maint. & Others	Contrac-tor	Station & Utility		
VERMONT YANKEE Docket 50-271; DPR-28 1st commercial operation 11/72 Type - BWR Capacity - 504 MWe	1973	222.1		244	85					0.35	0.4
	1974	303.5		357	216	24	192	103	113	0.60	0.7
	1975	429.0	87.8	282	153	70	83	63	90	0.54	0.4
	1976	389.6	77.1	815	411	36	375	246	165	0.50	1.0
	1977	423.5	85.1	641	258	83	175	90	168	0.40	0.6
	1978	387.5	75.9	934	339	78	261	158	181	0.36	0.9
	1979	414.0	82.1	1220	1170	646	624	642	528	0.96	2.8
	1980	357.8	71.5	1443	1338	141	1197	926	412	0.93	3.7
	1981	429.1	84.6	1264	731	121	610	408	323	0.58	1.7
YANKEE ROWE Docket 50-29; DPR-3 1st commercial operation 7/61 Type - PWR Capacity - 175 MWe	1969	138.3		193	215	83	132	78	133	1.11	1.5
	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
	[illegible]	78.7		282	255	63	192	146	109	0.90	3.2
	[illegible]	127.1		133	99			47	52	0.74	0.8
	[illegible]	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
	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
ZION 1, 2 Docket 50-295, 50-304; DPR-39, -48 1st commercial operation 12/73, 9/74 Type - PWR Capacity - 1040, 1040 MWe	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 Whole Body Doses in the Following Ranges (Rems)															Total Number Monitored	Number with Measurable Exposure	Total Man-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			
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							6,772	3,379	2,380***
Brunswick 1, 2	BWRs	1,275	1,647	539	365	222	161	431	272	168	48	1					5,129	3,854	2,638***
Calvert Cliffs 1, 2	PWRs	950	485	353	289	207	101	105	15								2,505	1,555	607
Cook 1, 2	PWRs	540	416	224	240	167	115	147	32								1,881	1,341	655
Cooper Station	BWR	997	347	89	127	83	69	164	56								1,932	935	579
Crystal River	PWR	882	453	213	195	101	62	87	6	1	2						2,002	1,120	408

*Arkansas 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 Whole Body Doses in the Following Ranges (Rems)														Total Number Monitored	Number with Measurable Exposure	Total** Man-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			
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 Man-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	BWR	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								1,209	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 1.16 type reports (see Appendix A).

**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 is 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 ** Man-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			
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							3,265	2,445	1,211***
Oyster Creek	BWR	218	554	322	214	168	125	233	67	6							1,907	1,689	917
Palisades	PWR	370	1,047	322	261	153	93	195	55	24	1						2,521	2,151	902
Peach Bottom 2, 3	BWRs	1,634	611	294	479	311	260	564	237	73	25	3					4,491	2,857	2,506
Pilgrim	BWR	0	753	357	568	280	223	453	123	41	5						2,803	2,803	1,836
Point Beach 1, 2	PWRs	210	149	107	130	83	80	164	57	3							983	773	596
Prairie Island 1, 2	PWRs	363	326	168	153	59	38	75	16	1							1,199	836	329

*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 Whole Body Doses in the Following Ranges (Rems)															Total Number Monitored	Number with Measurable Exposure	Total** Man-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			
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	1,096	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 Whole Body Doses in the Following Ranges (Rems)															Total Number Monitored	Number with Measurable Exposure	Total** Man-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			
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	4,836	2,939	2,326	6,373	2,485	911	224	32	4	2		(>12) 1	80,177	34,832	28,471
PWR Totals		26,978	38,202	7,340	5,790	3,816	2,677	6,303	2,061	882	262	61	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-rems
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.)

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

PLANT: ARKANSAS 1,2 (PWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS 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	69.835	
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	13.856	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 may be counted in more than one category

APPENDIX C (Cont.)

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

PLANT: BEAVER VALLEY (PWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
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	207	11.605	0.0	12.810	24.415
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	281	40.290	0.775	58.215	99.280
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	0.0
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	128	0.490	0.180	14.890	15.560
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	7	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	91	2.440	0.0	4.350	6.790
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	149	0	238	387	41.575	0.0	59.050	100.625
OPERATING PERSONNEL	85	0	0	85	10.235	0.0	0.0	10.235
HEALTH PHYSICS PERSONNEL	40	1	164	205	3.015	0.120	26.815	29.950
SUPERVISORY PERSONNEL	0	1	0	1	0.0	0.100	0.0	0.100
ENGINEERING PERSONNEL	0	4	25	29	0.0	0.735	4.400	5.135
GRAND TOTAL	274	6	427	707	54.825	0.955	90.265	146.045

*Workers may be counted in more than one category.

APPENDIX C (Cont.)

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

PLANT: †BIG ROCK POINT (BWR) 1981

* WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	13	24	61		3.297	0.536	2.153	
OPERATING PERSONNEL	48	2	17		18.324	0.006	0.748	
HEALTH PHYSICS PERSONNEL	14	7	10		7.287	0.038	1.260	
SUPERVISORY PERSONNEL	25	1	0		7.025	0.007	0.0	
ENGINEERING PERSONNEL	34	42	24		6.976	0.908	0.325	
TOTAL	134	76	112	322	42.909	1.495	4.486	48.890
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	31	33	24		14.285	3.842	2.355	
OPERATING PERSONNEL	4	0	2		0.086	0.0	0.012	
HEALTH PHYSICS PERSONNEL	7	0	2		1.088	0.0	0.169	
SUPERVISORY PERSONNEL	2	0	0		0.071	0.0	0.0	
ENGINEERING PERSONNEL	0	1	3		0.0	0.001	0.016	
TOTAL	44	34	31	109	15.530	3.843	2.552	21.925
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	10	2		0.0	1.072	0.118	
OPERATING PERSONNEL	0	0	1		0.025	0.0	0.016	
HEALTH PHYSICS PERSONNEL	1	0	0		0.008	0.0	0.0	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	1	0	0		0.304	0.0	0.0	
TOTAL	2	10	3	15	0.337	1.072	0.134	1.543
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	16	31	31		10.344	9.312	22.768	
OPERATING PERSONNEL	13	0	2		0.871	0.0	0.079	
HEALTH PHYSICS PERSONNEL	8	0	5		7.524	0.0	0.292	
SUPERVISORY PERSONNEL	6	0	0		0.248	0.0	0.0	
ENGINEERING PERSONNEL	4	4	1		0.068	0.077	0.019	
TOTAL	47	35	39	121	19.055	9.389	23.158	51.602
WASTE PROCESSING								
MAINTENANCE PERSONNEL	12	4	6		4.286	0.361	1.269	
OPERATING PERSONNEL	23	0	0		1.164	0.0	0.0	
HEALTH PHYSICS PERSONNEL	12	0	3		1.320	0.0	0.039	
SUPERVISORY PERSONNEL	2	0	0		0.059	0.0	0.0	
ENGINEERING PERSONNEL	1	1	0		0.031	0.004	0.0	
TOTAL	50	5	9	64	6.860	0.365	1.308	8.533
REFUELING								
MAINTENANCE PERSONNEL	0	0	0		0.0	0.0	0.0	
OPERATING PERSONNEL	19	0	0		1.131	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0		0.0	0.0	0.0	
SUPERVISORY PERSONNEL	4	0	0		0.171	0.0	0.0	
ENGINEERING PERSONNEL	6	0	2		0.167	0.0	0.306	
TOTAL	29	0	2	31	1.469	0.0	0.306	1.775
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	72	102	124	298	32.212	15.123	28.663	75.998
OPERATING PERSONNEL	107	2	22	131	21.601	0.006	0.855	22.462
HEALTH PHYSICS PERSONNEL	42	7	20	69	17.227	0.038	1.760	19.025
SUPERVISORY PERSONNEL	39	1	0	40	7.574	0.007	0.0	7.581
ENGINEERING PERSONNEL	46	48	30	124	7.546	0.990	0.666	9.202
GRAND TOTAL	306	160	196	662	86.160	16.164	31.944	134.268

*Workers may be counted in more than one category.

APPENDIX C (Cont.)

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

PLANT: †BROWNS FERRY 1,2,3 (BWR) 1981

* WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	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	1126.900	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	405	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	105.900	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.

APPENDIX C (Cont.)

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

PLANT: BRUNSWICK 1,2 (BWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS 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	0.0	23.326	
HEALTH PHYSICS PERSONNEL	17	4	21		19.061	2.650	16.029	
SUPERVISORY PERSONNEL	2	1	2		0.467	0.301	0.428	
ENGINEERING PERSONNEL	9	14	5		6.003	4.914	2.992	
TOTAL	96	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	0.0	0.0	
HEALTH PHYSICS PERSONNEL	12	2	16		13.914	1.726	13.622	
SUPERVISORY PERSONNEL	1	0	0		0.268	0.0	0.032	
ENGINEERING PERSONNEL	6	5	17		3.827	1.658	9.055	
TOTAL	114	13	241	373	159.840	9.049	307.044	475.933
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	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	36.045	1091.104	
OPERATING PERSONNEL	16	0	0		17.649	0.0	0.0	
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	0.0	0.0	
HEALTH PHYSICS PERSONNEL	11	2	14		12.077	1.447	12.311	
SUPERVISORY PERSONNEL	0	0	0		0.281	0.028	0.032	
ENGINEERING PERSONNEL	6	7	6		3.827	2.357	3.122	
TOTAL	92	13	218	323	118.914	5.346	285.622	409.882
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	229	82	1183	1493	376.303	43.381	1645.952	2065.636
OPERATING PERSONNEL	136	0	93	229	151.451	0.0	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	648.675	76.039	1832.813	2557.527

APPENDIX C (Cont.)

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

PLANT: CALVERT CLIFFS 1,2 (PWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS*	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	6	0	0		0.832	0.0	0.0	
OPERATING PERSONNEL	43	0	3		15.819	0.0	0.901	
HEALTH PHYSICS PERSONNEL	18	0	7		4.303	0.0	2.352	
SUPERVISORY PERSONNEL	1	0	0		0.117	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0		0.0	0.0	0.0	
TOTAL	68	0	10	78	21.071	0.0	3.253	24.324
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	63	7	50		14.681	2.505	11.062	
OPERATING PERSONNEL	16	2	14		3.353	0.347	2.993	
HEALTH PHYSICS PERSONNEL	11	0	12		2.328	0.0	4.859	
SUPERVISORY PERSONNEL	1	0	3		0.327	0.0	0.591	
ENGINEERING PERSONNEL	2	0	7		0.308	0.0	1.315	
TOTAL	93	9	86	188	20.997	2.852	20.820	44.669
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	4	24	14		1.134	6.056	3.534	
OPERATING PERSONNEL	1	1	7		0.152	0.123	0.975	
HEALTH PHYSICS PERSONNEL	0	0	1		0.0	0.0	0.121	
SUPERVISORY PERSONNEL	0	0	1		0.0	0.0	0.103	
ENGINEERING PERSONNEL	1	0	1		0.203	0.0	0.156	
TOTAL	6	25	24	55	1.489	6.179	4.889	12.557
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	84	96	535		37.020	30.136	233.866	
OPERATING PERSONNEL	28	11	25		12.064	4.306	8.566	
HEALTH PHYSICS PERSONNEL	13	0	62		6.424	0.0	24.044	
SUPERVISORY PERSONNEL	6	0	10		2.274	0.0	2.464	
ENGINEERING PERSONNEL	5	1	13		0.834	0.318	4.157	
TOTAL	136	108	645	889	58.616	34.760	273.097	366.473
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	2		0.0	0.0	0.269	
OPERATING PERSONNEL	2	0	0		0.486	0.0	0.0	
HEALTH PHYSICS PERSONNEL	11	14	30		4.470	2.372	7.758	
SUPERVISORY PERSONNEL	1	0	0		0.317	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0		0.0	0.0	0.0	
TOTAL	14	14	32	60	5.273	2.372	8.027	15.672
REFUELING								
MAINTENANCE PERSONNEL	35	28	5		15.202	14.124	0.919	
OPERATING PERSONNEL	14	8	0		2.321	2.207	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0		0.0	0.0	0.0	
SUPERVISORY PERSONNEL	5	0	2		2.026	0.0	0.462	
ENGINEERING PERSONNEL	1	0	6		0.106	0.0	1.112	
TOTAL	55	36	13	104	19.655	16.331	2.493	38.479
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	192 (127)	155 (115)	606 (570)	953 (812)	68.869	52.821	249.650	371.340
OPERATING PERSONNEL	104 (84)	22 (17)	49 (47)	175 (148)	34.195	6.983	13.435	54.613
HEALTH PHYSICS PERSONNEL	53 (38)	14 (17)	112 (96)	179 (151)	17.525	2.372	39.134	59.031
SUPERVISORY PERSONNEL	14 (12)	0	16 (16)	30 (27)	5.061	0.0	3.620	8.681
ENGINEERING PERSONNEL	9 (9)	1 (2)	27 (30)	37 (41)	1.451	0.318	6.740	8.509
GRAND TOTAL	372 (270)	192 (161)	810 (758)	1374 (1179)	127.101	62.494	312.579	502.174

*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: COOK 1,2 (PWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	84	0	15		3.830	0.0	1.855	
OPERATING PERSONNEL	69	0	2		28.385	0.0	0.150	
HEALTH PHYSICS PERSONNEL	17	0	29		2.630	0.0	4.437	
SUPERVISORY PERSONNEL	17	2	4		1.950	0.430	0.330	
ENGINEERING PERSONNEL	9	0	1		0.500	0.0	0.040	
TOTAL	196	2	71	269	37.295	0.430	6.812	44.537
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	117	0	192		85.680	0.0	33.433	
OPERATING PERSONNEL	29	0	7		1.380	0.0	0.942	
HEALTH PHYSICS PERSONNEL	17	0	31		2.470	0.0	6.974	
SUPERVISORY PERSONNEL	11	1	11		2.580	0.140	2.150	
ENGINEERING PERSONNEL	7	0	2		0.470	0.0	0.060	
TOTAL	181	1	243	425	92.580	0.140	43.559	136.279
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	78	0	110		16.360	0.0	15.828	
OPERATING PERSONNEL	9	0	11		1.140	0.0	3.648	
HEALTH PHYSICS PERSONNEL	7	0	27		0.630	0.0	6.840	
SUPERVISORY PERSONNEL	11	0	6		0.990	0.0	0.390	
ENGINEERING PERSONNEL	10	0	12		1.170	0.0	2.990	
TOTAL	115	0	166	281	20.290	0.0	29.696	49.986
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	82	1	425		15.080	0.140	207.965	
OPERATING PERSONNEL	8	0	19		0.360	0.0	8.380	
HEALTH PHYSICS PERSONNEL	11	0	34		0.840	0.0	7.642	
SUPERVISORY PERSONNEL	9	5	24		1.650	3.980	11.182	
ENGINEERING PERSONNEL	9	1	3		0.300	0.200	0.210	
TOTAL	119	7	505	631	18.230	4.320	235.379	257.929
WASTE PROCESSING								
MAINTENANCE PERSONNEL	50	0	142		8.140	0.0	36.321	
OPERATING PERSONNEL	26	0	10		1.390	0.0	8.244	
HEALTH PHYSICS PERSONNEL	14	0	24		2.770	0.0	1.680	
SUPERVISORY PERSONNEL	4	0	6		0.550	0.0	1.760	
ENGINEERING PERSONNEL	3	0	1		3.130	0.0	0.100	
TOTAL	97	0	183	280	15.980	0.0	48.105	64.085
REFUELING								
MAINTENANCE PERSONNEL	59	0	92		5.380	0.0	39.577	
OPERATING PERSONNEL	12	0	2		0.770	0.0	0.410	
HEALTH PHYSICS PERSONNEL	2	0	23		0.050	0.0	3.120	
SUPERVISORY PERSONNEL	6	0	7		0.700	0.0	1.090	
ENGINEERING PERSONNEL	2	0	2		0.820	0.0	0.340	
TOTAL	81	0	126	207	7.120	0.0	44.537	51.657
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	470 (117)	1	996 (541)	1467 (669)	134.470	0.140	334.979	469.589
OPERATING PERSONNEL	153 (69)	0	51 (31)	204 (100)	33.425	0.0	21.774	55.199
HEALTH PHYSICS PERSONNEL	68 (18)	0	168 (36)	236 (54)	9.390	0.0	30.693	40.083
SUPERVISORY PERSONNEL	58 (20)	8 (5)	58 (27)	124 (52)	8.420	4.550	16.902	29.872
ENGINEERING PERSONNEL	40 (16)	1	21 (15)	62 (32)	5.790	0.200	3.740	9.730
GRAND TOTAL	789 (240)	10 (7)	1294 (650)	2093 (897)	191.495	4.890	408.088	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

PLANT: COOPER STATION (BWR) 1981

* WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	3	0	0		1.091	0.0	0.0	
OPERATING PERSONNEL	43	0	0		31.431	0.0	0.0	
HEALTH PHYSICS PERSONNEL	13	0	0		7.305	0.0	0.0	
SUPERVISORY PERSONNEL	8	2	1		5.180	0.845	0.272	
ENGINEERING PERSONNEL	19	5	0		12.463	0.382	0.0	
TOTAL	86	7	1	94	57.470	1.227	0.272	58.969
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	52	0	197		79.467	0.0	76.115	
OPERATING PERSONNEL	8	0	0		0.493	0.0	0.0	
HEALTH PHYSICS PERSONNEL	13	0	0		5.780	0.0	0.0	
SUPERVISORY PERSONNEL	6	0	1		1.072	0.0	0.084	
ENGINEERING PERSONNEL	5	1	14		0.751	0.003	2.913	
TOTAL	84	1	212	297	87.563	0.003	79.112	166.678
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	13		0.0	0.0	3.730	
OPERATING PERSONNEL	0	0	0		0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	1	0	0		0.009	0.0	0.0	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	3	0	0		0.459	0.0	0.0	
TOTAL	4	0	13	17	0.468	0.0	3.730	4.198
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	13	0	339		8.663	0.0	260.084	
OPERATING PERSONNEL	3	0	0		0.565	0.0	0.0	
HEALTH PHYSICS PERSONNEL	7	0	0		2.042	0.0	0.0	
SUPERVISORY PERSONNEL	1	6	8		0.073	4.690	4.350	
ENGINEERING PERSONNEL	2	13	19		0.799	9.789	11.705	
TOTAL	26	19	366	411	12.142	14.479	276.139	302.760
WASTE PROCESSING								
MAINTENANCE PERSONNEL	2	0	0		0.050	0.0	0.0	
OPERATING PERSONNEL	17	0	0		3.044	0.0	0.0	
HEALTH PHYSICS PERSONNEL	10	0	0		1.887	0.0	0.0	
SUPERVISORY PERSONNEL	1	0	0		0.014	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0		0.0	0.0	0.0	
TOTAL	30	0	0	30	4.995	0.0	0.0	4.995
REFUELING								
MAINTENANCE PERSONNEL	1	0	0		0.579	0.0	0.0	
OPERATING PERSONNEL	33	0	0		4.509	0.0	0.0	
HEALTH PHYSICS PERSONNEL	12	0	0		0.830	0.0	0.0	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	3	0	0		0.411	0.0	0.0	
TOTAL	49	0	0	49	6.329	0.0	0.0	6.329
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	71 (52)	0	549	620 (443)	89.850	0.0	339.929	429.779
OPERATING PERSONNEL	104 (44)	0	0	104 (44)	40.042	0.0	0.0	40.042
HEALTH PHYSICS PERSONNEL	56 (13)	0	0	56 (13)	17.853	0.0	0.0	17.853
SUPERVISORY PERSONNEL	16 (9)	8 (7)	10 (9)	34 (25)	6.339	5.535	4.706	16.580
ENGINEERING PERSONNEL	32 (19)	19 (13)	33 (31)	84 (63)	14.883	10.174	14.618	39.675
GRAND TOTAL	279 (137)	27 (20)	592 (431)	898 (588)	168.967	15.709	359.253	543.929

*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: CRYSTAL RIVER (PWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	2	0	0		0.040	0.0	0.030	
OPERATING PERSONNEL	26	3	0		7.770	0.730	0.0	
HEALTH PHYSICS PERSONNEL	31	0	0		7.600	0.0	0.0	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0		0.0	0.0	0.010	
TOTAL	59	3	0	62	15.410	0.730	0.040	16.180
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	61	109	284		41.070	65.430	120.440	
OPERATING PERSONNEL	22	2	2		5.850	0.460	0.400	
HEALTH PHYSICS PERSONNEL	9	0	59		1.130	0.060	34.380	
SUPERVISORY PERSONNEL	8	3	16		4.020	0.610	7.720	
ENGINEERING PERSONNEL	3	1	28		0.670	0.320	21.640	
TOTAL	103	115	389	607	52.740	66.880	184.580	304.200
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	10		0.050	0.050	2.500	
OPERATING PERSONNEL	0	0	1		0.0	0.0	0.150	
HEALTH PHYSICS PERSONNEL	0	0	1		0.0	0.0	0.380	
SUPERVISORY PERSONNEL	0	0	1		0.010	0.0	0.440	
ENGINEERING PERSONNEL	1	0	1		1.200	0.0	0.570	
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	
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
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	5	11		0.110	1.470	7.060	
OPERATING PERSONNEL	0	0	3		0.040	0.0	3.300	
HEALTH PHYSICS PERSONNEL	1	0	3		0.710	0.0	0.980	
SUPERVISORY PERSONNEL	0	0	1		0.070	0.0	0.130	
ENGINEERING PERSONNEL	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		3.400	8.770	5.470	
OPERATING PERSONNEL	0	0	1		0.400	0.0	0.170	
HEALTH PHYSICS PERSONNEL	0	0	4		0.020	0.0	1.010	
SUPERVISORY PERSONNEL	0	0	1		0.170	0.010	0.340	
ENGINEERING PERSONNEL	0	0	9		0.180	0.100	2.630	
TOTAL	11	31	29	71	4.170	8.880	9.620	22.670
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	74	145	319	538	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.)

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

PLANT: DAVIS-BESSE 1 (PWR) 1981

* WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	**TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	7	1	5		0.075	0.025	0.030	
OPERATING PERSONNEL	15	0	0		0.165	0.0	0.0	
HEALTH PHYSICS PERSONNEL	6	0	5		0.205	0.0	0.125	
SUPERVISORY PERSONNEL	13	0	6		0.250	0.0	0.110	
ENGINEERING PERSONNEL	0	0	2		0.0	0.0	0.110	
TOTAL	41	1	18	60	0.695	0.025	0.375	1.095
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	109	17	321		10.805	0.500	24.395	
OPERATING PERSONNEL	73	0	3		6.515	0.0	0.050	
HEALTH PHYSICS PERSONNEL	20	0	11		7.470	0.0	4.905	
SUPERVISORY PERSONNEL	40	0	22		2.815	0.0	1.805	
ENGINEERING PERSONNEL	1	4	14		0.015	0.390	0.535	
TOTAL	243	21	371	635	27.620	0.890	31.690	60.200
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	10	1	0		0.135	0.005	0.0	
OPERATING PERSONNEL	11	0	0		0.160	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0		0.0	0.0	0.0	
SUPERVISORY PERSONNEL	2	0	0		0.015	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0		0.0	0.0	0.0	
TOTAL	23	1	0	24	0.310	0.005	0.0	0.315
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	81	9	169		6.780	0.520	12.985	
OPERATING PERSONNEL	7	0	0		0.100	0.0	0.0	
HEALTH PHYSICS PERSONNEL	8	0	1		0.230	0.0	0.065	
SUPERVISORY PERSONNEL	15	0	12		0.365	0.0	0.715	
ENGINEERING PERSONNEL	0	2	13		0.0	0.150	1.025	
TOTAL	111	11	195	317	7.475	0.670	14.790	22.935
WASTE PROCESSING								
MAINTENANCE PERSONNEL	6	0	11		0.140	0.0	0.240	
OPERATING PERSONNEL	1	0	0		0.125	0.0	0.0	
HEALTH PHYSICS PERSONNEL	1	0	0		0.030	0.0	0.0	
SUPERVISORY PERSONNEL	4	0	2		0.055	0.0	0.025	
ENGINEERING PERSONNEL	0	0	0		0.0	0.0	0.0	
TOTAL	12	0	13	25	0.350	0.0	0.265	0.615
REFUELING								
MAINTENANCE PERSONNEL	3	1	0		0.035	0.025	0.0	
OPERATING PERSONNEL	5	0	0		0.035	0.0	0.0	
HEALTH PHYSICS PERSONNEL	1	0	0		0.020	0.0	0.0	
SUPERVISORY PERSONNEL	7	0	0		0.080	0.0	0.0	
ENGINEERING PERSONNEL	0	0	1		0.0	0.0	0.010	
TOTAL	16	1	1	18	0.170	0.025	0.010	0.205
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	216	29	506	751	17.970	1.075	37.650	56.695
OPERATING PERSONNEL	112	0	3	115	7.100	0.0	0.050	7.150
HEALTH PHYSICS PERSONNEL	36	0	17	53	7.955	0.0	5.095	13.050
SUPERVISORY PERSONNEL	81	0	42	123	3.580	0.0	2.655	6.235
ENGINEERING PERSONNEL	1	6	30	37	0.015	0.540	1.680	2.235
GRAND TOTAL	446	35	598	1079	36.620	1.615	47.130	85.365

*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 (BWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	11	0	0		33.300	0.0	0.0	
OPERATING PERSONNEL	32	3	0		47.000	1.300	0.0	
HEALTH PHYSICS PERSONNEL	2	4	0		4.000	0.400	0.0	
SUPERVISORY PERSONNEL	5	0	0		11.700	0.0	0.0	
ENGINEERING PERSONNEL	3	0	0		1.200	0.0	0.0	
TOTAL	53	7	0	60	97.200	1.700	0.0	98.900
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	73	26	0		218.200	36.200	0.0	
OPERATING PERSONNEL	14	95	0		20.900	37.300	0.0	
HEALTH PHYSICS PERSONNEL	26	165	0		62.700	20.500	0.0	
SUPERVISORY PERSONNEL	17	0	0		39.700	0.0	0.0	
ENGINEERING PERSONNEL	53	0	669		21.500	0.0	1443.900	
TOTAL	183	286	669	1138	363.000	94.000	1443.900	1900.900
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	9	1	0		26.000	1.100	0.0	
OPERATING PERSONNEL	3	3	0		4.200	1.300	0.0	
HEALTH PHYSICS PERSONNEL	3	0	0		6.000	0.0	0.0	
SUPERVISORY PERSONNEL	1	0	0		1.600	0.0	0.0	
ENGINEERING PERSONNEL	7	0	21		2.600	0.0	45.600	
TOTAL	23	4	21	48	40.400	2.400	45.600	88.400
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	0.0	0.0
WASTE PROCESSING								
MAINTENANCE PERSONNEL	12	0	0		37.000	0.0	0.0	
OPERATING PERSONNEL	17	5	0		24.000	2.100	0.0	
HEALTH PHYSICS PERSONNEL	9	5	0		21.900	0.700	0.0	
SUPERVISORY PERSONNEL	6	0	0		13.200	0.0	0.0	
ENGINEERING PERSONNEL	4	0	14		1.700	0.0	30.400	
TOTAL	48	10	14	72	97.800	2.800	30.400	131.000
REFUELING								
MAINTENANCE PERSONNEL	18	0	0		55.500	0.0	0.0	
OPERATING PERSONNEL	6	0	0		8.400	0.0	0.0	
HEALTH PHYSICS PERSONNEL	2	4	0		5.000	0.400	0.0	
SUPERVISORY PERSONNEL	5	0	0		11.700	0.0	0.0	
ENGINEERING PERSONNEL	5	0	0		2.000	0.0	0.0	
TOTAL	36	4	0	40	82.600	0.400	0.0	83.000
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	123	27	0	150	370.000	37.300	0.0	407.300
OPERATING PERSONNEL	72	106	0	178	104.500	42.000	0.0	146.500
HEALTH PHYSICS PERSONNEL	42	178	0	220	99.600	22.000	0.0	121.600
SUPERVISORY PERSONNEL	34	0	0	34	77.900	0.0	0.0	77.900
ENGINEERING PERSONNEL	72	0	704	776	29.000	0.0	1519.900	1548.900
GRAND TOTAL	343	311	704	1358	681.000	101.300	1519.900	2302.200

APPENDIX C (Cont.)

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

PLANT: DUANE ARNOLD (BWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS 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	0.283	0.511	
ENGINEERING PERSONNEL	4	11	27		0.298	2.238	1.419	
TOTAL	74	28	166	268	35.069	4.429	19.714	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	6.926	
TOTAL	70	44	462	576	26.732	20.808	196.863	244.403
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
REFUELING								
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 (185)	6.402	6.550	54.501	67.453
GRAND TOTAL	358 (130)	202 (90)	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) 1981

WORK & JOB FUNCTION*	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	67	0	2		2.693	0.0	0.013	
OPERATING PERSONNEL	119	0	0		27.354	0.0	0.0	
HEALTH PHYSICS PERSONNEL	59	0	57		16.227	0.0	28.497	
SUPERVISORY PERSONNEL	124	0	17		9.872	0.0	0.525	
ENGINEERING PERSONNEL	22	3	163		1.143	0.028	7.530	
TOTAL	391	3	239	633	57.289	0.028	36.565	93.882
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	172	0	11		23.795	0.0	0.464	
OPERATING PERSONNEL	68	0	0		23.313	0.0	0.0	
HEALTH PHYSICS PERSONNEL	11	0	14		2.044	0.0	0.385	
SUPERVISORY PERSONNEL	37	0	2		2.698	0.0	0.080	
ENGINEERING PERSONNEL	4	5	267		0.052	0.090	23.346	
TOTAL	292	5	294	591	51.902	0.090	24.275	76.267
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	11	0	0		0.108	0.0	0.0	
OPERATING PERSONNEL	1	0	0		0.073	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0		0.0	0.0	0.0	
SUPERVISORY PERSONNEL	2	0	1		0.016	0.0	0.096	
ENGINEERING PERSONNEL	3	4	85		0.366	0.460	46.223	
TOTAL	17	4	86	107	0.563	0.460	46.319	47.342
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	169	0	12		80.814	0.0	2.195	
OPERATING PERSONNEL	43	0	0		3.841	0.0	0.0	
HEALTH PHYSICS PERSONNEL	15	0	18		1.530	0.0	2.593	
SUPERVISORY PERSONNEL	39	0	3		5.498	0.0	0.107	
ENGINEERING PERSONNEL	9	8	560		0.561	0.218	135.559	
TOTAL	275	8	593	876	92.244	0.218	140.454	232.916
WASTE PROCESSING								
MAINTENANCE PERSONNEL	6	0	0		0.274	0.0	0.0	
OPERATING PERSONNEL	13	0	0		0.437	0.0	0.0	
HEALTH PHYSICS PERSONNEL	5	0	7		2.516	0.0	1.933	
SUPERVISORY PERSONNEL	6	0	0		1.117	0.0	0.0	
ENGINEERING PERSONNEL	0	0	5		0.0	0.0	0.079	
TOTAL	30	0	12	42	4.344	0.0	2.012	6.356
REFUELING								
MAINTENANCE PERSONNEL	106	0	4		22.830	0.0	0.300	
OPERATING PERSONNEL	36	0	0		2.455	0.0	0.0	
HEALTH PHYSICS PERSONNEL	6	0	9		0.236	0.0	0.486	
SUPERVISORY PERSONNEL	28	0	1		2.553	0.0	0.039	
ENGINEERING PERSONNEL	11	0	43		0.222	0.0	12.344	
TOTAL	187	0	57	244	28.296	0.0	13.169	41.465
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	531	0	29	560	130.514	0.0	2.972	133.486
OPERATING PERSONNEL	280	0	0	280	57.473	0.0	0.0	57.473
HEALTH PHYSICS PERSONNEL	96	0	105	201	22.553	0.0	33.894	56.447
SUPERVISORY PERSONNEL	236	0	24	260	21.754	0.0	0.847	22.601
ENGINEERING PERSONNEL	49	20	1123	1192	2.344	0.796	225.081	228.221
GRAND TOTAL	1192	20	1281	2493	234.638	0.796	262.794	498.228

*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) 1981

* WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
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.)

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

PLANT: FORT CALHOUN 1 (PWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & 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	1		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	1		2.789	0.0	0.147	
TOTAL	22	10	1	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 (263)	763 (446)	100.456	98.599	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) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
*REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	121	34	130		7.276	3.146	5.579	
OPERATING PERSONNEL	0	26	1		0.0	12.023	0.360	
HEALTH PHYSICS PERSONNEL	28	13	1		4.952	5.950	0.061	
SUPERVISORY PERSONNEL	31	15	10		1.813	3.398	0.256	
ENGINEERING PERSONNEL	33	2	11		0.736	0.205	0.290	
TOTAL	213	90	153	456	14.777	24.722	6.546	46.045
*ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	196	33	180		79.026	22.363	142.907	
OPERATING PERSONNEL	0	16	0		0.0	1.045	0.0	
HEALTH PHYSICS PERSONNEL	29	13	1		12.658	7.237	0.065	
SUPERVISORY PERSONNEL	33	12	13		7.385	3.382	5.783	
ENGINEERING PERSONNEL	58	2	10		35.118	0.119	8.249	
TOTAL	316	76	204	596	134.187	34.146	157.004	325.337
*IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	39	16	96		3.508	1.405	21.816	
OPERATING PERSONNEL	0	1	0		0.0	0.005	0.0	
HEALTH PHYSICS PERSONNEL	18	12	0		1.230	1.172	0.0	
SUPERVISORY PERSONNEL	9	9	9		1.226	0.756	1.782	
ENGINEERING PERSONNEL	27	1	2		7.058	0.013	0.565	
TOTAL	93	39	107	239	13.022	3.351	24.163	40.536
*SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	176	34	153		87.829	6.578	39.076	
OPERATING PERSONNEL	0	10	0		0.0	0.399	0.0	
HEALTH PHYSICS PERSONNEL	29	11	0		8.511	2.007	0.0	
SUPERVISORY PERSONNEL	32	13	10		7.365	1.148	0.857	
ENGINEERING PERSONNEL	38	2	7		6.359	0.004	0.859	
TOTAL	275	70	170	515	110.064	10.136	40.792	160.992
*WASTE PROCESSING								
MAINTENANCE PERSONNEL	25	21	21		2.519	1.248	0.227	
OPERATING PERSONNEL	0	10	0		0.0	0.104	0.0	
HEALTH PHYSICS PERSONNEL	10	8	0		0.722	0.890	0.0	
SUPERVISORY PERSONNEL	2	5	0		0.118	0.017	0.0	
ENGINEERING PERSONNEL	3	0	3		0.007	0.0	0.0	
TOTAL	40	44	24	108	3.366	2.259	0.227	5.852
*REFUELING								
MAINTENANCE PERSONNEL	22	19	36		2.715	0.830	5.438	
OPERATING PERSONNEL	0	4	0		0.0	2.363	0.0	
HEALTH PHYSICS PERSONNEL	23	4	0		3.497	0.030	0.0	
SUPERVISORY PERSONNEL	5	5	3		1.513	0.175	0.915	
ENGINEERING PERSONNEL	20	0	1		17.279	0.0	0.090	
TOTAL	70	32	40	142	25.004	3.398	6.443	34.845
*TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	579 (214)	157 (34)	616 (186)	1352 (433)	182.873	35.570	215.043	433.486
OPERATING PERSONNEL	0	67 (26)	1	68 (27)	0.0	15.939	0.360	16.299
HEALTH PHYSICS PERSONNEL	137 (29)	61 (13)	2 (1)	200 (43)	31.570	17.286	0.126	48.982
SUPERVISORY PERSONNEL	112 (35)	59 (15)	45 (13)	216 (63)	19.420	8.876	9.593	37.889
ENGINEERING PERSONNEL	179 (62)	7 (2)	34 (11)	220 (76)	66.557	0.341	10.053	76.951
GRAND TOTAL	1007 (340)	351 (90)	698 (211)	2056 (641)	300.420	78.012	235.175	613.607

*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: HADDAM NECK (PWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
* REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	2	0	0		0.820	0.080	0.330	
OPERATING PERSONNEL	44	2	57		49.140	0.560	13.940	
HEALTH PHYSICS PERSONNEL	24	3	114		12.230	1.750	99.450	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.010	0.0	
ENGINEERING PERSONNEL	3	1	0		0.980	0.770	0.090	
TOTAL	73	6	171	250	63.170	3.170	113.810	180.150
* ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	48	11	221		66.170	5.610	211.280	
OPERATING PERSONNEL	10	0	10		4.460	0.290	7.650	
HEALTH PHYSICS PERSONNEL	15	1	114		7.540	0.170	72.990	
SUPERVISORY PERSONNEL	0	1	5		0.0	0.320	4.140	
ENGINEERING PERSONNEL	8	5	24		2.680	2.570	38.540	
TOTAL	81	18	374	473	80.850	8.960	334.600	424.410
* IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	3	0	41		2.060	0.040	29.470	
OPERATING PERSONNEL	6	0	4		2.140	0.060	2.180	
HEALTH PHYSICS PERSONNEL	0	0	1		0.100	0.0	0.420	
SUPERVISORY PERSONNEL	0	0	1		0.0	0.030	0.380	
ENGINEERING PERSONNEL	3	3	3		2.350	2.240	0.980	
TOTAL	12	3	50	65	6.650	2.370	33.430	42.450
* SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	20	10	186		6.910	9.400	159.190	
OPERATING PERSONNEL	1	7	1		0.510	2.700	0.610	
HEALTH PHYSICS PERSONNEL	2	1	23		0.890	1.330	8.530	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.100	
ENGINEERING PERSONNEL	1	10	9		0.400	3.440	7.420	
TOTAL	24	28	219	271	8.710	16.890	175.850	201.450
* WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0		0.490	0.0	0.020	
OPERATING PERSONNEL	3	0	0		1.440	0.0	0.060	
HEALTH PHYSICS PERSONNEL	14	1	95		26.700	0.210	46.220	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0		0.0	0.0	0.010	
TOTAL	17	1	95	113	28.630	0.210	46.310	75.150
* REFUELING								
MAINTENANCE PERSONNEL	23	1	105		10.940	0.420	110.240	
OPERATING PERSONNEL	4	0	8		1.160	0.070	3.960	
HEALTH PHYSICS PERSONNEL	5	1	40		1.810	0.600	16.890	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.010	0.0	
ENGINEERING PERSONNEL	0	1	4		0.350	0.290	3.000	
TOTAL	32	3	157	192	14.260	1.390	134.090	149.740
* TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	96	22	553	671	87.390	15.550	510.530	613.470
OPERATING PERSONNEL	68	9	80	157	58.850	3.680	28.400	90.930
HEALTH PHYSICS PERSONNEL	60	7	387	454	49.270	4.080	244.500	297.850
SUPERVISORY PERSONNEL	0	1	6	7	0.0	0.370	4.620	4.990
ENGINEERING PERSONNEL	15	20	40	75	6.760	9.310	50.040	66.110
GRAND TOTAL	239	59	1066	1364	202.270	32.990	838.090	1073.350

*Workers may be counted in more than one category.

APPENDIX C (Cont.)

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

PLANT: HATCH 1,2 (BWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
*REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	15	2	14		7.000	1.000	2.000	
OPERATING PERSONNEL	114	5	0		77.000	3.000	0.0	
HEALTH PHYSICS PERSONNEL	31	1	82		17.000	0.0	42.000	
SUPERVISORY PERSONNEL	5	14	3		16.000	5.000	0.0	
ENGINEERING PERSONNEL	44	7	10		12.000	2.000	2.000	
TOTAL	257	29	109	395	129.000	11.000	46.000	186.000
*ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	176	4	216		101.000	2.000	42.000	
OPERATING PERSONNEL	52	1	0		31.000	0.0	0.0	
HEALTH PHYSICS PERSONNEL	5	0	15		2.000	0.0	2.000	
SUPERVISORY PERSONNEL	6	2	0		1.000	0.0	0.0	
ENGINEERING PERSONNEL	11	3	7		5.000	0.0	1.000	
TOTAL	250	10	238	498	140.000	2.000	45.000	187.000
*IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	6	0	2		1.000	0.0	0.0	
OPERATING PERSONNEL	2	0	0		0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0		0.0	0.0	0.0	
SUPERVISORY PERSONNEL	0	0	2		0.0	0.0	0.0	
ENGINEERING PERSONNEL	1	0	0		0.0	0.0	0.0	
TOTAL	9	0	4	13	1.000	0.0	0.0	1.000
*SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	150	20	889		110.000	6.000	542.000	
OPERATING PERSONNEL	86	1	2		32.000	0.0	0.0	
HEALTH PHYSICS PERSONNEL	12	1	82		4.000	0.0	31.000	
SUPERVISORY PERSONNEL	2	3	26		1.000	1.000	6.000	
ENGINEERING PERSONNEL	19	6	94		8.000	4.000	29.000	
TOTAL	269	31	1093	1393	155.000	11.000	608.000	774.000
*WASTE PROCESSING								
MAINTENANCE PERSONNEL	15	0	39		5.000	0.0	7.000	
OPERATING PERSONNEL	29	1	2		11.000	0.0	0.0	
HEALTH PHYSICS PERSONNEL	1	0	10		0.0	0.0	2.000	
SUPERVISORY PERSONNEL	0	0	2		0.0	0.0	1.000	
ENGINEERING PERSONNEL	4	0	3		1.000	0.0	0.0	
TOTAL	49	1	56	106	17.000	0.0	10.000	27.000
*REFUELING								
MAINTENANCE PERSONNEL	48	1	39		16.000	0.0	10.000	
OPERATING PERSONNEL	55	2	0		18.000	1.000	0.0	
HEALTH PHYSICS PERSONNEL	10	0	46		4.000	0.0	16.000	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	4	1	5		1.000	0.0	1.000	
TOTAL	117	4	90	211	39.000	1.000	27.000	67.000
*TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	410 (201)	27 (22)	1139 (919)	1636 (1142)	240.000	9.000	603.000	852.000
OPERATING PERSONNEL	338 (168)	10 (6)	4 (3)	352 (177)	169.000	4.000	0.0	173.000
HEALTH PHYSICS PERSONNEL	59 (37)	2 (1)	235 (121)	296 (159)	27.000	0.0	93.000	120.000
SUPERVISORY PERSONNEL	61 (60)	19 (18)	33 (34)	113 (112)	18.000	6.000	7.000	31.000
ENGINEERING PERSONNEL	83 (70)	17 (14)	119 (111)	219 (195)	27.000	6.000	33.000	66.000
GRAND TOTAL	951 (636)	75 (61)	1590 (1188)	2616 (1785)	481.000	25.000	736.000	1242.000

*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 (PWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	38	0	0		5.200	0.0	0.0	
OPERATING PERSONNEL	91	0	0		171.600	0.0	0.0	
HEALTH PHYSICS PERSONNEL	8	0	7		2.800	0.0	16.400	
SUPERVISORY PERSONNEL	42	0	1		24.700	0.0	0.900	
ENGINEERING PERSONNEL	7	16	1		4.800	1.700	0.500	
TOTAL	186	16	9	211	209.100	1.700	17.800	228.600
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	34	14	67		94.200	11.800	62.500	
OPERATING PERSONNEL	12	0	0		9.700	0.0	0.0	
HEALTH PHYSICS PERSONNEL	8	0	19		1.600	0.0	11.200	
SUPERVISORY PERSONNEL	12	4	0		31.500	7.500	0.0	
ENGINEERING PERSONNEL	2	12	0		2.800	1.800	0.0	
TOTAL	68	30	86	184	139.800	21.100	73.700	234.600
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	38		0.0	0.0	10.200	
OPERATING PERSONNEL	0	0	0		0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	1	0	2		0.300	0.0	2.900	
SUPERVISORY PERSONNEL	4	0	5		3.100	0.0	2.100	
ENGINEERING PERSONNEL	0	1	0		0.0	0.300	0.0	
TOTAL	5	1	45	51	3.400	0.300	15.200	18.900
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	302	1084		0.0	495.800	1111.600	
OPERATING PERSONNEL	15	0	0		12.500	0.0	0.0	
HEALTH PHYSICS PERSONNEL	6	0	113		17.200	0.0	105.800	
SUPERVISORY PERSONNEL	4	41	37		1.400	56.800	44.200	
ENGINEERING PERSONNEL	6	8	10		3.200	1.400	1.800	
TOTAL	31	351	1244	1626	34.300	554.000	1263.400	1851.700
WASTE PROCESSING								
MAINTENANCE PERSONNEL	28	0	74		16.400	0.0	125.100	
OPERATING PERSONNEL	5	0	8		4.700	0.0	6.100	
HEALTH PHYSICS PERSONNEL	5	0	8		2.800	0.0	6.400	
SUPERVISORY PERSONNEL	4	0	8		6.800	0.0	14.200	
ENGINEERING PERSONNEL	0	0	0		0.0	0.0	0.0	
TOTAL	42	0	98	140	30.700	0.0	151.800	182.500
REFUELING								
MAINTENANCE PERSONNEL	14	34	14		21.600	40.900	12.300	
OPERATING PERSONNEL	27	0	0		22.800	0.0	0.0	
HEALTH PHYSICS PERSONNEL	1	0	5		0.400	0.0	3.200	
SUPERVISORY PERSONNEL	11	4	0		8.800	6.200	0.0	
ENGINEERING PERSONNEL	0	1	1		0.0	0.300	0.200	
TOTAL	53	39	20	112	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) 1981

*WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	**TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	1	0	0		1.240	0.0	0.570	
OPERATING PERSONNEL	29	1	2		17.790	0.300	1.510	
HEALTH PHYSICS PERSONNEL	18	1	28		9.150	0.570	14.610	
SUPERVISORY PERSONNEL	10	0	0		3.850	0.0	0.120	
ENGINEERING PERSONNEL	4	0	0		1.400	0.010	0.300	
TOTAL	62	2	30	94	33.430	0.880	17.110	51.420
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	23	0	42		7.160	0.010	1.660	
OPERATING PERSONNEL	4	0	0		1.670	0.010	0.820	
HEALTH PHYSICS PERSONNEL	0	0	1		0.010	0.020	0.350	
SUPERVISORY PERSONNEL	0	0	0		0.220	0.010	0.040	
ENGINEERING PERSONNEL	0	0	0		0.090	0.020	0.230	
TOTAL	27	0	43	70	9.150	0.070	23.100	32.320
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	4	0	1		1.470	0.010	0.260	
OPERATING PERSONNEL	0	0	0		0.050	0.060	0.040	
HEALTH PHYSICS PERSONNEL	0	0	0		0.050	0.010	0.060	
SUPERVISORY PERSONNEL	0	1	0		0.230	0.180	0.250	
ENGINEERING PERSONNEL	3	0	5		0.950	0.320	2.830	
TOTAL	7	1	6	14	2.750	0.580	3.440	6.770
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	69	0	214		47.400	0.0	200.950	
OPERATING PERSONNEL	18	1	1		5.050	0.160	0.330	
HEALTH PHYSICS PERSONNEL	11	0	34		11.760	0.020	17.960	
SUPERVISORY PERSONNEL	11	0	10		5.530	0.200	10.540	
ENGINEERING PERSONNEL	5	1	7		2.230	0.310	5.130	
TOTAL	114	2	266	382	71.970	0.690	234.910	307.570
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	2		0.360	0.0	4.800	
OPERATING PERSONNEL	0	0	0		0.040	0.0	0.0	
HEALTH PHYSICS PERSONNEL	2	0	1		0.610	0.0	0.380	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0		0.050	0.0	0.080	
TOTAL	2	0	3	5	1.060	0.0	5.260	6.320
REFUELING								
MAINTENANCE PERSONNEL	2	0	0		0.500	0.0	0.0	
OPERATING PERSONNEL	0	0	0		0.020	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0		0.0	0.0	0.0	
SUPERVISORY PERSONNEL	0	0	0		0.010	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0		0.030	0.040	0.210	
TOTAL	2	0	0	2	0.560	0.040	0.210	0.810
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	99	0	259	358	58.130	0.020	228.240	286.390
OPERATING PERSONNEL	51	2	3	56	24.620	0.530	2.700	27.850
HEALTH PHYSICS PERSONNEL	31	1	64	96	21.580	0.620	33.360	55.560
SUPERVISORY PERSONNEL	21	1	10	32	9.840	0.390	10.950	21.180
ENGINEERING PERSONNEL	12	1	12	25	4.750	0.700	8.780	14.230
GRAND TOTAL	214	5	348	567	118.920	2.260	284.030	405.210

*Workers may be counted in more than one category.

APPENDIX C (Cont.)

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

PLANT: KEWAUNEE (PWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	2	0	0		0.340	0.0	0.0	
OPERATING PERSONNEL	17	1	2		3.404	0.080	0.171	
HEALTH PHYSICS PERSONNEL	0	0	0		0.0	0.0	0.0	
SUPERVISORY PERSONNEL	5	0	1		1.133	0.0	0.0	
ENGINEERING PERSONNEL	3	2	2		0.252	0.324	0.408	
TOTAL	27	3	5	35	5.129	0.404	0.579	6.112
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	33	19	49		8.032	3.743	18.127	
OPERATING PERSONNEL	13	1	4		1.240	0.035	0.050	
HEALTH PHYSICS PERSONNEL	15	0	11		3.562	0.0	4.174	
SUPERVISORY PERSONNEL	1	0	13		0.029	0.0	2.883	
ENGINEERING PERSONNEL	3	1	2		0.016	0.015	0.035	
TOTAL	65	21	79	165	12.879	3.793	25.269	41.941
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	25		0.0	0.0	13.219	
OPERATING PERSONNEL	0	0	7		0.0	0.0	2.960	
HEALTH PHYSICS PERSONNEL	2	0	0		0.0	0.0	0.0	
SUPERVISORY PERSONNEL	1	0	0		0.040	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0		0.0	0.0	0.0	
TOTAL	3	0	32	35	0.040	0.0	16.179	16.219
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	32	19	93		5.085	1.921	31.656	
OPERATING PERSONNEL	7	1	6		0.708	0.111	0.205	
HEALTH PHYSICS PERSONNEL	5	0	0		0.003	0.0	0.0	
SUPERVISORY PERSONNEL	2	0	1		0.078	0.0	0.0	
ENGINEERING PERSONNEL	2	2	3		0.260	0.085	0.397	
TOTAL	48	22	103	173	6.134	2.117	32.258	40.509
WASTE PROCESSING								
MAINTENANCE PERSONNEL	15	14	10		0.670	0.086	0.715	
OPERATING PERSONNEL	5	1	2		2.799	0.0	0.0	
HEALTH PHYSICS PERSONNEL	10	0	0		1.851	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	30	15	12	57	5.320	0.086	0.715	6.121
REFUELING								
MAINTENANCE PERSONNEL	16	16	8		2.503	3.208	1.459	
OPERATING PERSONNEL	10	1	12		0.386	0.0	8.395	
HEALTH PHYSICS PERSONNEL	0	0	0		0.0	0.0	0.0	
SUPERVISORY PERSONNEL	2	0	0		0.101	0.0	0.0	
ENGINEERING PERSONNEL	2	0	0		0.009	0.0	0.0	
TOTAL	30	17	20	67	2.999	3.208	9.854	16.061
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	98	68	185	351	16.630	8.958	65.176	90.764
OPERATING PERSONNEL	52	5	33	90	8.537	0.226	11.781	20.544
HEALTH PHYSICS PERSONNEL	32	0	11	43	5.416	0.0	4.174	9.590
SUPERVISORY PERSONNEL	11	0	15	26	1.381	0.0	2.883	4.264
ENGINEERING PERSONNEL	10	5	7	22	0.537	0.424	0.840	1.801
GRAND TOTAL	203	78	251	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: LACROSSE (BWR) 1981

WORK & JOB FUNCTION*	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	9	0	0		3.174	0.0	0.0	
OPERATING PERSONNEL	20	0	0		35.208	0.0	0.0	
HEALTH PHYSICS PERSONNEL	7	0	0		8.943	0.0	0.088	
SUPERVISORY PERSONNEL	11	0	0		8.534	0.0	0.213	
ENGINEERING PERSONNEL	5	0	0		2.044	0.029	0.175	
TOTAL	52	0	0	52	57.903	0.029	0.476	58.408
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	18	0	1		23.603	0.0	0.256	
OPERATING PERSONNEL	6	0	0		2.076	0.0	0.0	
HEALTH PHYSICS PERSONNEL	6	0	0		1.604	0.0	0.0	
SUPERVISORY PERSONNEL	8	0	0		4.304	0.0	0.002	
ENGINEERING PERSONNEL	1	0	0		0.643	0.0	0.060	
TOTAL	39	0	1	40	32.230	0.0	0.318	32.548
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	6	0	0		1.174	0.0	0.0	
OPERATING PERSONNEL	0	0	0		0.172	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0		0.024	0.0	0.0	
SUPERVISORY PERSONNEL	1	0	0		0.232	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0		0.0	0.0	0.0	
TOTAL	7	0	0	7	1.602	0.0	0.0	1.602
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	14	2	0		7.472	0.310	0.002	
OPERATING PERSONNEL	7	0	0		1.866	0.0	0.0	
HEALTH PHYSICS PERSONNEL	5	0	0		1.894	0.0	0.0	
SUPERVISORY PERSONNEL	5	0	0		2.006	0.0	0.0	
ENGINEERING PERSONNEL	3	0	0		1.922	0.0	0.134	
TOTAL	34	2	0	36	15.160	0.310	0.136	15.606
WASTE PROCESSING								
MAINTENANCE PERSONNEL	2	0	2		0.478	0.0	1.448	
OPERATING PERSONNEL	4	0	0		0.821	0.0	0.0	
HEALTH PHYSICS PERSONNEL	3	0	0		0.905	0.0	0.0	
SUPERVISORY PERSONNEL	1	0	0		0.650	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0		0.050	0.0	0.0	
TOTAL	10	0	2	12	2.904	0.0	1.448	4.352
REFUELING								
MAINTENANCE PERSONNEL	5	0	0		1.501	0.0	0.0	
OPERATING PERSONNEL	0	0	0		0.555	0.0	0.0	
HEALTH PHYSICS PERSONNEL	3	0	0		0.537	0.0	0.0	
SUPERVISORY PERSONNEL	1	0	1		0.277	0.0	0.135	
ENGINEERING PERSONNEL	1	0	0		0.217	0.0	0.018	
TOTAL	10	0	1	11	3.087	0.0	0.153	3.240
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	54 (18)	2	3	59 (23)	37.402	0.310	1.706	39.418
OPERATING PERSONNEL	37 (20)	0	0	37 (20)	40.698	0.0	0.0	40.698
HEALTH PHYSICS PERSONNEL	24 (8)	0	0	24 (8)	13.907	0.0	0.088	13.995
SUPERVISORY PERSONNEL	27 (18)	0	1	28 (19)	16.003	0.0	0.350	16.353
ENGINEERING PERSONNEL	10 (7)	0	0	10 (7)	4.876	0.029	0.387	5.292
GRAND TOTAL	152 (71)	2	4	158 (77)	112.886	0.339	2.531	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 (PWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	0	0	0		0.410	0.005	0.115	
OPERATING PERSONNEL	17	0	0		4.490	0.0	0.030	
HEALTH PHYSICS PERSONNEL	4	0	1		1.140	0.0	0.210	
SUPERVISORY PERSONNEL	1	0	0		0.370	0.047	0.122	
ENGINEERING PERSONNEL	3	0	4		1.140	0.385	1.277	
TOTAL	25	0	5	30	7.550	0.437	1.754	9.741
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	33	0	19		18.351	0.0	6.414	
OPERATING PERSONNEL	2	0	0		1.122	0.0	0.105	
HEALTH PHYSICS PERSONNEL	6	0	1		1.930	0.0	0.230	
SUPERVISORY PERSONNEL	1	0	0		0.276	0.0	0.005	
ENGINEERING PERSONNEL	2	0	2		0.550	0.010	0.355	
TOTAL	44	0	22	66	22.229	0.010	7.109	29.348
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	3	0	49		0.850	0.0	28.478	
OPERATING PERSONNEL	0	0	0		0.165	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0		0.0	0.0	0.005	
SUPERVISORY PERSONNEL	0	0	1		0.0	0.0	0.170	
ENGINEERING PERSONNEL	1	1	20		0.395	0.355	8.875	
TOTAL	4	1	70	75	1.410	0.355	37.528	39.293
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	0.0	0.0
WASTE PROCESSING								
MAINTENANCE PERSONNEL	11	0	11		3.870	0.0	4.395	
OPERATING PERSONNEL	20	0	2		5.892	0.0	0.895	
HEALTH PHYSICS PERSONNEL	2	0	1		0.265	0.0	0.245	
SUPERVISORY PERSONNEL	0	0	0		0.090	0.160	0.005	
ENGINEERING PERSONNEL	0	0	0		0.167	0.0	0.005	
TOTAL	33	0	14	47	10.284	0.160	5.545	15.989
REFUELING								
MAINTENANCE PERSONNEL	32	0	282		26.360	0.0	187.953	
OPERATING PERSONNEL	37	0	2		18.876	0.0	0.237	
HEALTH PHYSICS PERSONNEL	11	0	43		4.704	0.0	25.654	
SUPERVISORY PERSONNEL	5	0	1		3.655	0.025	0.496	
ENGINEERING PERSONNEL	11	6	23		5.295	3.137	9.930	
TOTAL	96	6	351	453	58.890	3.162	224.270	286.322
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	79	0	361	440	49.841	0.005	227.355	277.201
OPERATING PERSONNEL	76	0	4	80	30.545	0.0	1.267	31.812
HEALTH PHYSICS PERSONNEL	23	0	46	69	8.039	0.0	26.344	34.383
SUPERVISORY PERSONNEL	7	0	2	9	4.391	0.232	0.798	5.421
ENGINEERING PERSONNEL	17	7	49	73	7.547	3.887	20.442	31.876
GRAND TOTAL	202	7	462	671	100.363	4.124	276.206	380.693

APPENDIX C (Cont.)

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

PLANT: MILLSTONE 1 (BWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
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	1		0.960	0.090	0.640	
TOTAL	85	3	50	138	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	5	2.870	0.120	0.510	3.500
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	66	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	1624	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	82	13.520	0.560	25.500	39.580
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	103	27.440	11.010	8.370	46.820
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	95	52	1255	1402	98.590	35.700	888.980	1023.270
OPERATING PERSONNEL	158	0	44	202	84.110	0.050	49.620	133.780
HEALTH PHYSICS PERSONNEL	38	9	173	220	23.330	4.370	97.240	124.940
SUPERVISORY PERSONNEL	4	0	7	11	1.120	0.0	3.200	4.320
ENGINEERING PERSONNEL	28	28	127	183	13.020	15.970	83.560	112.550
GRAND TOTAL	323	89	1606	2018	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 (PWR) 1981

* WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	3	1	0		1.290	0.260	0.030	
OPERATING PERSONNEL	35	0	0		17.130	0.0	0.020	
HEALTH PHYSICS PERSONNEL	13	0	41		8.910	0.110	11.120	
SUPERVISORY PERSONNEL	0	0	0		0.110	0.0	0.0	
ENGINEERING PERSONNEL	3	1	2		1.000	0.400	0.610	
TOTAL	54	2	43	99	28.440	0.770	11.780	40.990
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	8	0	0		1.740	0.020	0.100	
OPERATING PERSONNEL	0	0	0		0.010	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0		0.050	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	8	0	0	8	1.800	0.020	0.100	1.920
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	1	0	25		0.640	0.090	12.750	
OPERATING PERSONNEL	0	0	4		0.0	0.0	5.060	
HEALTH PHYSICS PERSONNEL	0	0	7		0.0	0.0	2.110	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.140	
ENGINEERING PERSONNEL	0	0	12		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		49.780	11.810	256.310	
OPERATING PERSONNEL	32	0	16		8.410	0.0	10.750	
HEALTH PHYSICS PERSONNEL	8	1	52		5.250	0.450	18.780	
SUPERVISORY PERSONNEL	0	0	5		0.070	0.0	5.460	
ENGINEERING PERSONNEL	9	8	45		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		2.310	0.010	1.980	
OPERATING PERSONNEL	6	0	0		1.880	0.0	0.200	
HEALTH PHYSICS PERSONNEL	3	0	0		0.810	0.0	0.950	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	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		10.200	0.020	8.370	
OPERATING PERSONNEL	0	0	0		0.580	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	2		0.0	0.0	0.610	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.010	
ENGINEERING PERSONNEL	0	0	7		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

PLANT: †MONTICELLO (BWR) 1981

* WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	52	42	246		16.420	1.811	19.058	
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	68.124	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	0.565	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.)

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

PLANT:† NINE MILE POINT (BWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	137	39	172		19.009	1.818	9.669	
OPERATING PERSONNEL	134	0	8		27.113	0.0	1.174	
HEALTH PHYSICS PERSONNEL	26	0	75		33.158	0.0	32.879	
SUPERVISORY PERSONNEL	40	0	15		14.446	0.0	0.829	
ENGINEERING PERSONNEL	21	10	33		1.723	0.213	2.032	
TOTAL*	358	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		0.152	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		8.042	2.138	32.785	
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	15.555	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	1284.080
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	15.495	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 (PWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
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	128.427	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	75		0.201	0.022	7.024	
TOTAL	326	11	562	899	159.774	0.660	110.201	270.635
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		0.066	0.0	3.070	
TOTAL	61	2	184	247	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		1.034	0.002	0.0	
ENGINEERING PERSONNEL	2	0	46		0.030	0.0	2.652	
TOTAL	142	1	621	764	27.844	0.002	124.213	152.056
WASTE PROCESSING								
MAINTENANCE PERSONNEL	98	2	92		2.411	0.006	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		0.046	0.0	0.045	
TOTAL	238	5	159	402	18.269	0.015	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	6	18		0.817	0.320	2.241	
TOTAL	190	7	94	291	25.914	0.408	15.685	42.007
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	618	17	1730	2365	227.140	1.100	296.248	524.488
OPERATING PERSONNEL	394	4	143	541	81.953	0.008	14.238	96.199
HEALTH PHYSICS PERSONNEL	157	16	222	395	59.446	0.364	61.627	121.437
SUPERVISORY PERSONNEL	210	9	2	221	12.524	0.130	0.497	13.151
ENGINEERING PERSONNEL	57	23	277	357	1.363	0.481	19.864	21.708

APPENDIX C (Cont.)

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

PLANT: OCONEE 1,2,3 (PWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	*TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	74	152	38		3.955	6.850	4.510	
OPERATING PERSONNEL	97	17	0		46.835	8.675	0.0	
HEALTH PHYSICS PERSONNEL	68	22	111		18.125	0.960	16.385	
SUPERVISORY PERSONNEL	5	2	0		0.260	0.105	0.0	
ENGINEERING PERSONNEL	90	30	25		18.075	3.550	0.855	
TOTAL	334	223	174	731	87.250	20.140	21.750	129.140
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	214	375	88		77.570	71.040	46.275	
OPERATING PERSONNEL	32	8	0		1.845	1.395	0.0	
HEALTH PHYSICS PERSONNEL	63	12	103		8.705	0.440	17.830	
SUPERVISORY PERSONNEL	3	0	0		0.140	0.0	0.0	
ENGINEERING PERSONNEL	59	47	54		9.505	5.057	4.400	
TOTAL	371	445	245	1061	97.765	77.932	68.505	244.202
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	63	250	20		8.775	104.745	1.975	
OPERATING PERSONNEL	9	2	0		0.270	0.085	0.0	
HEALTH PHYSICS PERSONNEL	34	8	91		2.285	0.320	22.550	
SUPERVISORY PERSONNEL	1	0	0		0.030	0.0	0.0	
ENGINEERING PERSONNEL	27	19	77		4.505	3.508	50.450	
TOTAL	134	279	188	681	15.865	108.658	74.975	199.498
REFUEL MAINTENANCE								
MAINTENANCE PERSONNEL	218	497	55		106.015	330.990	13.445	
OPERATING PERSONNEL	62	14	0		7.225	1.715	0.0	
HEALTH PHYSICS PERSONNEL	56	19	114		16.400	2.045	39.695	
SUPERVISORY PERSONNEL	5	1	0		1.515	0.060	0.0	
ENGINEERING PERSONNEL	74	70	105		27.235	23.570	52.830	
TOTAL	415	601	274	1290	158.390	358.380	106.020	622.790
WASTE PROCESSING								
MAINTENANCE PERSONNEL	38	53	35		4.195	2.030	6.405	
OPERATING PERSONNEL	22	4	0		1.725	0.105	0.0	
HEALTH PHYSICS PERSONNEL	41	2	43		9.735	0.020	1.825	
SUPERVISORY PERSONNEL	2	0	0		0.145	0.0	0.0	
ENGINEERING PERSONNEL	27	1	0		4.850	0.020	0.0	
TOTAL	130	60	78	268	20.650	2.175	8.230	31.055
REFUELING								
MAINTENANCE PERSONNEL	157	276	52		55.465	38.130	11.800	
OPERATING PERSONNEL	76	14	0		9.680	1.750	0.0	
HEALTH PHYSICS PERSONNEL	37	18	86		4.485	2.830	11.935	
SUPERVISORY PERSONNEL	3	1	0		0.915	0.030	0.0	
ENGINEERING PERSONNEL	62	32	66		10.255	3.030	11.690	
TOTAL	335	341	204	880	80.800	45.770	35.425	161.995
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	744	1606	288	2658	255.975	553.785	84.410	894.170
OPERATING PERSONNEL	298	59	0	357	67.580	13.725	0.0	81.305
HEALTH PHYSICS PERSONNEL	299	81	548	928	59.735	6.615	110.220	176.570
SUPERVISORY PERSONNEL	19	4	0	23	3.005	0.195	0.0	3.200
ENGINEERING PERSONNEL	339	199	327	865	74.425	38.727	120.275	233.427
GRAND TOTAL	1719	1949	1163	4831	460.720	613.047	314.905	1388.672

*Does not include

APPENDIX C (Cont.)

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

PLANT: OYSTER CREEK (BWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	68	4	36		3.292	0.122	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	0.852	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	131		11.974	0.0	78.331	
SUPERVISORY PERSONNEL	36	1	3		7.672	0.372	0.005	
ENGINEERING PERSONNEL	45	6	63		3.482	0.288	5.144	
TOTAL	442	52	637	1131	208.504	22.826	185.728	417.058
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	24	0	42		0.522	0.0	5.562	
OPERATING PERSONNEL	11	0	7		0.385	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	10.241
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	152.254	218.704
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	0.096	
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		0.010	0.0	0.0	
TOTAL	4	1	0	5	0.030	0.005	0.0	0.035
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	591 (215)	79 (43)	993 (554)	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 (135)	328 (170)	14.405	0.0	95.049	109.454
SUPERVISORY PERSONNEL	75 (38)	1 (1)	4 (4)	80 (43)	12.401	0.372	0.005	12.778
ENGINEERING PERSONNEL	95 (61)	14 (9)	124 (78)	233 (138)	6.570	0.410	11.263	18.243
GRAND TOTAL	1139 (466)	99 (55)	1457 (823)	2695 (1333)	300.749	31.538	363.938	696.225

APPENDIX C (Cont.)

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

PLANT: PALISADES (PWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	**TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
*REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	1	0	7		0.342	0.061	2.080	
OPERATING PERSONNEL	45	2	4		16.852	0.315	0.748	
HEALTH PHYSICS PERSONNEL	40	3	152		12.667	1.951	89.309	
SUPERVISORY PERSONNEL	5	0	9		2.227	0.149	9.306	
ENGINEERING PERSONNEL	9	0	14		1.765	0.079	4.555	
TOTAL	100	5	186	291	33.853	2.555	105.998	142.406
*ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	84	26	68		41.246	10.170	32.528	
OPERATING PERSONNEL	0	0	0		0.129	0.0	0.031	
HEALTH PHYSICS PERSONNEL	3	1	21		0.775	0.247	10.989	
SUPERVISORY PERSONNEL	14	2	9		4.736	0.653	2.852	
ENGINEERING PERSONNEL	2	0	7		1.048	0.191	2.906	
TOTAL	103	29	105	237	47.934	11.261	49.306	108.501
*IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	1	0	3		0.093	0.014	0.478	
OPERATING PERSONNEL	0	0	0		0.007	0.0	0.007	
HEALTH PHYSICS PERSONNEL	0	0	2		0.013	0.0	1.791	
SUPERVISORY PERSONNEL	1	0	2		0.173	0.061	0.940	
ENGINEERING PERSONNEL	2	2	26		0.695	1.039	8.950	
TOTAL	4	2	33	39	0.981	1.114	12.166	14.261
*SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	33	99	840		10.348	26.958	404.181	
OPERATING PERSONNEL	0	0	0		1.004	0.0	0.036	
HEALTH PHYSICS PERSONNEL	0	0	4		0.089	0.0	1.451	
SUPERVISORY PERSONNEL	1	1	22		0.450	0.694	7.339	
ENGINEERING PERSONNEL	6	4	40		1.394	0.744	11.935	
TOTAL	40	104	906	1050	12.185	28.396	424.942	465.523
*WASTE PROCESSING								
MAINTENANCE PERSONNEL	1	3	13		0.435	0.654	2.758	
OPERATING PERSONNEL	0	0	4		0.004	0.0	3.504	
HEALTH PHYSICS PERSONNEL	0	0	1		0.029	0.087	0.164	
SUPERVISORY PERSONNEL	0	0	4		0.006	0.0	2.317	
ENGINEERING PERSONNEL	0	0	3		0.0	0.0	1.942	
TOTAL	1	3	25	29	0.474	0.661	10.685	11.820
*REFUELING								
MAINTENANCE PERSONNEL	0	0	36		0.0	0.0	22.484	
OPERATING PERSONNEL	2	0	1		1.165	0.0	0.159	
HEALTH PHYSICS PERSONNEL	0	0	1		0.0	0.0	0.372	
SUPERVISORY PERSONNEL	0	0	0		0.029	0.0	0.0	
ENGINEERING PERSONNEL	0	0	4		0.001	0.0	0.802	
TOTAL	2	0	42	44	1.195	0.0	23.817	25.012
*TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	120	128	967	1215	52.464	37.857	464.509	554.830
OPERATING PERSONNEL	47	2	9	58	18.161	0.315	4.485	22.961
HEALTH PHYSICS PERSONNEL	43	4	181	228	13.493	2.205	104.076	119.774
SUPERVISORY PERSONNEL	21	3	46	70	7.601	1.557	22.754	31.912
ENGINEERING PERSONNEL	19	6	94	119	4.903	2.053	31.090	38.046
GRAND TOTAL	250	143	1297	1690	96.622	43.987	626.914	767.523

*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.)

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

PLANT: PEACH BOTTOM 2,3 (BWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	5	82	76		2.630	37.925	23.081	
OPERATING PERSONNEL	68	8	25		45.647	5.201	4.541	
HEALTH PHYSICS PERSONNEL	47	4	73		43.854	3.250	42.441	
SUPERVISORY PERSONNEL	0	2	1		0.0	0.232	0.305	
ENGINEERING PERSONNEL	30	13	18		25.030	4.328	15.224	
TOTAL	150	109	193	452	117.161	50.936	85.592	253.689
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	10	545	1034		3.926	300.312	1274.803	
OPERATING PERSONNEL	6	3	6		1.134	0.684	8.386	
HEALTH PHYSICS PERSONNEL	16	2	33		7.993	0.711	20.523	
SUPERVISORY PERSONNEL	0	5	0		0.0	1.712	0.0	
ENGINEERING PERSONNEL	6	16	8		1.664	7.809	3.101	
TOTAL	38	571	1081	1690	14.717	311.228	1306.813	1692.758
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	8	47		0.0	7.424	51.407	
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	1	0		0.0	0.131	0.0	
ENGINEERING PERSONNEL	0	2	3		0.0	1.858	2.001	
TOTAL	0	11	50	61	0.0	9.413	53.408	62.821
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	4	185		0.0	1.287	256.445	
OPERATING PERSONNEL	1	0	0		0.116	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	1	4		0.0	0.132	2.991	
TOTAL	1	5	189	195	0.116	1.419	259.436	260.971
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	5	83		0.0	1.857	26.019	
OPERATING PERSONNEL	8	0	1		6.612	0.0	0.156	
HEALTH PHYSICS PERSONNEL	7	0	4		3.301	0.0	2.330	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0		0.0	0.0	0.0	
TOTAL	15	5	88	108	9.913	1.857	28.505	40.275
REFUELING								
MAINTENANCE PERSONNEL	0	9	34		0.0	2.410	9.969	
OPERATING PERSONNEL	1	0	0		0.187	0.0	0.0	
HEALTH PHYSICS PERSONNEL	3	0	1		1.511	0.0	0.153	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	1		0.0	0.0	0.444	
TOTAL	4	9	36	49	1.698	2.410	10.566	14.674
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	15 (12)	653 (593)	1459 (1267)	2127 (1872)	6.556	411.215	1641.724	2059.495
OPERATING PERSONNEL	84 (75)	11 (11)	32 (41)	127 (127)	53.696	5.885	13.083	72.664
HEALTH PHYSICS PERSONNEL	73 (50)	6 (5)	111 (93)	190 (148)	56.659	3.961	65.447	126.067
SUPERVISORY PERSONNEL	0	8 (7)	1 (1)	9 (8)	0.0	2.075	0.305	2.380
ENGINEERING PERSONNEL	36 (31)	32 (29)	34 (27)	102 (87)	26.694	14.127	23.741	64.562
GRAND TOTAL	208 (168)	710 (645)	1637 (1428)	2555 (2242)	143.605	437.263	1745.328	2326.168

*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 (BWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REM
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	85	0	126		8.270	0.0	5.335	
OPERATING PERSONNEL	45	0	0		27.020	0.0	0.0	
HEALTH PHYSICS PERSONNEL	38	0	18		12.680	0.0	5.518	
SUPERVISORY PERSONNEL	24	0	0		3.205	0.0	0.0	
ENGINEERING PERSONNEL	10	0	12		2.135	0.0	0.288	
TOTAL	202	0	156	358	53.310	0.0	11.125	64.435
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	85	0	1256		20.340	0.0	207.440	
OPERATING PERSONNEL	45	0	0		2.290	0.0	0.0	
HEALTH PHYSICS PERSONNEL	38	0	165		12.855	0.0	25.080	
SUPERVISORY PERSONNEL	42	18	46		4.035	1.605	2.480	
ENGINEERING PERSONNEL	12	6	54		5.840	0.195	2.080	
TOTAL	222	24	1521	1767	45.360	1.800	237.800	284.160
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	15	0	67		0.835	0.0	37.005	
OPERATING PERSONNEL	7	0	0		0.265	0.0	0.0	
HEALTH PHYSICS PERSONNEL	11	0	24		1.315	0.0	1.015	
SUPERVISORY PERSONNEL	3	0	8		1.850	0.0	0.450	
ENGINEERING PERSONNEL	2	0	0		0.150	0.0	0.0	
TOTAL	38	0	99	137	4.415	0.0	38.470	42.885
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	85	25	1585		48.945	1.350	893.465	
OPERATING PERSONNEL	45	0	0		7.135	0.0	0.0	
HEALTH PHYSICS PERSONNEL	38	0	103		7.440	0.0	53.560	
SUPERVISORY PERSONNEL	70	146	30		62.900	53.785	3.835	
ENGINEERING PERSONNEL	26	19	92		12.335	8.090	19.010	
TOTAL	264	190	1810	2264	138.755	63.225	969.870	1171.850
WASTE PROCESSING								
MAINTENANCE PERSONNEL	80	0	280		16.985	0.0	12.925	
OPERATING PERSONNEL	38	0	0		20.270	0.0	0.0	
HEALTH PHYSICS PERSONNEL	32	0	41		4.355	0.0	3.325	
SUPERVISORY PERSONNEL	8	0	0		1.215	0.0	0.0	
ENGINEERING PERSONNEL	9	0	0		1.750	0.0	0.0	
TOTAL	167	0	321	488	44.575	0.0	16.250	60.825
REFUELING								
MAINTENANCE PERSONNEL	24	25	150		7.825	8.675	25.065	
OPERATING PERSONNEL	45	0	0		8.430	0.0	0.0	
HEALTH PHYSICS PERSONNEL	21	0	42		0.255	0.0	1.555	
SUPERVISORY PERSONNEL	10	14	0		3.025	2.025	0.0	
ENGINEERING PERSONNEL	14	0	0		1.020	0.0	0.0	
TOTAL	114	39	192	345	20.555	10.700	26.620	57.875
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	374 (85)	50 (25)	3464 (1585)	3888 (1696)	103.200	10.025	1181.235	1294.460
OPERATING PERSONNEL	225 (48)	0	0	225 (48)	65.410	0.0	0.0	65.410
HEALTH PHYSICS PERSONNEL	178 (38)	0	393 (103)	571 (141)	38.900	0.0	90.045	128.945
SUPERVISORY PERSONNEL	157 (83)	178 (146)	84 (30)	419 (259)	76.230	57.415	6.685	140.330
ENGINEERING PERSONNEL	73 (29)	25 (19)	158 (89)	256 (137)	23.230	8.285	21.370	52.885
GRAND TOTAL	1007 (277)	253 (190)	4099 (1810)	5359 (2277)	306.970	75.725	1299.335	1682.030

*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 (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 & Sur.								
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

APPENDIX C (Cont.)

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

PLANT: PRAIRIE ISLAND 1,2 (PWR) — 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REM
*REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	74	73	46		7.082	3.427	1.868	
OPERATING PERSONNEL	50	0	0		9.366	0.0	0.322	
HEALTH PHYSICS PERSONNEL	26	0	22		8.062	0.0	2.024	
SUPERVISORY PERSONNEL	3	0	2		0.882	0.023	0.492	
ENGINEERING PERSONNEL	15	4	7		1.888	0.172	0.835	
TOTAL	168	77	77	322	26.480	3.622	5.541	35.643
*ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	38	38	4		2.638	0.840	0.014	
OPERATING PERSONNEL	1	0	0		0.006	0.0	0.0	
HEALTH PHYSICS PERSONNEL	1	0	0		0.123	0.0	0.0	
SUPERVISORY PERSONNEL	1	0	0		0.022	0.0	0.0	
ENGINEERING PERSONNEL	2	0	1		0.225	0.0	0.021	
TOTAL	43	38	5	86	3.014	0.840	0.035	3.889
*IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	33	51	57		5.861	4.677	47.399	
OPERATING PERSONNEL	2	0	0		0.035	0.0	0.0	
HEALTH PHYSICS PERSONNEL	10	0	7		0.967	0.0	0.264	
SUPERVISORY PERSONNEL	1	0	2		0.010	0.0	0.292	
ENGINEERING PERSONNEL	11	3	15		1.411	1.025	6.030	
TOTAL	57	54	81	192	8.284	5.702	53.985	67.971
*SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	72	136	118		35.914	48.628	36.443	
OPERATING PERSONNEL	39	0	0		2.324	0.0	0.0	
HEALTH PHYSICS PERSONNEL	24	0	15		1.155	0.0	3.323	
SUPERVISORY PERSONNEL	2	0	6		0.660	0.036	1.146	
ENGINEERING PERSONNEL	13	4	24		3.104	0.897	12.372	
TOTAL	150	140	163	453	43.157	49.561	53.284	146.002
*WASTE PROCESSING								
MAINTENANCE PERSONNEL	33	14	2		2.727	0.984	0.312	
OPERATING PERSONNEL	22	0	1		1.090	0.0	0.231	
HEALTH PHYSICS PERSONNEL	12	0	2		2.147	0.0	0.015	
SUPERVISORY PERSONNEL	1	0	0		0.031	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0		0.0	0.0	0.0	
TOTAL	68	14	5	87	5.995	0.984	0.558	7.537
*REFUELING								
MAINTENANCE PERSONNEL	45	98	11		12.264	22.964	3.119	
OPERATING PERSONNEL	44	0	0		4.031	0.0	0.0	
HEALTH PHYSICS PERSONNEL	21	0	21		2.488	0.0	5.686	
SUPERVISORY PERSONNEL	1	0	2		0.602	0.0	0.129	
ENGINEERING PERSONNEL	11	1	1		1.256	0.211	0.223	
TOTAL	122	99	35	256	20.641	23.175	9.077	52.893
*TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	295	410	238	943	66.486	81.520	89.155	237.161
OPERATING PERSONNEL	158	0	1	159	16.852	0.0	0.553	17.405
HEALTH PHYSICS PERSONNEL	94	0	67	161	14.942	0.0	11.232	26.174
SUPERVISORY PERSONNEL	9	0	12	21	2.207	0.059	2.059	4.325
ENGINEERING PERSONNEL	52	12	48	112	7.084	2.305	19.481	28.870
GRAND TOTAL	608	422	366	1396	107.571	83.884	122.480	313.935

*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 CITIES 1&2 (BWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	13	0	0		25.600	0.0	0.0	
OPERATING PERSONNEL	39	0	0		46.200	0.0	0.0	
HEALTH PHYSICS PERSONNEL	18	0	0		15.700	0.0	0.0	
SUPERVISORY PERSONNEL	48	0	0		44.900	0.0	0.0	
ENGINEERING PERSONNEL	7	11	6		3.700	2.200	5.185	
TOTAL	125	11	6	142	136.100	2.200	5.185	143.485
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	52	64	784		158.700	46.700	1913.200	
OPERATING PERSONNEL	8	0	0		11.100	0.0	0.0	
HEALTH PHYSICS PERSONNEL	8	0	12		11.700	0.0	10.300	
SUPERVISORY PERSONNEL	30	0	0		28.400	0.0	0.0	
ENGINEERING PERSONNEL	22	11	66		10.700	2.200	52.100	
TOTAL	120	75	862	1057	212.600	48.900	1975.600	2237.100
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	5	0	76		9.900	0.0	200.500	
OPERATING PERSONNEL	1	0	0		2.200	0.0	0.0	
HEALTH PHYSICS PERSONNEL	5	0	0		6.500	0.0	0.0	
SUPERVISORY PERSONNEL	9	0	0		5.800	0.0	0.0	
ENGINEERING PERSONNEL	14	11	47		10.800	2.800	32.800	
TOTAL	34	11	123	168	35.200	2.800	233.300	271.300
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	0.0	0.0
WASTE PROCESSING								
MAINTENANCE PERSONNEL	20	0	29		64.300	0.0	76.600	
OPERATING PERSONNEL	53	0	14		85.600	0.0	1470.000	
HEALTH PHYSICS PERSONNEL	15	0	0		19.100	0.0	0.0	
SUPERVISORY PERSONNEL	63	0	0		26.900	0.0	0.0	
ENGINEERING PERSONNEL	0	6	12		0.0	1.200	10.600	
TOTAL	151	6	55	212	195.900	1.200	1557.000	1754.100
REFUELING								
MAINTENANCE PERSONNEL	28	0	0		76.200	0.0	0.0	
OPERATING PERSONNEL	6	0	0		11.100	0.0	0.0	
HEALTH PHYSICS PERSONNEL	9	0	0		12.200	0.0	0.0	
SUPERVISORY PERSONNEL	18	0	0		15.400	0.0	0.0	
ENGINEERING PERSONNEL	3	3	25		3.000	0.800	12.000	
TOTAL	64	3	25	92	117.900	0.800	12.000	130.700
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	118	64	889	1071	334.700	46.700	2190.300	2571.700
OPERATING PERSONNEL	107	0	14	121	156.200	0.0	1470.000	1626.200
HEALTH PHYSICS PERSONNEL	55	0	12	67	65.200	0.0	10.300	75.500
SUPERVISORY PERSONNEL	168	0	0	168	113.400	0.0	0.0	113.400
ENGINEERING PERSONNEL	46	42	156	244	28.200	9.200	112.485	149.885
GRAND TOTAL	494	106	1071	1671	697.700	55.900	3783.085	4536.685

APPENDIX C (Cont.)

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

PLANT: RANCHO SECO 1 (PWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	71	5	85		4.250	0.140	3.450	
OPERATING PERSONNEL	73	1	83		15.610	0.090	2.890	
HEALTH PHYSICS PERSONNEL	41	1	72		7.850	0.020	25.660	
SUPERVISORY PERSONNEL	20	1	6		1.080	0.0	0.100	
ENGINEERING PERSONNEL	40	2	96		3.140	0.040	3.550	
TOTAL	245	10	342	597	31.930	0.290	35.650	68.170
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	72	5	178		29.380	1.950	3.320	
OPERATING PERSONNEL	18	0	4		1.140	0.0	0.040	
HEALTH PHYSICS PERSONNEL	30	0	48		6.850	0.0	6.690	
SUPERVISORY PERSONNEL	11	0	6		2.260	0.0	1.800	
ENGINEERING PERSONNEL	20	0	75		2.790	0.0	13.470	
TOTAL	151	5	311	467	42.420	1.950	25.320	69.690
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	0.0
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	53	5	223		11.410	0.430	75.590	
OPERATING PERSONNEL	15	0	2		0.400	0.0	0.200	
HEALTH PHYSICS PERSONNEL	23	0	43		3.870	0.0	5.070	
SUPERVISORY PERSONNEL	8	0	9		0.920	0.0	1.910	
ENGINEERING PERSONNEL	22	2	92		1.930	0.030	8.820	
TOTAL	123	7	369	499	18.530	0.460	91.590	110.580
WASTE PROCESSING								
MAINTENANCE PERSONNEL	41	1	95		2.060	0.030	19.650	
OPERATING PERSONNEL	12	0	1		0.380	0.0	0.0	
HEALTH PHYSICS PERSONNEL	30	0	15		7.760	0.0	29.640	
SUPERVISORY PERSONNEL	5	0	4		0.030	0.0	0.680	
ENGINEERING PERSONNEL	3	0	2		0.010	0.0	0.0	
TOTAL	91	1	117	209	10.240	0.030	49.970	60.240
REFUELING								
MAINTENANCE PERSONNEL	22	2	50		1.750	0.050	9.190	
OPERATING PERSONNEL	22	1	0		2.440	0.0	0.0	
HEALTH PHYSICS PERSONNEL	6	0	17		0.260	0.0	0.680	
SUPERVISORY PERSONNEL	5	0	4		0.390	0.0	0.930	
ENGINEERING PERSONNEL	6	0	31		0.700	0.0	4.370	
TOTAL	61	3	102	166	5.540	0.050	15.170	20.760
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	261	18	631	910	48.850	2.600	111.200	162.650
OPERATING PERSONNEL	140	2	90	232	19.970	0.090	3.130	23.190
HEALTH PHYSICS PERSONNEL	130	1	195	326	26.590	0.020	67.740	94.350
SUPERVISORY PERSONNEL	49	1	29	79	4.680	0.0	5.420	10.100
ENGINEERING PERSONNEL	91	4	296	391	8.870	0.070	30.410	39.350
GRAND TOTAL	671	26	1241	1938	108.960	2.780	217.900	329.640

*Workers may be counted in more than one category.

APPENDIX C (Cont.)

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

PLANT: ROBINSON 2 (PWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	2	0	0		1.258	0.091	0.0	
OPERATING PERSONNEL	29	0	0		22.837	0.0	0.0	
HEALTH PHYSICS PERSONNEL	7	2	1		6.938	3.082	0.389	
SUPERVISORY PERSONNEL	1	1	1		0.191	0.154	0.407	
ENGINEERING PERSONNEL	8	2	0		3.736	0.877	0.0	
TOTAL	47	5	2	54	34.960	4.204	0.796	39.960
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	22	1	24		26.990	0.143	19.307	
OPERATING PERSONNEL	0	0	0		0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	6	1	8		6.254	1.941	5.043	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	2	0	0		1.050	0.132	0.0	
TOTAL	30	2	32	64	34.294	2.216	24.350	60.860
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	1	0	0		0.140	0.0	0.0	
OPERATING PERSONNEL	0	0	0		0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0		0.141	0.015	0.0	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	4	0	0		4.232	0.0	0.0	
TOTAL	5	0	0	5	4.513	0.015	0.0	4.528
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	33	1	323		40.420	0.303	352.037	
OPERATING PERSONNEL	3	0	0		1.892	0.0	0.0	
HEALTH PHYSICS PERSONNEL	14	5	44		17.627	7.781	24.451	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	24	6	66		14.751	4.145	42.820	
TOTAL	74	12	433	519	74.690	12.229	419.308	506.227
WASTE PROCESSING								
MAINTENANCE PERSONNEL	10	1	14		11.644	0.085	11.332	
OPERATING PERSONNEL	17	0	0		13.335	0.0	0.0	
HEALTH PHYSICS PERSONNEL	2	1	2		2.200	0.687	0.910	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	1	0	0		0.552	0.055	0.0	
TOTAL	30	2	16	48	27.731	0.827	12.242	40.800
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	68	3	361	432	80.452	0.622	382.676	463.750
OPERATING PERSONNEL	49	0	0	49	38.064	0.0	0.0	38.064
HEALTH PHYSICS PERSONNEL	29	9	55	93	33.160	13.506	30.793	77.459
SUPERVISORY PERSONNEL	1	1	1	3	0.191	0.154	0.407	0.752
ENGINEERING PERSONNEL	39	8	66	113	26.321	5.209	42.820	74.350
GRAND TOTAL	186	21	483	690	176.188	19.491	456.698	652.375

APPENDIX C (Cont.)

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

PLANT: † SALEM 1 (PWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	1	0	0		0.407	0.0	0.150	
OPERATING PERSONNEL	0	0	0		1.060	0.0	0.070	
HEALTH PHYSICS PERSONNEL	0	0	0		0.464	0.0	0.774	
SUPERVISORY PERSONNEL	0	0	0		0.010	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0		0.010	0.0	0.0	
TOTAL	1	0	0	1	1.951	0.0	0.994	2.945
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	6	0	0		3.280	0.010	0.185	
OPERATING PERSONNEL	0	0	0		0.030	0.0	0.020	
HEALTH PHYSICS PERSONNEL	0	0	1		0.235	0.0	0.445	
SUPERVISORY PERSONNEL	1	0	0		0.165	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0		0.0	0.0	0.0	
TOTAL	7	0	1	8	3.710	0.010	0.650	4.370
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	8	0	10		3.457	0.0	4.685	
OPERATING PERSONNEL	0	0	0		0.235	0.0	0.030	
HEALTH PHYSICS PERSONNEL	0	0	0		0.232	0.0	0.555	
SUPERVISORY PERSONNEL	1	0	0		0.485	0.0	0.235	
ENGINEERING PERSONNEL	0	0	1		0.145	0.115	0.460	
TOTAL	9	0	11	20	4.554	0.115	5.965	10.634
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	102	0	171		46.098	0.135	73.959	
OPERATING PERSONNEL	2	0	0		2.190	0.0	0.265	
HEALTH PHYSICS PERSONNEL	11	0	51		4.197	0.0	19.254	
SUPERVISORY PERSONNEL	7	0	1		2.619	0.0	1.510	
ENGINEERING PERSONNEL	0	0	4		0.237	0.060	0.215	
TOTAL	122	0	227	349	55.341	0.195	95.203	150.739
WASTE PROCESSING								
MAINTENANCE PERSONNEL	5	0	2		1.599	0.0	0.915	
OPERATING PERSONNEL	0	0	1		0.075	0.0	0.415	
HEALTH PHYSICS PERSONNEL	3	0	1		1.365	0.0	0.452	
SUPERVISORY PERSONNEL	3	0	0		1.035	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0		0.010	0.0	0.0	
TOTAL	11	0	4	15	4.084	0.0	1.782	5.866
REFUELING								
MAINTENANCE PERSONNEL	0	0	0		0.140	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	0.140	0.0	0.0	0.140
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	122	0	183	305	54.981	0.145	79.894	135.020
OPERATING PERSONNEL	2	0	1	3	3.590	0.0	0.800	4.390
HEALTH PHYSICS PERSONNEL	14	0	53	67	6.493	0.0	21.480	27.973
SUPERVISORY PERSONNEL	12	0	1	13	4.314	0.0	1.745	6.059
ENGINEERING PERSONNEL	0	0	5	5	0.402	0.175	0.675	1.252
GRAND TOTAL	150	0	243	393	69.780	0.320	104.594	174.694

APPENDIX C (Cont.)

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

PLANT: SAN ONOFRE 1 (PWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	12	0	16		2.080	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	19		6.720	0.150	10.860	
TOTAL	58	1	151	210	30.330	0.150	68.290	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	3	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	1964	77.530	9.040	2990.060	3076.630
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	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	0.0
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	0.0
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	80 (70)	20 (19)	1515 (1501)	1615 (1590)	65.680	7.940	2744.200	2817.820
OPERATING PERSONNEL	23 (21)	0	41 (48)	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	107 (101)	135 (123)	9.650	0.990	79.140	89.180
GRAND TOTAL	163(134)	25 (24)	1999 (1896)	2187 (2063)	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.)

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

PLANT: ST. LUCIE (PWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	0	0	0		0.0	0.0	0.0	
OPERATING PERSONNEL	25	0	0		7.000	0.0	0.0	
HEALTH PHYSICS PERSONNEL	22	0	17		6.400	0.0	5.300	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0		0.0	0.0	0.0	
TOTAL	47	0	17	64	13.400	0.0	5.300	18.700
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	106	27	0		35.800	18.000	0.0	
OPERATING PERSONNEL	16	0	0		4.400	0.0	0.0	
HEALTH PHYSICS PERSONNEL	21	0	2		6.200	0.0	0.600	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0		0.0	0.0	0.0	
TOTAL	143	27	2	172	46.400	18.000	0.600	65.000
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	43	33	60		14.600	22.900	49.300	
OPERATING PERSONNEL	21	0	0		5.800	0.0	0.0	
HEALTH PHYSICS PERSONNEL	12	0	16		3.500	0.0	5.000	
SUPERVISORY PERSONNEL	4	0	5		3.100	0.0	2.400	
ENGINEERING PERSONNEL	2	3	14		0.300	1.000	5.400	
TOTAL	82	36	95	213	27.300	23.900	62.100	113.300
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	118	39	544		39.800	84.900	411.800	
OPERATING PERSONNEL	18	0	0		4.900	0.0	0.0	
HEALTH PHYSICS PERSONNEL	17	0	52		4.900	0.0	16.100	
SUPERVISORY PERSONNEL	7	0	8		5.500	0.0	4.200	
ENGINEERING PERSONNEL	4	6	15		0.500	2.100	5.800	
TOTAL	164	45	659	868	55.300	28.600	437.900	521.800
WASTE PROCESSING								
MAINTENANCE PERSONNEL	64	12	0		21.200	8.400	0.0	
OPERATING PERSONNEL	15	0	0		4.100	0.0	0.0	
HEALTH PHYSICS PERSONNEL	13	0	11		3.700	0.0	3.400	
SUPERVISORY PERSONNEL	6	0	0		2.700	0.0	0.0	
ENGINEERING PERSONNEL	2	0	0		0.100	0.0	0.0	
TOTAL	100	12	11	123	31.800	8.400	3.400	43.600
REFUELING								
MAINTENANCE PERSONNEL	119	66	0		39.900	44.500	0.0	
OPERATING PERSONNEL	47	0	0		12.700	0.0	0.0	
HEALTH PHYSICS PERSONNEL	18	0	64		4.900	0.0	19.900	
SUPERVISORY PERSONNEL	5	0	6		2.000	0.0	3.000	
ENGINEERING PERSONNEL	0	1	0		0.0	0.0	0.0	
TOTAL	189	67	70	326	59.500	44.500	22.900	126.900
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	450 (134)	177 (82)	644 (636)	1271 (852)	151.000	120.300	461.100	732.400
OPERATING PERSONNEL	142 (81)	0	0	142 (81)	38.900	0.0	0.0	38.900
HEALTH PHYSICS PERSONNEL	103 (25)	0	162 (70)	265 (96)	29.600	0.0	50.300	79.900
SUPERVISORY PERSONNEL	22 (9)	0	19 (15)	41 (24)	13.300	0.0	9.600	22.900
ENGINEERING PERSONNEL	8 (7)	10 (8)	29 (27)	47 (42)	0.900	3.100	11.200	15.200
GRAND TOTAL	725 (236)	187 (90)	854 (748)	1766 (1074)	233.700	123.400	532.200	889.300

*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: 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	993.085	95.310	2746.531	3834.926

*Workers may be counted in more than one category.

**Routine maintenance includes 2840 man-rems 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 (PWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL 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	63	34	31		0.735	0.114	0.248	
TOTAL	536	77	205	818	25.214	0.315	1.625	27.154
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	726	23.374	0.327	1.528	25.229
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	506	4.785	0.922	3.742	9.449
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		3.456	0.463	6.933	
TOTAL	501	88	602	1191	19.118	3.089	119.780	141.987
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	334	20.077	0.362	4.245	24.684
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	5	0.0	0.0	0.0	0.0
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	705 (218)	54 (28)	762 (447)	1521 (693)	42.697	2.848	108.802	154.347
OPERATING PERSONNEL	654 (218)	61 (42)	200 (92)	915 (352)	23.151	0.684	10.610	34.445
HEALTH PHYSICS PERSONNEL	300 (87)	7 (4)	62 (42)	369 (133)	17.941	0.007	0.602	18.550
SUPERVISORY PERSONNEL	192 (78)	20 (10)	60 (36)	272 (123)	3.627	0.165	2.410	6.202
ENGINEERING PERSONNEL	201 (85)	125 (67)	177 (111)	503 (263)	5.152	1.311	8.496	14.959
GRAND TOTAL	2052 (684)	267 (149)	1261 (727)	3580 (1600)	92.568	5.015	130.920	228.503

*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:† THREE MILE ISLAND 2 (PWR)

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	95	18	52		6.160	1.804	0.508	
OPERATING PERSONNEL	67	6	18		2.863	0.136	0.459	
HEALTH PHYSICS PERSONNEL	38	6	65		4.176	0.066	4.498	
SUPERVISORY PERSONNEL	16	3	7		1.214	0.022	0.0	
ENGINEERING PERSONNEL	7	9	20		0.319	0.311	2.040	
TOTAL	223	42	162	427	14.732	2.339	7.505	24.576
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	4	31		0.484	0.106	0.508	
SUPERVISORY PERSONNEL	11	0	7		0.119	0.0	0.032	
ENGINEERING PERSONNEL	5	3	5		0.022	0.101	0.015	
TOTAL	163	21	112	296	3.174	0.472	1.150	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	0.0	0.0	
ENGINEERING PERSONNEL	1	2	1		0.020	0.0	0.005	
TOTAL	28	4	11	43	0.199	0.075	0.140	0.414
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		8.992	7.739	17.785	
SUPERVISORY PERSONNEL	48	6	23		3.104	0.247	2.357	
ENGINEERING PERSONNEL	31	29	71		1.570	3.670	9.837	
TOTAL	410	117	430	957	36.397	26.823	51.765	114.985
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		0.355	0.327	0.928	
TOTAL	411	94	343	848	9.665	1.889	6.511	18.065
REFUELING								
MAINTENANCE PERSONNEL	5	2	5		0.0	0.009	0.010	
OPERATING PERSONNEL	13	0	4		0.031	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	1	1		0.0	0.005	0.002	
TOTAL	25	3	22	50	0.110	0.014	0.142	0.266
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	472 (156)	97 (45)	393 (178)	962 (382)	26.749	13.157	15.500	55.406
OPERATING PERSONNEL	394 (164)	53 (34)	147 (80)	594 (268)	17.675	5.573	9.911	33.159
HEALTH PHYSICS PERSONNEL	182 (87)	38 (21)	315 (116)	535 (204)	12.137	8.103	26.541	46.781
SUPERVISORY PERSONNEL	136 (68)	21 (13)	58 (31)	215 (112)	5.432	0.365	2.434	8.231
ENGINEERING PERSONNEL	76 (37)	72 (36)	167 (104)	315 (176)	2.284	4.414	12.827	19.525
GRAND TOTAL	1260 (486)	281 (148)	1080 (509)	2621 (1142)	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 (PWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	0	9	0		0.0	4.970	0.210	
OPERATING PERSONNEL	38	0	0		15.210	0.0	0.050	
HEALTH PHYSICS PERSONNEL	32	0	92		17.300	0.030	51.910	
SUPERVISORY PERSONNEL	2	0	4		1.150	0.030	4.390	
ENGINEERING PERSONNEL	15	15	5		8.780	9.160	2.400	
TOTAL	87	24	101	212	42.440	14.190	58.960	115.590
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	38	16	6		23.630	6.580	3.560	
OPERATING PERSONNEL	0	0	0		0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	1	0		0.150	0.130	0.070	
SUPERVISORY PERSONNEL	1	0	0		0.250	0.0	0.040	
ENGINEERING PERSONNEL	2	2	2		0.490	0.810	0.660	
TOTAL	41	19	8	68	24.520	7.520	4.330	36.370
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	0.0
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	59	120	341		33.420	101.750	257.850	
OPERATING PERSONNEL	0	0	0		0.0	0.0	0.020	
HEALTH PHYSICS PERSONNEL	0	0	6		0.060	0.060	1.650	
SUPERVISORY PERSONNEL	0	5	32		0.060	1.680	12.810	
ENGINEERING PERSONNEL	2	0	7		0.580	0.020	2.650	
TOTAL	61	125	386	572	34.120	103.510	274.980	412.610
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0		0.0	0.0	0.050	
OPERATING PERSONNEL	0	0	1		0.030	0.0	0.770	
HEALTH PHYSICS PERSONNEL	9	0	0		3.610	0.0	0.0	
SUPERVISORY PERSONNEL	0	0	0		0.040	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0		0.010	0.0	0.0	
TOTAL	9	0	1	10	3.690	0.0	0.820	4.510
REFUELING								
MAINTENANCE PERSONNEL	5	11	19		3.720	17.040	24.600	
OPERATING PERSONNEL	0	0	5		0.0	0.0	1.240	
HEALTH PHYSICS PERSONNEL	0	0	8		0.0	0.0	3.520	
SUPERVISORY PERSONNEL	2	0	6		0.970	0.0	2.580	
ENGINEERING PERSONNEL	0	0	2		0.010	0.040	0.360	
TOTAL	7	11	40	58	4.700	17.080	32.300	54.080
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	102	156	366	624	60.770	130.340	286.270	477.380
OPERATING PERSONNEL	38	0	6	44	15.240	0.0	2.080	17.320
HEALTH PHYSICS PERSONNEL	41	1	106	148	21.120	0.220	57.150	78.490
SUPERVISORY PERSONNEL	5	5	42	52	2.470	1.710	19.820	24.000
ENGINEERING PERSONNEL	19	17	16	52	9.870	10.030	6.270	26.170
GRAND TOTAL	205	179	536	920	109.470	142.300	371.590	623.360

*Workers may be counted in more than one category.

APPENDIX C (Cont.)

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

PLANT: TURKEY POINT 3,4 (PWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	141	17	387		65.620	4.555	122.889	
OPERATING PERSONNEL	26	1	0		35.112	0.210	0.0	
HEALTH PHYSICS PERSONNEL	27	0	98		18.647	0.020	55.975	
SUPERVISORY PERSONNEL	19	0	7		8.196	0.125	2.415	
ENGINEERING PERSONNEL	27	2	93		11.921	0.891	29.407	
TOTAL	240	20	585	845	139.496	5.801	210.686	355.983
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	100	15	166		63.649	6.260	186.867	
OPERATING PERSONNEL	4	0	0		1.888	0.0	0.0	
HEALTH PHYSICS PERSONNEL	4	0	84		0.971	0.0	52.494	
SUPERVISORY PERSONNEL	1	0	0		1.090	0.060	0.035	
ENGINEERING PERSONNEL	4	0	3		2.951	0.029	2.045	
TOTAL	113	15	253	381	70.525	6.350	161.441	238.305
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	68	8	336		49.170	9.130	332.963	
OPERATING PERSONNEL	7	0	1		2.560	0.065	0.420	
HEALTH PHYSICS PERSONNEL	7	0	40		2.495	0.0	32.340	
SUPERVISORY PERSONNEL	8	2	12		4.380	0.375	6.906	
ENGINEERING PERSONNEL	5	3	25		2.380	0.870	16.450	
TOTAL	95	13	414	522	60.985	10.440	389.079	460.504
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	80	10	1227		45.111	5.020	1359.871	
OPERATING PERSONNEL	14	0	0		3.992	0.0	0.0	
HEALTH PHYSICS PERSONNEL	10	1	148		5.378	0.595	164.809	
SUPERVISORY PERSONNEL	11	1	18		3.100	0.210	5.740	
ENGINEERING PERSONNEL	19	6	67		10.650	1.439	60.759	
TOTAL	134	18	1460	1612	68.231	7.264	1591.179	1666.674
WASTE PROCESSING								
MAINTENANCE PERSONNEL	16	2	11		19.261	1.030	5.706	
OPERATING PERSONNEL	2	0	0		0.501	0.0	0.0	
HEALTH PHYSICS PERSONNEL	6	0	25		7.846	0.0	18.780	
SUPERVISORY PERSONNEL	2	0	0		0.648	0.0	0.0	
ENGINEERING PERSONNEL	1	0	0		1.335	0.0	0.060	
TOTAL	27	2	36	65	29.591	1.030	24.546	55.167
REFUELING								
MAINTENANCE PERSONNEL	72	6	55		85.180	12.340	18.950	
OPERATING PERSONNEL	19	1	0		9.695	0.330	0.0	
HEALTH PHYSICS PERSONNEL	1	0	18		0.455	0.0	11.945	
SUPERVISORY PERSONNEL	5	0	0		1.319	0.0	0.040	
ENGINEERING PERSONNEL	6	1	3		6.470	0.105	1.880	
TOTAL	103	8	76	187	103.119	12.775	32.815	148.709
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	477 (166)	58 (22)	2182 (1508)	2717 (1696)	327.991	38.335	1947.246	2313.572
OPERATING PERSONNEL	72 (44)	2 (1)	1 (1)	75 (46)	53.748	0.605	0.420	54.773
HEALTH PHYSICS PERSONNEL	55 (30)	1 (1)	413 (207)	469 (238)	35.792	0.615	336.343	372.750
SUPERVISORY PERSONNEL	46 (32)	3 (3)	37 (25)	86 (60)	18.733	0.770	15.136	34.639
ENGINEERING PERSONNEL	62 (36)	12 (10)	191 (134)	265 (182)	35.681	3.325	110.301	149.307
GRAND TOTAL	712 (309)	76 (37)	2824 (1876)	3612 (2222)	471.945	43.650	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) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	13	2	10		8.950	1.530	3.650	
OPERATING PERSONNEL	56	0	0		49.640	0.0	0.0	
HEALTH PHYSICS PERSONNEL	24	0	35		21.260	0.0	15.620	
SUPERVISORY PERSONNEL	1	0	0		0.530	0.0	0.0	
ENGINEERING PERSONNEL	24	0	7		11.370	0.0	2.510	
TOTAL	118	2	52	172	91.750	1.530	21.780	115.960
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	51	112	575		74.642	56.490	246.469	
OPERATING PERSONNEL	27	0	0		11.250	0.0	0.0	
HEALTH PHYSICS PERSONNEL	7	0	15		2.164	0.0	7.193	
SUPERVISORY PERSONNEL	2	1	1		1.422	0.163	0.140	
ENGINEERING PERSONNEL	13	0	1		3.582	0.0	0.440	
TOTAL	100	113	592	805	93.060	56.653	254.242	403.955
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	26	31		0.110	47.205	37.374	
OPERATING PERSONNEL	0	0	0		0.110	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0		0.0	0.0	0.030	
SUPERVISORY PERSONNEL	0	0	0		0.055	0.0	0.0	
ENGINEERING PERSONNEL	2	2	0		1.150	1.970	0.0	
TOTAL	2	28	31	61	1.425	49.175	37.404	88.004
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	2	110		0.0	0.320	73.885	
OPERATING PERSONNEL	0	0	0		0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0		0.060	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	2	110	112	0.060	0.320	73.885	74.265
WASTE PROCESSING								
MAINTENANCE PERSONNEL	2	5	0		0.829	1.410	0.040	
OPERATING PERSONNEL	17	0	0		3.225	0.0	0.0	
HEALTH PHYSICS PERSONNEL	1	0	0		0.260	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	20	5	0	25	4.314	1.410	0.040	5.764
REFUELING								
MAINTENANCE PERSONNEL	10	16	3		2.420	3.640	0.910	
OPERATING PERSONNEL	0	0	0		0.820	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0		0.020	0.0	0.090	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	3	0	0		0.620	0.0	0.060	
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

*Workers may be counted in more than one category.

APPENDIX C (Cont.)

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

PLANT: YANKEE-ROWE (PWR) 1921

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	2	8	0		0.693	1.056	0.020	
OPERATING PERSONNEL	6	0	0		2.156	0.0	0.0	
HEALTH PHYSICS PERSONNEL	4	0	1		0.910	0.0	0.638	
SUPERVISORY PERSONNEL	0	0	1		0.030	0.0	0.147	
ENGINEERING PERSONNEL	0	0	0		0.145	0.0	0.0	
TOTAL	12	8	2	22	3.934	1.956	0.805	6.695
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	15	24	6		6.305	7.343	3.070	
OPERATING PERSONNEL	9	0	0		2.165	0.0	0.0	
HEALTH PHYSICS PERSONNEL	5	0	12		1.465	0.0	3.390	
SUPERVISORY PERSONNEL	1	0	0		0.350	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0		0.120	0.020	0.0	
TOTAL	30	24	18	72	10.405	7.363	6.460	24.228
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	1		8		0.230	2.764	5.955	
OPERATING PERSONNEL	0		0		0.185	0.0	0.0	
HEALTH PHYSICS PERSONNEL	2		0		0.990	0.0	0.265	
SUPERVISORY PERSONNEL	0	0	1		0.090	0.040	0.150	
ENGINEERING PERSONNEL	3	3	6		2.630	0.735	5.608	
TOTAL	6	13	15	34	4.045	3.539	11.978	19.554
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	24	70	63		19.166	54.011	29.501	
OPERATING PERSONNEL	22	0	0		7.277	0.0	0.0	
HEALTH PHYSICS PERSONNEL	9	0	39		3.172	0.0	24.094	
SUPERVISORY PERSONNEL	1	0	4		0.375	0.0	1.098	
ENGINEERING PERSONNEL	5	5	0		3.760	1.055	0.015	
TOTAL	61	75	106	248	33.750	55.066	54.708	143.524
WASTE PROCESSING								
MAINTENANCE PERSONNEL	5	5	1		1.304	1.760	0.718	
OPERATING PERSONNEL	14	0	0		4.252	0.0	0.0	
HEALTH PHYSICS PERSONNEL	5	0	32		2.487	0.0	34.425	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.065	
ENGINEERING PERSONNEL	0	0	0		0.0	0.134	0.0	
TOTAL	24	5	33	62	8.043	1.894	35.208	45.137
REFUELING								
MAINTENANCE PERSONNEL	10	5	3		2.410	1.895	0.930	
OPERATING PERSONNEL	22	0	0		10.055	0.0	0.0	
HEALTH PHYSICS PERSONNEL	4	0	24		0.835	0.0	9.250	
SUPERVISORY PERSONNEL	1	0	0		0.190	0.0	0.120	
ENGINEERING PERSONNEL	0	0	0		0.725	0.241	0.135	
TOTAL	39	5	27	71	14.215	2.136	10.435	26.786
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	57	122	81	260	30.108	69.729	40.186	140.023
OPERATING PERSONNEL	73	0	0	73	26.010	0.0	0.0	26.010
HEALTH PHYSICS PERSONNEL	29	0	108	137	9.859	0.0	72.062	81.921
SUPERVISORY PERSONNEL	3	0	6	9	1.035	0.040	1.580	2.655
ENGINEERING PERSONNEL	10	6	6	22	7.380	2.185	5.750	15.315
GRAND TOTAL	172	128	201	501	74.392	71.954	119.578	265.924

*Workers may be counted more than one category.

APPENDIX C (Cont.)

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

PLANT: ZION 1,2 (PWR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	TOTAL MAN-REMS STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	2	0	0		3.800	0.0	0.0	
OPERATING PERSONNEL	43	0	0		20.100	0.0	0.0	
HEALTH PHYSICS PERSONNEL	12	0	0		11.000	0.0	0.0	
SUPERVISORY PERSONNEL	3	0	0		1.000	0.0	0.0	
ENGINEERING PERSONNEL	30	4	0		8.800	1.300	0.0	
TOTAL	90	4	0	94	44.700	1.300	0.0	46.000
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	106	56	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		30.900	0.0	0.0	
ENGINEERING PERSONNEL	1	0	7		1.400	0.0	4.000	
TOTAL	208	56	457	721	348.200	38.100	742.800	1129.100
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	89		0.0	0.0	283.000	
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	54.800	
TOTAL	33	26	175	234	21.800	7.200	320.800	349.800
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	0.0	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	5	0	0		2.200	0.0	0.0	
ENGINEERING PERSONNEL	11	0	0		9.300	0.0	0.0	
TOTAL	35	0	0	35	35.000	0.0	0.0	35.000
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	16	23.400	0.0	0.0	23.400
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	113	56	524	693	243.400	38.100	914.800	1196.300
OPERATING PERSONNEL	91	0	0	91	93.900	0.0	0.0	93.900
HEALTH PHYSICS PERSONNEL	70	0	50	120	73.800	0.0	90.000	163.800
SUPERVISORY PERSONNEL	66	0	0	66	43.000	0.0	0.0	43.000
ENGINEERING PERSONNEL	42	30	58	130	19.500	8.500	58.800	86.800
GRAND TOTAL	382	86	632	1100	473.100	46.600	1063.600	1583.300