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# Occupational Radiation Exposure at Commercial Nuclear Power Reactors 1981

Annual Report

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Manuscript Completed: September 1982  
Date Published: November 1982

B. G. Brooks

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



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Commercial Nuclear Power Reactors - 1981

(U.S.) Nuclear Regulatory Commission  
Washington, DC

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National Technical Information Service

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<b>NRC FORM 335</b> (7-77)		<b>U.S. NUCLEAR REGULATORY COMMISSION</b> <b>BIBLIOGRAPHIC DATA SHEET</b>		<b>1. REPORT NUMBER (Assigned by DDC)</b> NUREG-0713, Vol. 3	
<b>4. TITLE AND SUBTITLE (Add Volume No., if appropriate)</b> Occupational Radiation Exposure at Commercial Nuclear Power Reactors - 1981				<b>2. Leave blank)</b>	
<b>7. AUTHOR(S)</b> Barbara G. Brooks				<b>3. RECIPIENT'S ACCESSION NO.</b>	
<b>9. PERFORMING ORGANIZATION NAME AND MAILING ADDRESS (Include Zip Code)</b> U. S. Nuclear Regulatory Commission Office of Resource Management Management Information Branch Washington, D.C. 20555				<b>5. DATE REPORT COMPLETED</b> MONTH   YEAR September   1982	
<b>12. SPONSORING ORGANIZATION NAME AND MAILING ADDRESS (Include Zip Code)</b> U. S. Nuclear Regulatory Commission Office of Resource Management Management Information Branch Washington, D.C. 20555				<b>DATE REPORT ISSUED</b> MONTH   YEAR November   1982	
<b>13. TYPE OF REPORT</b> Annual				<b>PERIOD COVERED (Inclusive dates)</b> Calendar Year 1981	
<b>15. SUPPLEMENTARY NOTES</b>				<b>10. PROJECT/TASK/WORK UNIT NO.</b>	
<b>16. ABSTRACT (200 words or less)</b> 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.				<b>11. CONTRACT NO.</b>	
* The most recent year for which all of the termination data are available for analysis.				<b>14. (Leave blank)</b>	
<b>17. KEY WORDS AND DOCUMENT ANALYSIS</b> Not Applicable			<b>17a. DESCRIPTORS</b>		
<b>17b. IDENTIFIERS/OPEN-ENDED TERMS</b>					
<b>18. AVAILABILITY STATEMENT</b> Unlimited			<b>19. SECURITY CLASS (This report)</b> Unclassified		<b>21. NO. OF PAGES</b>
			<b>20. SECURITY CLASS (This page)</b> Unclassified		<b>22. PRICE</b> S

## 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.
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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.

\* 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

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

TABLE 1

SUMMARY OF ANNUAL INFORMATION REPORTED BY  
COMMERCIAL BOILING WATER REACTORS

1969 - 1981

Year	Number Of Reactors Included	Annual Collective Doses (Man-rem)	No. of Workers With Measurable Doses	Gross MW-Yrs Electricity Generated	Average Dose Per Worker* (Rems)	Average Collective Dose Per Reactor (Man-rem)	Average No. Personnel With Measurable Doses Per Reactor	Average Man-rem Per MW-Yr	Average MW-Yrs Generated Per Reactor	Average RATED Capacity Net (MW <sub>e</sub> )
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)	2,568 (2,130)	2,258*	3,058	0.94*	286	323*	0.9	306	434
1973	12	4,584	5,340	3,394	0.85	380	445	1.3	283	459
1974	14	7,095	8,769	4,059	0.81	507	626	1.7	290	513
1975	18	12,611	14,607	5,786	0.86	701	812	2.2	321	611
1976	23	12,626	17,859	8,586	0.71	549	776	1.5	373	647
1977	23	19,042	21,388	9,098	0.89	828	930	2.1	396	645
1978	25	15,086	20,278	11,774	0.74	604	811	1.3	471	668
1979	25	18,322	25,245	11,671	0.73	733	1,010	1.6	467	669
1980	26	29,530	34,094	10,868	0.87	1,136	1,311	2.7	418	664
1981	26	25,471	34,832	10,899	0.73	960	1,340	2.3	419	674

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

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

1969 - 1981

Year	Number Of Reactors Included	Annual Collective Doses (Man-rem)	No. of Workers With Measurable Doses	Gross MW-Yrs Electricity Generated	Average Dose Per Worker (Rems)	Average Collective Dose Per Reactor (Man-rem)	Average No. Personnel With Measurable Doses Per Reactor	Average Man-rem Per MW-Yr	Average MW-Yr Generated Per Reactor	Average Rated Capacity Net (MW <sub>e</sub> )
1969	4 (3)	661 (363)	464*	1,097	0.80*	166	161*	0.6	274	349
1970	4 (3)	2,738 (1,098)	1,340*	978	0.82*	684	447*	2.8	245	349
1971	6 (4)	1,844 (812)	808*	1,912	1.01*	307	228*	1.0	319	309
1972	8 (6)	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	11,963	0.76	318	419	0.7	461	643
1976	30	13,807	17,588	13,325	0.79	460	586	1.0	444	675
1977	34	13,469	20,878	17,346	0.65	396	614	0.8	510	699
1978	39	16,713	25,720	19,840	0.65	429	659	0.8	509	723
1979	42	21,659	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	436	721
1981	44	28,671	47,351	20,552	0.61	652	1,076	1.4	467	745

\* During the years 1969 through 1972, all plants reported collective doses but a few did not submit the number of personnel that received measurable doses. The number of reactor 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-rem)	No. of Workers With Measurable Doses	Gross MW-Yrs Electricity Generated	Average Dose Per Worker (Rems)	Average Collective Dose Per Reactor (Man-rem)	Average No. Personnel With Measurable Doses Per Reactor	Average Man-rem Per MW-Yr	Average MW-Yrs Generated Per Reactor	Average Rated Capacity Net (MW <sub>e</sub> )
1969	7 (6)	1,247 (663)	744*	1,289	0.89*	178	149*	1.0	184	247
1970	10 (7)	3,502 (1,808)	2,661*	1,892	0.60*	350	380*	1.9	189	300
1971	13 (9)	3,628 (1,981)	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*	366	345*	1.2	311	408
1973	24	13,963	14,780	7,164	0.94	582	616	1.9	299	486
1974	34	13,722	18,466	10,883	0.74	404	543	1.3	320	575
1975	44	20,878	25,491	17,769	0.82	475	579	1.2	404	630
1976	53	26,433	35,447	21,911	0.75	499	669	1.2	413	663
1977	57	32,511	42,286	26,444	0.77	570	742	1.2	484	677
1978	64	31,809	45,988	31,614	0.69	497	719	1.0	484	702
1979	67	39,981	64,122	29,920	0.62	597	966	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

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

pursuant to their technical specifications (the first number in the last columns in Appendix C) was determined. (2) The ratio of this dose to the total collective dose (the last number in the last columns in Appendix C) was calculated and multiplied by the total collective dose that had been estimated using the §20.407-type annual report. This product is the number of man-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 be seen that the average collective dose and average number of workers per BWR has been higher than that for PWRs for the last seven years and that the values of both parameters have, in general, continued to rise at both types of facilities. At BWRs in 1981, the average collective dose, dose per worker, and collective dose per megawatt-year decreased by about 15% from the 1980 figures to 780 man-rem, 0.73 rem, and 2.3 man-rem per megawatt-year, respectively. The number of workers per reactor (1340) remained about the same. At PWRs, the values of these three parameters increased to 652 man-rem per reactor, 0.61 rem per worker, and 1.4 man-rem per megawatt-year, while the average number of workers per reactor (1,076) remained about the same as the 1980 value.

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

To further assist in the identification of any trends that might exist, Fig. 4 displays the average and the median\* values of the collective dose per reactor for BWRs and for PWRs for the years 1973 through 1981. The ranges of the values reported each year are shown by the vertical lines with a small bar at each end marking the two extreme values. The rectangles indicate the range of values of the collective dose exhibited by those plants ranked in the twenty-fifth through the seventy-fifth percentiles. Since the median values are not as greatly affected by the extreme values of the collective doses, one can see that they do not fluctuate as much from year to year as do the average values. The median collective dose for PWRs appears to have levelled off at about 400 man-rem, while for BWRs, it has generally increased and reached a high of 940 man-rem in 1981. In all but one case the median collective dose is less than the average, which indicates that the collective dose for most plants is less than the average collective dose per reactor (the value that is widely quoted).

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

**FIGURE 1**  
**COMMERCIAL LIGHT WATER COOLED REACTORS**  
 1969 - 1981

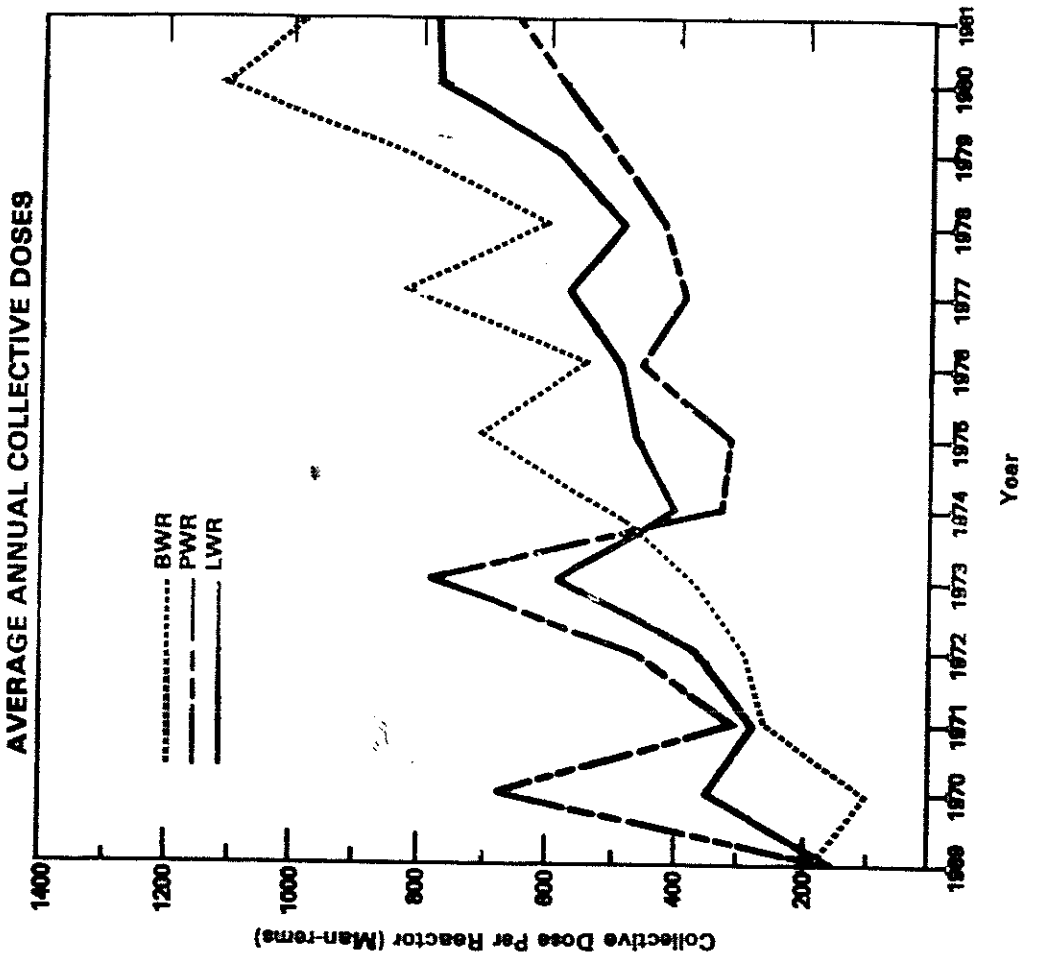
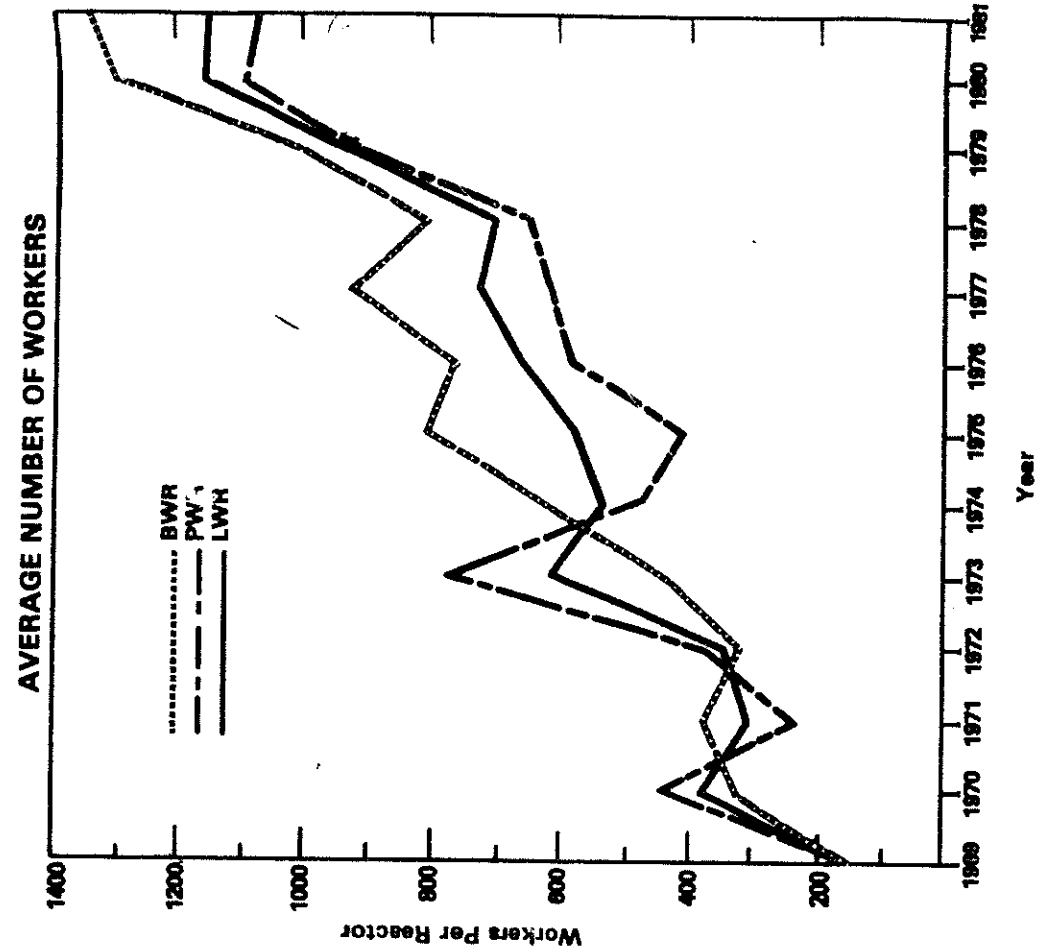


FIGURE 2  
 PLOT OF TOTAL ANNUAL VALUES AT ALL  
 LIGHT WATER COOLED REACTORS  
 1969-1981

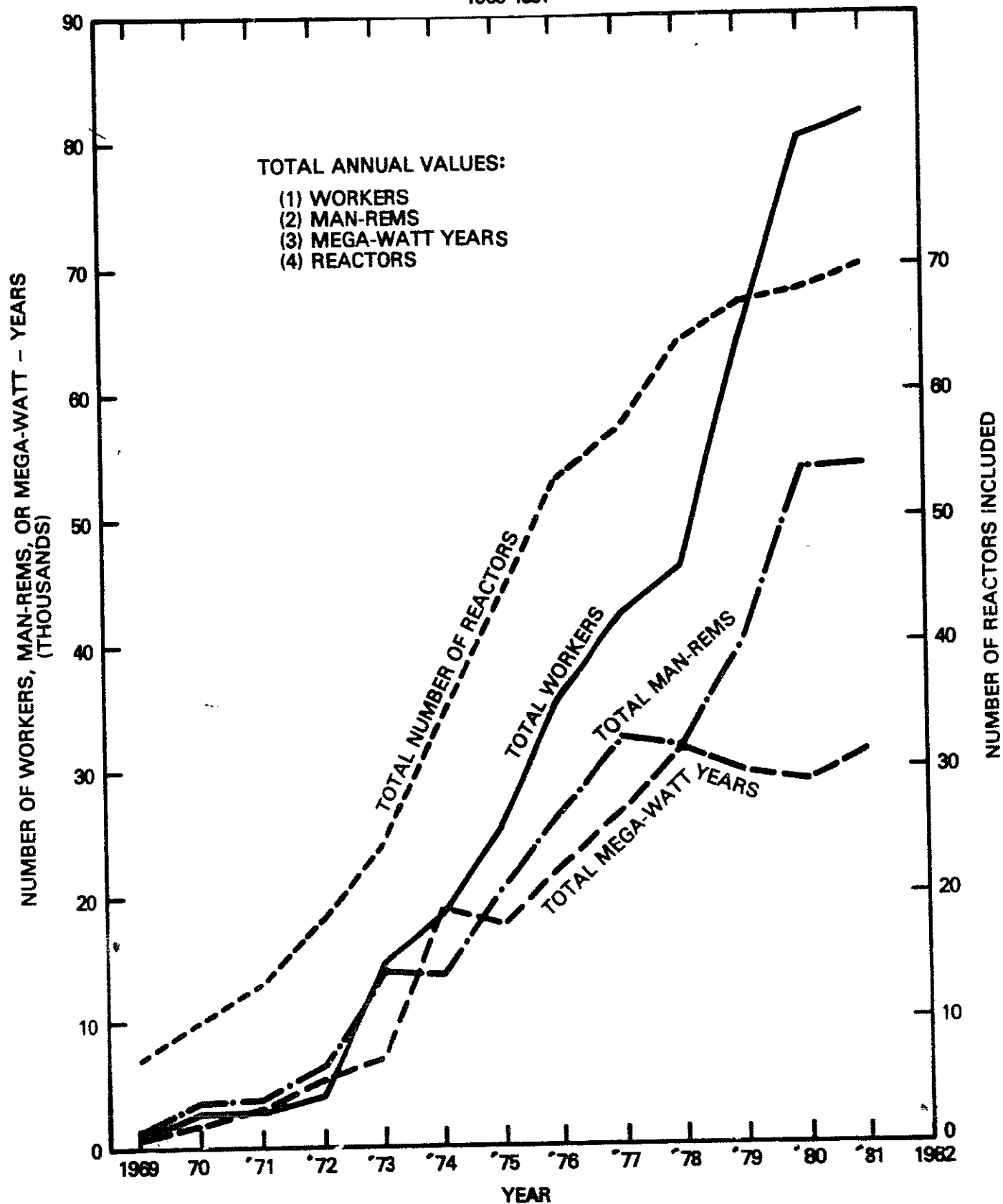
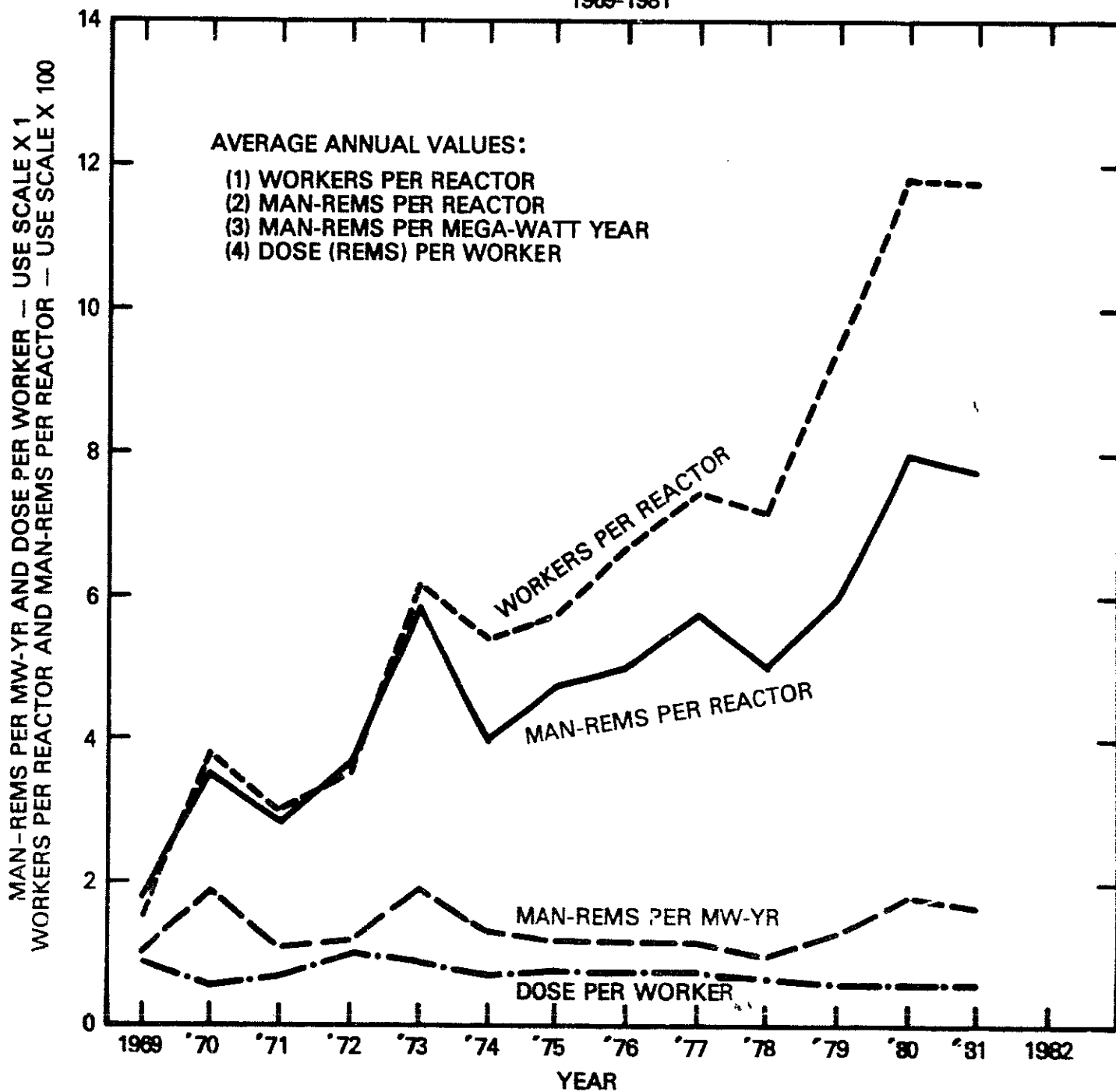
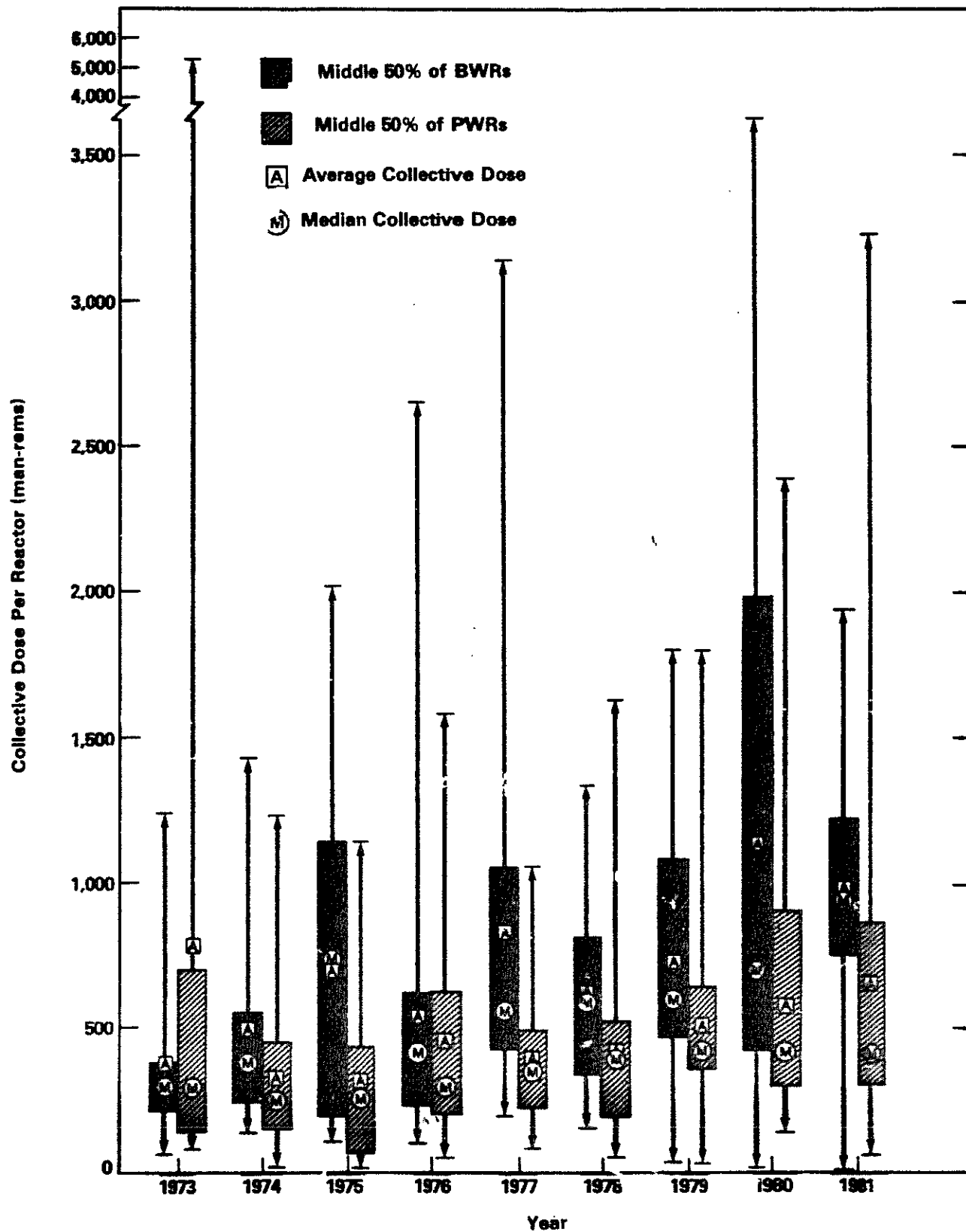


FIGURE 3  
 PLOT OF AVERAGE ANNUAL VALUES AND AT ALL  
 LIGHT WATER COOLED REACTORS  
 1969-1981



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



### 2.3 Plant Rankings By Collective Dose Per Reactor

The number of reactors from which data have been collected is still rather small, and the information reported by a few reactors where unusual conditions or problems may have occurred could have a large impact on some of the statistics presented in this report. In an effort to identify those plants, Tables 4 and 5 list the BWRs and PWRs in ascending order of man-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		1978		1980		1981	
Man-Rems per Worker per Site (Rems) MW-Yr.	Dose per Worker (Rems)	Man-Rems per Worker per Site (Rems) MW-Yr.	Dose per Worker (Rems)	Man-Rems per Worker per Site (Rems) MW-Yr.	Dose per Worker (Rems)	Man-Rems per Worker per Site (Rems) MW-Yr.	Dose per Worker (Rems)	Man-Rems per Worker per Site (Rems) MW-Yr.	Dose per Worker (Rems)
Site Name	Site Name	Site Name	Site Name	Site Name	Site Name	Site Name	Site Name	Site Name	Site Name
Cooper Station	Cooper Station	Humboldt Bay	Humboldt Bay	Humboldt Bay	Humboldt Bay	Humboldt Bay	Humboldt Bay	Humboldt Bay	Humboldt Bay
191	0.83	158	0.53	31	0.23	22	0.15	9	0.12
La Crosse	La Crosse	Monticello	Monticello	La Crosse	0.42	218	1.78	128	0.86
228	1.89	164	0.80	157	0.42	318	1.78	128	0.86
Vermont Yankee	Big Rock Point	La Crosse	Big Rock Point	Hatch 1,2	1.22	449	0.23	160	0.33
284	0.40	176	0.61	186	1.22	449	0.23	160	0.33
299	0.86	246	0.19	221	0.82	364	0.69	979	0.82
334	0.72	314	0.56	221	0.82	364	0.69	979	0.82
364	0.37	336	1.05	275	0.36	531	0.48	1,337	0.48
Millstone Point 1	Humboldt Bay	Duane Arnold	Big Rock Point	Duane Arnold	0.76	531	0.48	1,337	0.48
364	0.37	336	1.05	275	0.36	531	0.48	1,337	0.48
863	0.46	338	0.36	455	0.73	581	0.50	731	0.68
863	0.46	338	0.36	455	0.73	581	0.50	731	0.68
488	0.36	376	0.58	487	0.55	1,825	0.87	790	0.81
1031	1.14	1004	0.89	1,687	0.82	871	0.81	2,390	0.70
1031	1.14	1004	0.89	1,687	0.82	871	0.81	2,390	0.70
1884	0.91	1828	0.78	582	0.27	2,105	0.77	817	0.84
1884	0.91	1828	0.78	582	0.27	2,105	0.77	817	0.84
2036	0.72	1792	0.75	1,800	0.76	850	1.09	1,004	0.86
2036	0.72	1792	0.75	1,800	0.76	850	1.09	1,004	0.86
2036	0.72	1317	0.59	859	1.01	1,338	0.93	2,006	0.86
2036	0.72	1317	0.59	859	1.01	1,338	0.93	2,006	0.86
1069	0.79	806	1.00	1,018	0.41	1,728	0.86	2,638	0.86
1069	0.79	806	1.00	1,018	0.41	1,728	0.86	2,638	0.86
1126	0.74	1,074	0.85	2,158	1.28	3,870	1.02	1,428	0.87
1126	0.74	1,074	0.85	2,158	1.28	3,870	1.02	1,428	0.87
1283	1.27	1239	0.89	1,170	0.88	2,040	0.86	1,496	0.80
1283	1.27	1239	0.89	1,170	0.88	2,040	0.86	1,496	0.80
1816	0.88	1278	0.91	2,603	0.80	2,188	0.71	3,148	1.40
1816	0.88	1278	0.91	2,603	0.80	2,188	0.71	3,148	1.40
1906	1.78	1327	0.20	1,487	1.13	4,838	1.57	1,692	0.78
1906	1.78	1327	0.20	1,487	1.13	4,838	1.57	1,692	0.78
3142	1.87	604	0.74	1,783	1.01	3,828	1.92	1,636	0.86
3142	1.87	604	0.74	1,783	1.01	3,828	1.92	1,636	0.86
Average per Reactor	Average per Reactor	Average per Reactor	Average per Reactor	Average per Reactor	Average per Reactor	Average per Reactor	Average per Reactor	Average per Reactor	Average per Reactor
826	0.89	733	0.73	733	0.73	1,136	0.87	960	0.73
826	0.89	733	0.73	733	0.73	1,136	0.87	960	0.73
	2.1	1.57	1.57	2.72	2.72	2.3	2.3	0.87	0.87

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

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

	1977			1978			1979			1980			1981		
Site Name	<sup>1</sup> Man-Rems per Worker per (Rems) MW-Yr.	Dose per Worker (Rems)	Man-Rems per MW-Yr.	Site Name	<sup>1</sup> Man-Rems per Worker per (Rems) MW-Yr.	Dose per Worker (Rems)	Man-Rems per MW-Yr.	Site Name	<sup>1</sup> Man-Rems per Worker per (Rems) MW-Yr.	Dose per Worker (Rems)	Man-Rems per MW-Yr.	Site Name	<sup>1</sup> Man-Rems per Worker per (Rems) MW-Yr.	Dose per Worker (Rems)	Man-Rems per MW-Yr.
Beaver Valley	87	0.26	0.27	Davis Base	30	0.10	0.08	Davis Base	154	0.12	0.80	Davis Base	58	0.10	0.1
Palladas	100	0.30	0.16	Prairie Island 1,2	180	0.30	0.21	Kewaunee	185	0.41	0.38	Kewaunee	141	0.37	0.3
Kewaunee	140	0.45	0.33	Fort Calhoun	128	0.28	0.29	Prairie Island 1,2	353	0.38	0.44	Prairie Island 1,2	329	0.39	0.4
Prairie Island 1&2	300	0.42	0.33	Rancho Seco	128	0.44	0.18	Three Mile Island 1,2	384	0.17	---	Three Mile Island 1,2	376	0.18	---
St. Lucie	182	0.34	0.23	Kewaunee	127	0.37	0.31	Yankee Rowe	213	0.42	5.98	Beaver Valley	229	0.19	0.4
Trojan	174	0.39	0.22	Yankee Rowe	127	0.29	0.86	North Anna 1	218	0.10	0.32	Salem 1	254	0.15	0.3
Point Beach 1&2	430	1.03	0.49	Beaver Valley	132	0.18	0.80	Cook 1,2	483	0.37	0.82	Point Beach 1,2	599	0.77	0.8
Millstone Point 2	243	0.36	0.47	San Onofre	139	0.27	0.35	Point Beach 1,2	588	1.07	0.82	Yankee Rowe	302	0.89	2.8
Maine Yankee	248	0.48	0.40	Maine Yankee	154	0.39	0.29	Indian Point 3	308	0.32	0.84	Cahvert Cliffs 1,2	607	0.38	0.4
Arkansas 1	288	0.43	0.42	Beaver Valley	500	0.38	0.42	Indian Point 3	877	0.45	0.82	Cook 1,2	865	0.49	0.4
Fort Calhoun	287	0.56	0.84	Cahvert Cliffs 1 & 2	282	0.50	1.84	Cahvert Cliffs 1,2	342	0.28	0.78	North Anna 1,2	980	0.28	0.5
Cook 1	300	0.37	0.85	Yankee Rowe	312	0.45	1.55	Trojan	1,068	0.80	0.82	Indian Point 1	384	0.54	1.0
Yankee Rowe	389	0.48	2.86	Trojan	323	0.64	0.83	Oconee 1,2,3	412	0.48	0.78	Rancho Seco	1,211	0.80	0.7
Indian Point 1,2&3 1,1	380	0.32	0.64	Crystal River	338	0.42	0.88	Cook 1,2	424	0.32	1.47	Oconee 1,2,3	408	0.36	0.8
Three Mile Island 1	381	0.78	1.10	Rancho Seco	338	0.42	0.88	Arkansas	424	0.32	1.47	Crystal River 3	424	0.49	0.7
Rancho Seco	481	0.78	1.10	Cook 1	338	0.43	0.88	Cahvert Cliffs 1,2	448	0.28	0.88	Maine Yankee	458	0.84	1.8
Oconee 1,2&3	1328	0.83	0.85	St. Lucie	401	0.52	1.24	St. Lucie	438	0.48	0.74	Fort Calhoun	511	0.38	1.6
Robinson 2	489	0.72	0.89	San Onofre	410	0.88	1.20	North Anna	448	0.28	0.88	Ferley	831	0.80	0.7
Zion 1&2	1003	1.28	0.78	Fort Calhoun	420	0.88	0.85	Millstone Point 2	820	0.88	0.85	Millstone 2	1,102	0.80	1.0
Turkey Point 3&4	1038	0.79	1.08	Maine Yankee	480	0.68	1.17	Crystal River	498	0.43	1.08	Arkansas 1,2	808	0.46	0.8
Cahvert Cliffs 1	947	0.24	0.88	Oconee 1,2&3	1393	0.85	0.73	Salem	584	0.39	2.34	Trojan	865	0.71	1.6
Haddam Neck	642	0.72	1.33	Three Mile Island 1	504	0.28	0.73	Three Mile Island 1,2	582	0.29	4.40	Ginna	733	0.80	1.7
San Onofre	847	0.86	3.01	Zion 1 & 2	1017	0.92	0.83	Ginna	638	0.87	1.12	Robinson 2	1,720	0.98	1.3
Surry 1&2	2307	1.24	2.02	Turkey Point 3&4	1032	0.77	1.03	Indian Point 3	1,274	0.87	1.03	Palladas	902	0.42	2.2
Average per Reactor	388	0.65	0.71	Indian Point 1,2 & 3	2008	1.05	1.71	Zion 1,2	1,278	0.85	2.23	St. Lucie	929	0.63	1.6
				Palladas	784	0.90	1.48	Indian Point 1,2	843	0.82	3.06	Haddam Neck	1,038	0.87	2.1
				Surry 1&2	1937	0.83	1.82	Ferley	1,680	0.84	2.07	Turkey Point 3,4	2,251	0.77	3.4
				Robinson 2	983	1.02	2.01	Turkey Point 3,4	854	0.83	2.98	Indian Point 1,2	2,731	1.08	7.4
				Millstone 2	1821	1.14	3.02	Pelladas	1,181	0.88	2.38	Surry 1,2	4,244	1.13	4.7
				Average per Reactor	428	0.85	0.84	Haddam Neck	1,188	0.82	2.48	San Onofre	3,223	1.11	33.8
								Robinson 2	3,584	0.71	10.48	Average per Reactor	682	0.61	1.4

<sup>1</sup> Indian Point 1 was defueled in 1974. For those sites with more than one operating reactor, the numbers of man-rem per reactor is obtained by dividing the number of man-rem reported by the number of reactors. The total annual collective dose delivered at individual sites exceeding 1.5 rem 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				PRESSURIZED WATER REACTORS							
2 Site Name	<sup>1</sup> Total Man-Rems per Site	Total Workers with Measurable Doses	Average Dose per Worker (Rems)	Total Mega-watt Years	Average Man-rem per MW-Yr.	2 Site Name	<sup>1</sup> Total Man-Rems per Site	Total Workers with Measurable Doses	Average Dose per Worker (Rems)	Total Mega-watt Years	Average Man-rem per MW-Yr.
La Crosse	915	787	1.16	112.9	8.1	Prairie Island 1,2	1383	3677	0.38	4374.6	0.3
Big Rock Point	1478	2451	0.60	210.9	7.0	Kewaunee	726	1774	0.41	2189.2	0.3
Cooper	2014	2758	0.73	2610.6	0.8	Beaver Valley	1191	4733	0.26	1494.0	0.8
Humboldt Bay	2301	1735	1.33	0.0	---	Yankee Rowe	1280	2748	0.47	563.2	2.3
Duane Arnold	3009	4801	0.63	1471.6	2.0	Point Beach 1,2	2587	2997	0.96	4083.9	0.6
Monticello	3067	4471	0.69	2208.1	1.4	Rancho Seco	1653	2972	0.56	2553.2	0.6
Vermont Yankee	3836	5502	0.70	2011.9	1.9	Maine Yankee	1706	3142	0.54	2949.5	0.6
Peach Bottom 2,3	9549	12978	0.74	6964.7	1.4	Trojan	1780	4508	0.39	3131.6	0.6
Nine Mile Point	5377	6183	0.87	2148.2	2.5	Fort Calhoun	1959	3295	0.59	1637.3	1.2
Oyster Creek	6010	7581	0.79	1906.2	3.2	Oconee 1,2,3	5988	9900	0.60	8548.8	0.7
Fitzpatrick	6313	7680	0.82	2378.9	2.6	St. Lucie	2388	4696	0.51	3074.5	0.8
Quad Cities 1,2	12791	9137	1.40	5193.4	2.5	Ginna	2906	4063	0.69	1876.6	1.5
Millstone Point 1	7078	9785	0.72	2347.4	3.0	Zion 1,2	5934	6477	0.92	6988.2	0.8
Dresden 1,2,3	9929	11340	0.88	5498.2	1.8	Palisades	3044	6238	0.49	2068.3	1.5
Pilgrim	10946	12352	0.89	2179.3	5.0	Millstone Point 2	3502	4626	0.76	2877.0	1.2
Grand Totals and Averages per Reactor-year	84,613	99,521	0.85	37,242.3	2.3	Turkey Point 3,4	7650	9392	0.81	4435.3	1.7
	881	1048		392		Haddam Neck	4308	5750	0.75	2451.4	1.8
						Robinson 2	5191	6502	0.80	2287.9	2.8
						San Onofre	6897	8235	0.85	1198.6	5.8
						Surry 1,2	15808	18198	0.87	4168.4	3.8
						Grand Totals and Averages per Reactor-year	77,880	113,625	0.69	62,940.3	1.2
							557	842		468	

<sup>1</sup> For those sites with more than one operating reactor, the number of man-rem per reactor is obtained by dividing the number of man-rem shown by the number of reactors at the site.  
<sup>2</sup> Multiple unit sites where all reactors had not completed one full year of commercial operation as of 12-31-77 are not included.

### 3. ANNUAL DOSE DISTRIBUTIONS

#### 3.1 Annual Whole Body Dose Distributions

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

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

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

**TABLE 7 \***  
**SUMMARY DISTRIBUTION OF ANNUAL WHOLE BODY DOSE**  
**AT COMMERCIAL FRESH WATER COOLED REACTORS**  
**1969 - 1981**

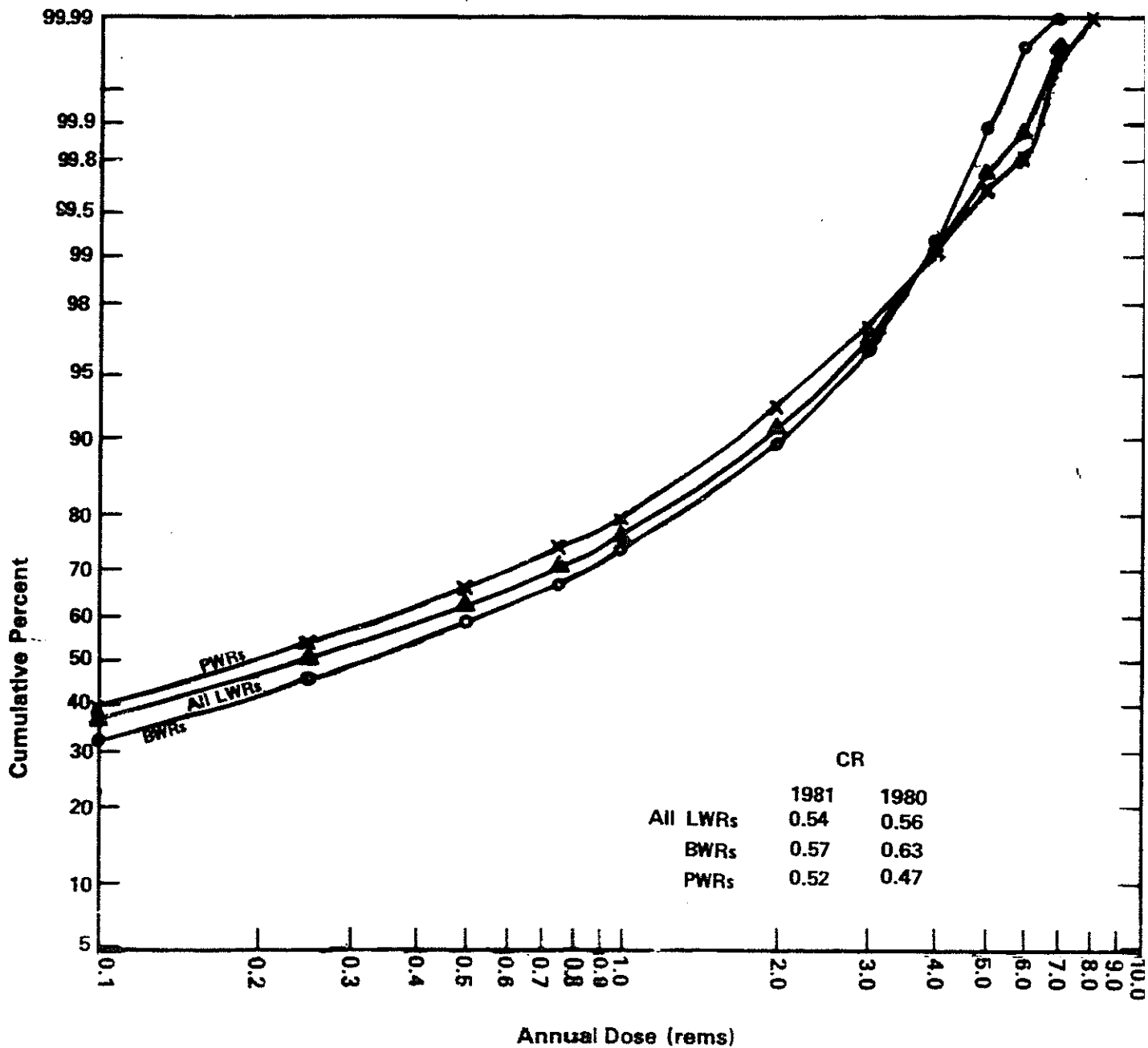
Year	Number of Individuals with Whole Body Exposures in the Indicated Ranges (Rems)													Total Number Monitored	** Annual Collective Doses (Man-rem)	*** CR			
	No Measurable Exposure	Measurable < 0.10	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.0	1.0-2.0	2.0-3.0	3.0-4.0	4.0-5.0	5.0-6.0	6.0-7.0	7.0-8.0				8.0-9.0	9.0-10.0	10.0-11.0
1969						128	134	65	26	5	2						2,838		
1970						146	166	163	88	98	8	1					7,509		
1971						410	315	137	105	17	11						9,581		
1972						688	532	199	111	46	21	9	6	6			15,713		
1973	19,043	5,494	1,898	1,214	740	652	1,584	422	251	125	71	38	16	7			33,823	13,983	0.72
1974	20,472	6,735	2,887	2,056	1,182	906	1,378	471	226	96	30						38,938	13,722	0.63
1975	18,854	8,841	3,674	2,750	1,685	1,339	1,872	691	423	189	60	24	12		1		44,343	20,879	0.65
1976	25,704	12,821	5,130	4,135	2,520	2,030	2,354	789	487	188	70	26	11	5	1		61,151	26,433	0.62
1977	24,868	13,970	6,534	5,060	3,258	2,488	2,837	1,130	589	141	68	36	21	6			67,134	32,511	0.61
1978	30,143	16,639	6,943	5,504	3,399	2,498	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	3,306	1,255	477	86	28	13	2		(11-12) 1		105,313	39,981	0.54
1980	47,377	29,038	11,750	9,820	6,082	4,518	4,515	1,537	666	192	98	18	3				127,708	53,796	0.56
1981	42,323	29,332	12,217	10,326	6,825	4,903	4,546	1,783	486	93	81	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 rem to the total annual collective dose

FIGURE 5  
 CUMULATIVE PERCENT OF ANNUAL INDIVIDUAL DOSES  
 1981



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

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

### 3.2 Dose Distributions by Work and Job Function

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

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

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

### 3.3 Health Implications of Average Annual Doses

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

TABLE 8  
ANNUAL COLLECTIVE DOSES  
BY WORK FUNCTION AND PERSONNEL TYPE

1981

WORK FUNCTION	STATION EMPLOYERS		UTILITY EMPLOYERS		CONTRACT WORKERS & OTHERS		TOTAL PER FUNCTION	
	MAN-REMS	% OF TOTAL	MAN-REMS	% OF TOTAL	MAN-REMS	% OF TOTAL	MAN-REMS	% OF TOTAL
<b>ROLLING WATER REACTORS</b>								
REACTOR OPERATIONS & SURVEILLANCE	1303.318	5.2 %	126.276	0.5 %	439.353	1.8 %	1868.947	7.5 %
ROUTINE MAINTENANCE	1964.022	7.9 %	1812.172	7.3 %	6731.897	27.0 %	10508.091	42.2 %
INSERVICE INSPECTION	124.246	0.5 %	80.513	0.3 %	713.329	2.9 %	918.088	3.7 %
SPECIAL MAINTENANCE	1000.031	4.0 %	402.544	1.6 %	6839.190	27.5 %	8241.765	33.1 %
WASTE PROCESSING	661.127	2.7 %	16.757	0.1 %	2067.513	8.3 %	2739.397	11.0 %
REFUELING	359.500	1.4 %	69.343	0.3 %	188.661	0.8 %	617.504	2.5 %
<b>TOTALS</b>	5412.244	21.7 %	2507.605	10.1 %	16973.943	68.2 %	24893.792	100.0 %
<b>PRESSURIZED WATER REACTORS</b>								
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 %
<b>TOTALS</b>	6597.865	23.6 %	2362.811	8.5 %	18969.115	67.9 %	27929.791	100.0 %
<b>ALL LIGHT WATER REACTORS</b>								
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 %
<b>TOTALS</b>	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		UTILITY EMPLOYEES		CONTRACT WORKERS & OTHERS		TOTAL PER FUNCTION	
	MAN-REMS	% OF TOTAL	MAN-REMS	% OF TOTAL	MAN-REMS	% OF TOTAL	MAN-REMS	% OF TOTAL
<u>ROLLING WATER REACTORS</u>								
MAINTENANCE	2638.649	10.6 %	2105.961	8.5 %	12080.039	48.5 %	16824.649	67.6 %
OPERATIONS	1479.531	5.9 %	65.815	0.3 %	1620.048	6.5 %	3165.394	12.7 %
HEALTH PHYSICS	589.074	2.4 %	41.212	0.2 %	798.988	3.2 %	1429.274	5.7 %
SUPERVISORY	369.107	1.5 %	73.560	0.3 %	65.301	0.3 %	507.968	2.0 %
ENGINEERING	115.001	1.3 %	221.057	0.9 %	2409.567	9.7 %	2966.507	11.9 %
TOTALS	5412.244	21.7 %	2507.605	10.1 %	16973.943	68.2 %	24893.792	100.0 %
<u>HEAVY WATER REACTORS</u>								
MAINTENANCE	2954.180	12.6 %	1945.086	8.3 %	12452.019	52.9 %	17351.285	73.7 %
OPERATIONS	1102.054	4.7 %	64.271	0.3 %	198.752	0.8 %	1365.077	5.8 %
HEALTH PHYSICS	685.456	2.9 %	56.998	0.2 %	1978.089	8.4 %	2720.545	11.6 %
SUPERVISORY	305.375	1.3 %	91.153	0.4 %	240.974	1.0 %	637.502	2.7 %
ENGINEERING	336.791	1.4 %	109.993	0.5 %	1006.014	4.3 %	1452.798	6.2 %
TOTALS	5383.858	22.9 %	2267.501	9.6 %	15875.848	67.5 %	23527.207	100.0 %
<u>ALL LIGHT WATER REACTORS</u>								
MAINTENANCE	5592.829	11.6 %	4051.047	8.4 %	24532.058	50.7 %	34175.934	70.6 %
OPERATIONS	2581.585	5.3 %	130.086	0.3 %	1818.800	3.8 %	4530.471	9.4 %
HEALTH PHYSICS	1274.532	2.6 %	98.210	0.2 %	2777.077	5.7 %	4149.819	8.6 %
SUPERVISORY	674.482	1.4 %	164.713	0.3 %	306.275	0.6 %	1145.470	2.4 %
ENGINEERING	672.674	1.4 %	331.050	0.7 %	3415.581	7.1 %	4419.305	9.1 %
TOTALS	10796.102	22.3 %	4775.106	9.9 %	32849.791	67.8 %	48420.999	100.0 %

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

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

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

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

#### 3.4 High Temperature Gas Cooled Reactor (HTGR)

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

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\* 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

Year	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)
	No Measurable Dose	Measurable 0.10	0.10-0.25				
1974	1597	63	1	1,661	3.3	0.0	0.05
1975	1263	0	0	1,263	0.0	0.0	0.00
1976	1362	25	0	1,387	1.3	2.8	0.05
1977	946	55	1	1,002	2.9	29.8	0.05
1978	896	34	0	930	1.7	75.7	0.05
1979	1149	120	2	1,271	6.4	16.0	0.05
1980	902	57	1	960	3.0	83.2	0.05
1981	1096	31	0	1,127	1.0	93.6	0.03

#### 4. TERMINATION DATA SUBMITTED PURSUANT TO 10 CFR §20.408

##### 4.1 Termination Reports, 1969-1980

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

##### 4.2 Limitations of the Termination Data

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

##### 4.3 Transient Workers per Calendar Quarter

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

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

TABLE 12  
 TERMINATION REPORTS SUBMITTED  
 FOR REACTOR PERSONNEL  
 1969 - 1981

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

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

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

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

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

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

Year	/ear	No. of Commercial Reactors	No. of Workers Terminated by		Collective Dose (Man-rems)	Average Dose (Rems)
			Two or More Licensees	Three Licensees		
1972		18	57	57	57	1.00
1973		24	148	123	123	0.94
1974		34	286	187	187	0.86
1975		44	684	493	493	0.72
1976		53	1,267	889	889	0.71
1977		57	1,435	851	851	0.59
1978		64	1,500	680	680	0.45
1979		67	1,754	802	802	0.46
1980*		69	2,186	1,006	1,006	0.46

Year	No. of Workers Terminated by		Collective Dose (Man-rems)	Average Dose (Rems)
	Two Licensees	Three Licensees		
1972	54	2	52	0.96
1973	133	11	108	0.81
1974	255	28	132	0.52
1975	608	70	427	0.70
1976	1,096	145	720	0.66
1977	1,271	147	718	0.56
1978	1,303	165	590	0.45
1979	1,527	178	647	0.43
1980*	1,871	253	832	0.44

Year	No. of Workers Terminated by		Collective Dose (Man-rems)	Average Dose (Rems)
	Two Licensees	Three Licensees		
1972	1	2	2	2.00
1973	2	2	2	1.00
1974	2	1	1	0.50
1975	5	4	4	0.80
1976	17	23	23	1.36
1977	17	18	18	1.06
1978	32	15	15	0.47
1979	49	25	25	0.51
1980*	62	36	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 Licenses	Collective Dose (Man-rem)	Average Dose (Rems)	1977			1978			1979			1980		
					No. of Workers Terminated by Two Licenses	Collective Dose (Man-rem)	Average Dose (Rems)	No. of Workers Terminated by Two Licenses	Collective Dose (Man-rem)	Average Dose (Rems)	No. of Workers Terminated by Three Licenses	Collective Dose (Man-rem)	Average Dose (Rems)	No. of Workers Terminated by Three Licenses	Collective Dose (Man-rem)	Average Dose (Rems)
1977	57	3,161	3,776	1.29	2,166	1,987	0.92	572	842	1.47	423	947	2.24	423	947	2.24
* 1978	64	3,202	3,231	1.01	2,119	1,490	0.73	621	792	1.30	462	949	2.06	462	949	2.06
* 1979	67	4,022	3,891	0.97	2,761	2,097	0.76	688	805	1.17	493	989	2.01	493	989	2.01
* 1980	69	5,463	6,028	1.10	3,444	3,772	0.91	959	1,245	1.30	732	1,339	1.83	732	1,339	1.83

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

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

Type of Distribution and * Year	Number of Individuals with Whole Body Doses in the Ranges (Rems)																	Total Man- Rms	Avg. Dose (Rems)	Avg. Meas. Dose (Rems)			
	Less than Measurable	Meas/ble <0.10	0.10-	0.25-	0.50-	0.75-	1.00-	1.00-	2.00-	3.00-	4.00-	5.00-	6.00-	7.00-	8.00-	9.00-	10.00-				11.00-	12.00-	>12.00
			0.25	0.50	0.75	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00							
Actual Distribution of Transients - 1977	228	782	300	238	184	151	500	381	213	100	50	23	11	2						3,161	1.19	1.29	
Compiled Distribution of Transients - 1977	1,594	2,357	804	788	552	417	1,013	362	95	6	6									7,935	0.48	0.80	
Actual Distribution of Transients - 1978	308	885	317	282	177	131	463	307	188	107	42	13	1							3,202	1.01	1.12	
Compiled Distribution of Transients - 1978	2,078	2,423	918	780	488	382	873	282	51	11	0	2								6,277	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	0.99	1.09	
Compiled Distribution of Transients - 1979	2,130	2,076	1,280	1,048	673	460	1,040	313	48	3	1									9,649	0.40	0.52	
Actual Distribution of Transients - 1980	533	1,175	565	482	388	277	829	595	363	174	47	25	15	4	1					5,463	1.10	1.22	
Compiled Distribution of Transients - 1980	3,207	3,810	1,839	1,398	900	681	1,632	503	74	29	4	4	4							13,965	0.43	0.56	

TABLE 15b  
EFFECTS OF TRANSIENT WORKERS ON ANNUAL STATISTICAL COMPILATIONS

Type of Distribution	Number of Individuals with Whole Body Doses in the Ranges (Rems)																	Total Man- Rms	Avg. Dose (Rems)	Avg. Meas. Dose (Rems)		
	Less than Measurable	Meas/ble <0.10	0.10-	0.25-	0.50-	0.75-	1.00-	1.00-	2.00-	3.00-	4.00-	5.00-	6.00-	7.00-	8.00-	9.00-	10.00-				11.00-	12.00-
Compiled Statistical Distribution - 1977	27,671	15,623	6,760	6,179	3,300	2,600	6,174	2,838	1,130	569	141	66	36	21	6					71,904	0.46	0.74
Adjusted Statistical Distribution - 1977	26,305	13,948	6,246	4,647	2,932	2,234	5,661	2,857	1,268	661	186	89	47	23	6					67,130	0.49	0.80
Compiled Statistical Distribution - 1978	31,039	16,673	6,943	5,504	3,399	2,498	6,405	2,989	1,080	418	67	26	8							77,051	0.41	0.69
Adjusted Statistical Distribution - 1978	29,268	16,136	6,342	4,998	3,088	2,447	5,998	3,034	1,197	514	109	37	9	1						71,878	0.48	0.74
Compiled Statistical Distribution - 1979	42,340	24,632	9,883	8,060	5,147	3,428	7,898	3,306	1,255	477	86	28	13	2						106,584	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						100,873	0.39	0.66
Compiled Statistical Distribution - 1980	47,377	29,695	11,751	9,820	6,082	4,518	11,474	4,515	1,637	686	192	98	18	3						128,668	0.42	0.67
Adjusted Statistical Distribution - 1980	44,703	26,960	10,677	8,904	5,570	4,134	10,671	4,807	1,816	831	235	119	29	7	1					120,166	0.45	0.72

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

<sup>b</sup>Collective doses found by summing the actual doses reported for these workers on their termination reports.

<sup>c</sup>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-rem, 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**  
 (Individuals terminated by only one employer)

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

**DISTRIBUTION OF TEMPORARY WORKER DOSES**  
**BY LENGTH OF EMPLOYMENT**  
 1980

Total Days of Employment	Number of Individuals with Doses in the Ranges (Rems)														Total Workers	Collective Dose (Man-rems)						
	Less than Meas'ble	Meas'ble 0.10	0.10-		0.25-		0.50-		0.75-		1.00-		2.00-				3.00-		4.00-		5.00-	
			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	0	0	0	0	0	0	0	0	0	11,518	459
8 - 14	762	1,937	287	195	117	66	252	81	1	1	0	0	0	0	0	0	0	0	0	0	3,699	885
15 - 21	564	801	260	180	87	43	92	27	4	1	0	0	0	0	0	0	0	0	0	0	1,839	429
22 - 28	2,170	1,008	280	216	117	93	335	110	2	0	1	1	1	1	1	1	1	1	1	1	4,330	1,059
29 - 60	4,370	3,143	1,040	904	591	431	1,076	298	64	17	1	1	1	1	1	1	1	1	1	1	11,927	3,847
61 - 90	1,044	1,313	627	536	316	280	771	290	80	39	1	1	1	1	1	1	1	1	1	1	5,297	3,054
91 - 180	1,226	1,706	814	639	456	345	889	454	152	59	24	24	24	24	24	24	24	24	24	24	6,764	4,332
181 - 270	483	526	281	157	110	80	204	129	78	25	29	29	29	29	29	29	29	29	29	29	2,082	1,428
271 - 365	157	210	116	102	79	47	84	68	41	23	3	3	3	3	3	3	3	3	3	3	927	698
<b>Totals</b>	20,078	12,147	3,843	2,984	1,938	1,430	3,832	1,493	413	165	59	59	59	59	59	59	59	59	59	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-rem)	Maximum Whole Body Dose (Rems)	Number of Workers		Maximum Exposure
				Exposed to Excessive Concentrations of Radioactive Material	Exposed to Excessive Concentrations of Radioactive Material	
1971	2	4.5	3.1	21	6.1 rem (thyroid)	
1972	16	49.7	5.1	2	2000 MPC-hrs	
1973	19	61.2	4.0	0	—	
1974	43	166.9	6.1	12	433 MPC-hrs	
1975	14	44.2	3.8	7	13.5 rem (lung)	
1976	20	74.3	10.1	1	248 MPC-hrs	
1977	27	52.9	3.6	0	—	
1978	9	71.1	27.3	0	—	
1979	21	43.4	10.1	0	—	
1980	73	266.2	4.9	0	—	
1981	7	35.4	21	0	—	

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



**APPENDIX A\***

**Personnel, Dose and Power Generation Summary**

**1969 - 1981**

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

Appendix A  
Personnel, Dose and Power Generation Summary

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Total Man-rem	Man-rem per Work Function		Man-rem per Personnel		Average Dose per Worker (Rems)	Man-rem per MM-Yr
						Operations	Maint. & Others	Contractor	Station & Utility		
ARKANSAS 1, 2 Docket 50-313; DPR-51, NPF-6 1st commercial operation 12/74, Type - PWR Capacity - 836.858 MWe	1975	588.0	76.5	147	21	27	262	100	189	0.14	0.0
	1976	464.6	56.6	476	289	28	228	111	145	0.61	0.6
	1977	610.3	76.8	601	256	32	157	109	80	0.43	0.4
	1978	627.2	77.5	722	189	54	315	252	117	0.26	0.3
	1979	397.0	55.3	1321	369	81	261	213	129	0.28	0.9
	1980	452.8	63.7	1233	342	130	972	843	259	0.28	0.8
	1981	1104.7	68.3	2225	1102	8	79	58	29	0.50	1.0
	1977	355.6	57.0	331	67	11	179	152	38	0.26	0.2
BEAVER VALLEY 1 Docket 50-334; DPR-66 1st commercial operation 10/76 Type - PWR Capacity - 810 MWe	1978	304.2	40.8	646	190	22	110	67	65	0.29	0.6
	1979	221.0	40.0	704	132	76	477	477	76	0.19	0.6
	1980	39.8	6.8	1817	553	38	191	142	87	0.30	13.4
	1981	573.4	73.6	1237	229					0.19	
	1969	48.1		165	136					0.82	2.8
	1970	43.5		290	194					0.67	4.5
	1971	44.4		260	184					0.71	4.1
	1972	43.5		195	181					0.93	4.2
BIG ROCK POINT Docket 50-185, DPR-6 1st commercial operation 3/63 Type - BWR Capacity - 64 MWe	1973	50.9		241	265	54	222	119	166	1.18	5.6
	1974	40.7	70.3	281	276	58	122	42	234	0.98	6.8
	1975	35.1	59.8	300	180	82	207	20	160	0.60	5.1
	1976	29.5	50.1	488	289	94	240	105	184	0.59	9.8
	1977	43.6	73.4	465	334	93	82	60	274	0.72	7.7
	1978	48.5	77.9	285	344	89	366	102	166	0.61	3.6
	1979	13.0	23.5	623	455	16	338	91	353	0.73	35.0
	1980	48.9	79.0	599	354	58	102	38	263	0.59	7.2
	1981	56.9	90.6	479	160				122	.33	2.8
	1975	161.7	17.8	2380	325					0.14	2.0
BROWNS FERRY 1, 2, 3 Docket 50-259, 50-260, 50-296; DPR-33, -52, -68 1st commercial operation 8/74, 3/75, 3/77 Type - BWR Capacity - 1065, 1065 MWe	1976	337.6	26.9	2207	234	60	803	249	614	0.11	0.7
	1977	1327.5	73.0	1858	863	4	1788	259	1533	0.46	0.6
	1978	1992.1	73.5	2376	1792	0	1667	289	1378	0.75	0.9
	1979	2393.0	79.1	2689	1667	4	1821	49	1776	0.62	0.7
	1980	2182.1	73.6	2712	1825	100	2280	404	1976	0.67	0.8
	1981	2132.9	69.5	3379	2380					0.70	1.1
	1975	161.7	17.8	2380	325					0.14	2.0
	1976	337.6	26.9	2207	234					0.11	0.7

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

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Total Man-rem	Man-rem per Work Function Operations & Others	Man-rem per Personnel Contractor	Man-rem per Type Station & Utility	Average Dose per Worker (Rems)	Man-rem per MW-Yr
BRUNSWICK 2, 1 Docket 50-324, 50-325; DPR-62, -71 1st commercial operation 11/75, 3/77 Type - BWR Capacity - 790, 790 MWe	1976	297.2	56.0	1265	326	15	222	104	0.26	1.1
	1977	291.1	55.7	1512	1119	48	782	337	0.74	3.8
	1978	1173.1	83.7	1458	1004	99	695	309	0.69	0.8
	1979	810.0	60.1	2891	2602	97	2074	528	0.90	3.2
	1980	687.2	52.2	3788	3870	111	3098	772	1.02	5.6
1981	925.2	56.9	3854	2638	159	1890	748	0.68	2.9	
CALVERT CLIFFS 1, 2 Docket 50-317, 50-318; DPR-53, -69 1st commercial operation 5/75, 4/77 Type - PWR Capacity 825, 825 MWe	1976	753.4	95.2	507	74	28	8	66	0.15	0.1
	1977	583.0	72.1	2265	547	36	224	323	0.24	0.9
	1978	1188.5	75.8	1391	500	13	143	357	0.36	0.4
	1979	1161.0	74.0	1428	805	33	423	382	0.56	0.7
	1980	1309.9	84.1	1496	677	15	402	275	0.45	0.5
1981	1379.7	83.1	1555	607	29	378	229	0.39	0.4	
COOK 1, 2 Docket 50-315; DPR-58, -74 1st commercial operation 8/75, 7/78 Type - PWR Capacity - 1044 MWe, 1082 MWe	1976	807.4	83.1	395	116	13	71	45	0.29	0.1
	1977	573.0	76.1	802	299	21	138	161	0.37	0.5
	1978	744.8	73.6	778	336	49	139	197	0.43	0.4
	1979	1373.0	65.3	1445	718	45	454	264	0.50	0.5
	1980	1552.4	74.1	1345	493	46	323	170	0.37	0.3
1981	1557.3	73.4	1341	655	48	442	213	0.49	0.4	
COOPER STATION Docket 50-298; DPR-46 1st commercial operation 7/74 Type - BWR Capacity - 764 MWe	1975	456.4	83.6	579	117	30	19	98	0.20	0.2
	1976	433.3	75.5	763	350	39	210	140	0.46	0.8
	1977	538.2	56.2	315	197	50	66	131	0.63	0.4
	1978	576.0	91.0	297	158	40	58	100	0.53	0.3
	1979	591.0	87.6	426	221	50	89	132	0.52	0.4
1980	448.3	71.2	785	859	70	644	215	1.09	1.9	
1981	457.1	71.2	935	579	63	382	197	0.62	1.3	
CRYSTAL RIVER 3 Docket 50-302; DPR-72 1st commercial operation 3/77 Type - PWR Capacity - 782 MWe	1978	311.5	41.4	643	321	8	244	77	0.50	1.0
	1979	453.0	58.9	1150	495	29	346	149	0.43	1.1
	1980	402.1	53.2	1053	625	24	382	243	0.59	1.6
	1981	490.4	62.2	1120	408	18	236	172	0.36	0.8

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

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Total Man-reams	Man-reams per Work Function		Man-reams per Contractor	Man-reams per Station & Utility	Average Dose per Worker (Rems)	Man-reams per MW-Yr
						Operations	Maint. & Others				
DAVIS-BESSE 1 Docket 50-346; NPF-3 1st commercial operation 11/77 Type - PWR Capacity - 874 MWe	1978	326.4	48.7	421	48	13	35	14	34	0.11	0.1
	1979	381.0	67.0	304	30	8	22	5	25	0.10	0.1
	1980	256.4	36.2	1283	154	4	150	121	33	0.12	0.6
	1981	531.4	67.4	578	58	1	57	32	26	0.10	0.1
DRESDEN 1, 2, 3 Docket 50-010, 50-237, 50-249; DPR-2, -19, -25 1st commercial operation 7/60, 7/70, 11/71 Type - BWR Capacity - 197, 772, 773 MWe	1969	99.7			286						2.9
	1970	163.1			143						0.9
	1971	394.5			715						1.8
	1972	1243.7			728						0.6
	1973	1112.2		1341	939	143	796	344	595	0.70	0.8
	1974	842.5	54.9	1594	1662			57	1605	1.04	2.0
	1975	708.1	54.6	2310	3423	271	3152	2252	1171	1.48	4.8
	1976	1127.2	80.8	1746	1680	228	1452	749	931	0.96	1.5
	1977	1132.9	77.0	1862	1693	316	1377	693	1000	0.91	1.5
	1978	1242.2	79.5	1946	1529	204	1323	619	910	0.79	1.2
	1979	1013.0	74.7	2407	1800	191	1609	641	1159	0.75	1.8
	1980	1074.4	55.0	2717	2108	236	1869	1093	1012	0.77	2.0
	1981	1035.7	51.5	2408	2802	120	2682	1850	952	1.16	2.7
DUANE ARNOLD Docket 50-331; DPR-49 1st commercial operation 2/75 Type - BWR Capacity - 515 MWe	1976	305.2	78.0	350	105	14	91	62	43	0.30	0.3
	1977	353.6	78.9	538	299	36	263	220	79	0.56	0.8
	1978	149.2	33.2	1112	974	59	915	932	42	0.88	6.5
	1979	352.0	78.0	757	276	35	240	219	56	0.36	0.8
	1980	339.1	73.3	1108	671	32	639	570	101	0.61	2.0
1981	277.7	69.8	1286	790	56	734	598	192	0.61	2.8	
FARLEY 1 Docket 50-348; NPF-2 1st commercial operation 12/77 Type - PWR Capacity - 804 MWe	1978	713.8	86.5	527	108	39	69	34	74	0.20	0.1
	1979	211.0	28.6	1227	643	108	535	460	183	0.52	3.0
	1980	557.3	69.3	1350	435	106	329	185	250	0.33	0.8
	1981	310.2	41.4	1331	511	96	415	270	241	0.38	1.6

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

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

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Total Man-rem	Man-rem per Work Function		Man-rem per Contractor	Man-rem per Station & Utility	Average Dose per Worker (Rem)	Man-rem per MW-Yr
						Operations	Maint. & Others				
FITZPATRICK Docket 50-333; DPR-59 1st commercial operation 7/75 Type - BWR Capacity - 810 MWe	1976	489.0	71.6	600	202	14	1066	937	143	0.34	0.4
	1977	460.5	68.4	1380	1080	166	743	597	312	0.78	2.3
	1978	497.0	72.1	904	909	169	690	538	321	1.00	1.8
	1979	349.0	50.8	850	859	118	1922	1808	232	1.01	2.5
	1980	509.5	70.3	2056	2040	187	1238	1072	353	0.99	4.0
	1981	562.9	74.7	2490	1425					0.57	2.5
FORT CALHOUN Docket 50-285; DPR-40 1st commercial operation 9/73 Type - PWR Capacity - 478 MWe	1974	294.0	83.5	327	71			24	47	0.22	0.2
	1975	252.3	67.4	469	294	28	285	92	202	0.63	1.2
	1976	265.9	69.5	516	313	33	264	38	275	0.61	1.2
	1977	351.8	79.4	535	297	59	351	72	225	0.56	0.8
	1978	342.3	75.1	596	410	19	107	151	259	0.69	1.2
	1979	440.0	95.7	451	126	38	630	47	242	0.28	0.3
	1980	242.3	60.4	891	668	61	397	426	204	0.75	2.8
	1981	260.9	72.3	822	458			254		0.56	1.8
	1971	327.8		340	430	69	361	108	322	1.26	1.3
	1972	293.6		677	1032	71	961	278	754	1.52	3.5
1973	409.5		319	224	55	169	84	140	0.70	0.5	
1974	253.7	62.4	884	1225					1.39	4.8	
1975	365.2	76.7	685	538					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) Docket 50-213; DPR-61 1st commercial operation 1/68 Type - PWR Capacity - 555 MWe	1969	438.5		138	106			27	79	0.77	0.2
	1970	424.7		734	689			463	226	0.94	1.6
	1971	502.2		289	342			166	176	1.18	0.7
	1972	515.6		355	325			181	144	0.91	0.6
	1973	293.1		951	697			544	153	0.73	2.4
	1974	521.4	91.2	550	201	20	683			0.36	0.4
	1975	494.3	89.9	795	703	5	444			0.88	1.4
	1976	482.9	82.5	644	449	59	582	253	196	0.70	0.9
	1977	480.7	83.9	894	641	25	92	440	201	0.72	1.3
	1978	563.4	98.6	216	117	73	1088	18	99	0.54	0.2
1979	493.0	87.5	1226	1161	175	1178	783	378	0.95	2.4	
1980	426.8	75.0	1860	1353	174	862	1076	277	0.73	3.2	
1981	487.5	84.3	1554	1036			809	227	0.67	2.1	

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

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Total Man-rem	Man-rem per Work Function		Man-rem per Contractor	Man-rem per Personnel Type & Utility	Average Dose per Worker (Rem)	Man-rem per MW-Yr
						Operations	Maint. & Others				
HATCH 1,2 <sup>a</sup> Docket 50-321; DPR-57; NPI-05 1st commercial operation 12/75; 9/79 Type - BWR Capacity - 757, 767 MWe	1976	496.3	83.8	630	134	79	55	4	130	0.21	0.3
	1977	446.8	66.3	1303	465	96	369	220	245	0.36	1.0
	1978	513.0	72.8	1304	248	88	160	52	196	0.19	0.5
	1979	401.0	54.6	2131	582	85	497	382	200	0.27	1.5
	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 <sup>b</sup> Docket 50-133; DPR-7 1st commercial operation 8/63 Type - BWR Capacity - 63 MWe	1969	44.6		125	164	69	95	12	152	1.31	3.7
	1970	49.3		115	209	130	79	37	172	1.82	4.2
	1971	39.6		140	292	114	178	65	227	2.09	7.4
	1972	43.1		127	253	81	172	57	196	1.99	5.9
	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	29					0.15	-	
INDIAN POINT 1, 2, 3 <sup>**</sup> Docket 50-3, 50-247, 50-286; DPR-5, -26, -64 1st commercial operation 10/62, 8/73, 8/76 Type - PWR	1969	206.2			298						1.4
	1970	43.3			1639						37.8
	1971	154.0			768						5.0
	1972	142.3			967						6.8
	1973	0		2998	5262	709	4553	2847	2415	1.75	-
	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	

<sup>a</sup>Hatch 2 was counted for the first time in 1980.

<sup>b</sup>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 Availability Factor	Total Personnel With Measurable Doses	Total Man-rem	Man-rem per Work Function		Man-rem per Contractor	Man-rem per Personnel Type Station & Utility	Average Dose per Worker (Rems)	Man-rem per MM-Yr
						Opera-tions	Maint. & Others				
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	977	636	63	573	482	154	0.79	1.1
	1980	367.3	53.2	677	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	0.72	7.2
	1971	33.1		218	158					1.14	4.8
	1972	29.2		151	172					1.41	5.9
	1973	24.4		157	221					1.21	9.1
	1974	37.9	81.0	115	139	89	50	6	133	1.42	3.7
	1975	32.0	69.6	165	234					0.94	5.2
	1976	21.2	47.6	118	111					0.94	5.2
	1977	11.3	33.7	141	224	40	71	6	105	1.59	19.8
	1978	21.6	62.0	182	164	60	164	8	215	0.90	7.6
	1979	24.0	71.8	153	186	69	95	6	158	1.22	7.7
1980	26.4	68.5	124	218	65	121	21	165	1.76	8.3	
1981	29.6	76.0	187	123	63	155	11	207	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 Availability Factor	Total Personnel With Measurable Doses	Total Man-rem	Man-rem per Work Function		Man-rem per Personnel Type		Average Dose per Worker (Rems)	Man-rem per MW-Yr
						Operations	Maint. & Others	Contractor	Station & Utility		
MAINE YANKEE Docket 50-309; DPR-36 1st commercial operation 12/72 Type - PWR Capacity - 810 MWe	1973	408.7		782	117			59	58	0.15	0.3
	1974	432.6	68.7	619	420	64	356	188	232	0.68	1.0
	1975	542.9	79.9	440	319	15	304	181	138	0.72	0.6
	1976	712.2	95.0	244	85	27	58	26	59	0.35	0.1
	1977	617.6	82.2	508	245	46	199	112	133	0.48	0.4
	1978	642.7	84.1	538	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 Docket 50-245; DPR-21 1st commercial operation 3/71 Type - BWR Capacity - 654 MWe	1972	377.6		612	596	50	546	340	256	0.97
1973		225.1		1184	663	125	538	422	241	0.56	2.9
1974		430.3	79.1	2477	1430					0.58	3.3
1975		465.4	75.6	2987	2022					0.78	4.3
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 Docket 50-336; DPR-65 1st commercial operation 12/75 Type - PWR Capacity - 864 MWe	1976	545.7	78.7	620	158	26	142	73	95	0.27	0.3
	1977	518.7	65.7	667	242	38	204	153	89	0.36	0.5
	1978	536.6	67.3	1420	1621	72	1549	1334	87	1.14	3.0
	1979	520.0	62.8	757	472	81	391	305	167	0.62	0.9
	1980	679.3	69.2	892	636	76	860	614	122	0.71	1.1
	1981	722.4	82.6	890	531	44	487	393	138	0.60	0.7
	1972	424.4		99	61	40	21	1	60	0.62	0.1
	1973	389.5		401	176	48	128	67	109	0.44	0.4
	1974	349.3	74.9	842	349			91	288	0.41	1.0
	1975	344.8	72.2	1353	1353					1.00	3.9
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	
MONTICELLO Docket 50-263; DPR-22 1st commercial operation 6/71 Type - BWR Capacity - 536 MWe	1972	424.4		99	61	40	21	1	60	0.62	0.1
	1973	389.5		401	176	48	128	67	109	0.44	0.4
	1974	349.3	74.9	842	349			91	288	0.41	1.0
	1975	344.8	72.2	1353	1353					1.00	3.9
	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 Availability Factor	Total Personnel With Measurable Doses	Total Man-rem	Man-rem per Work Function		Man-rem per Contractor	Man-rem per Personnel Type Station & Utility	Average Dose per Worker (Rems)	Man-rem per MM-Yr
						Operations	Maint. & Others				
NINE MILE POINT 1 Docket 50-220; DPR-63 1st commercial operation 12/69 Type - BWR Capacity - 610 MWe	1970	227.0		821	44	12	32	17	27	0.05	0.2
	1971	346.5		1006	195	43	152	63	132	0.19	0.6
	1972	381.8		735	285	59	226	28	257	1.03	0.7
	1973	411.0		550	567	139	428	118	449	1.11	1.4
	1974	385.9	70.5	740	824	42	782	279	545	1.05	2.1
	1975	359.0	72.1	649	681	68	613	203	478	1.09	1.9
	1976	404.6	88.8	308	428	82	376	279	199	1.26	0.9
	1977	347.4	59.2	1093	1383	41	1342	883	500	0.56	4.0
	1978	527.7	95.1	561	314	59	255	26	288	1.13	0.6
	1979	354.0	66.1	1326	1497	106	1391	940	557	0.50	4.2
	1980	533.9	92.3	1174	591	75	516	251	340	0.78	1.1
	1981	385.2	66.0	2029	1592	144	1448	1064	528	0.22	4.1
	1979	507.0	61.7	2025	449	78	371	190	259	0.10	0.9
1980	681.8	86.5	2086	218	128	90	85	133	0.28	0.3	
1981	1241.9	71.5	2416	680	188	492	343	337		0.5	
OCONEE 1, 2, 3 Docket 50-269, 50-270, 50-287; DPR-38, -47, -55 1st commercial operation 7/73 9/74, 12/74 Type - PWR Capacity - 860, 860, 860 MWe	1974	650.6	60.1	844	517	18	499	144	373	0.61	0.8
	1975	1838.3	75.5	829	497	72	425	90	407	0.60	0.3
	1976	1561.4	63.0	1215	1026	65	961	219	807	0.84	0.6
	1977	1566.4	65.9	1595	1328	244	1084	294	1034	0.83	0.8
	1978	1909.0	75.8	1636	1393	179	1214	340	1053	0.85	0.7
	1979	1708.0	67.7	2100	1001	123	878	181	820	0.48	0.6
	1980	1703.7	70.1	2124	1055	117	938	162	893	0.50	0.6
	1981	1661.5	66.8	2445	1211	113	1098	275	936	0.50	0.7
	1970	413.6		95	63	21	42	11	52	0.66	0.1
	1971	448.9		249	240	50	190	92	148	0.96	0.5
1972	515.0		339	582	150	432	167	415	1.72	1.1	
1973	424.6		782	1236	195	1041	683	553	1.58	2.9	
1974	434.5	70.4	935	984	166	818	162	822	1.05	2.3	
1975	373.6	73.3	1210	1140	169	971	271	869	0.94	3.0	
1976	456.5	79.3	1582	1078	70	1008	587	491	0.68	2.4	
1977	385.7	70.1	1673	1614	76	1538	1048	566	0.96	4.2	
1978	431.8	74.3	1411	1279	134	1145	696	583	0.91	3.0	
1979	541.0	85.9	842	467	95	372	135	332	0.55	0.9	
1980	232.9	41.4	1966	1733	97	1636	1182	551	0.88	7.4	
1981	314.8	59.8	1589	917	48	859	479	438	0.54	2.9	

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

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Total Man-rem	Man-rem per Work Function		Man-rem per Contractor	Man-rem per Station & Utility	Average Dose per Worker (Rem)	Man-rem per MW-Yr
						Operations	Maint. & Others				
PALISADES Docket 50-255; DPR-20 1st commercial operation 12/71 Type - PWR Capacity - 635 MWe	1972	216.8		975	78	16	1117	661	472	1.16	0.4
	1973	286.8		774	1133					0.81	3.9
	1974	10.7	5.5	495	627					0.62	58.6
	1975	302.0	64.5	742	306	23	673	109	587	0.94	1.0
	1976	346.9	55.2	332	696	13	87	23	77	0.30	2.0
	1977	616.6	91.4	849	100	52	712	173	591	0.90	0.2
	1978	320.2	49.7	1599	764	99	755	360	494	0.53	2.4
	1979	415.0	59.9	1307	854	191	233	312	112	0.32	2.1
	1980	288.3	42.9	2151	424	167	735	737	165	0.42	1.5
	1981	418.2	57.2		902						2.2
PEACH BOTTOM 2, 3 Docket 50-277, 50-278; DPR-44, -56 1st commercial operation 7/74, 12/74 Type - BWR Capacity - 1051, 1035 MWe	1975	1234.3	80.9	971	228	180	660	434	406	0.23	0.2
	1976	1379.2	73.0	2136	840	223	1813	1374	662	0.39	0.6
	1977	1052.4	58.7	2827	2036	162	1165	709	608	0.72	1.9
	1978	1636.3	84.0	2244	1317	245	1143	717	671	0.59	0.8
	1979	1740.0	84.5	2276	1388	311	1991	1596	706	0.61	0.8
	1980	1374.2	66.3	2774	2302	273	2233	1880	626	0.83	1.7
	1981	1161.8	58.0	2857	2506					0.88	2.2
	1973	484.0		230	126	49	77			0.55	0.3
	1974	234.1	39.2	454	415					0.91	1.8
	1975	308.1	71.3	473	798	142	656	412	386	1.69	2.6
PILGRIM 1 Docket 50-293; DPR-35 1st commercial operation 12/72 Type - BWR Capacity - 670 MWe	1976	287.8	60.7	1317	2648	65	2582	2270	378	2.01	9.2
	1977	316.6	61.4	1875	3142	146	2996	2176	966	1.68	9.9
	1978	519.5	83.1	1667	1327	157	1170	895	432	0.80	2.5
	1979	574.0	89.4	2458	1015	131	884	516	499	0.41	1.8
	1980	360.3	56.2	3549	3626	207	3419	3076	550	1.02	10.1
	1981	408.9	65.9	2803	1836	70	1766	1418	418	0.66	4.5

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

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Total Man-rems	Man-rems per Work Function		Man-rems per Contractor	Man-rems per Personnel Type Station & Utility	Average Dose per Worker (Rems)	Man-rems per MW-Yr
						Operations	Maint. & Others				
POINT BEACH 1, 2 Docket 50-266, 50-301; DPR-24, -27 1st commercial operation 12/70, 10/72 Type - PWR Capacity - 495, 495 MWe	1971	393.4		164							0.4
	1972	378.3		580							1.5
	1973	693.7		501							0.8
	1974	760.2	81.3	400	72	516					0.4
	1975	801.2	82.9	339	70	225		81	214		0.6
	1976	857.3	86.7	313	58	312		107	263		0.4
	1977	873.9	87.3	417	63	366		212	217		0.5
	1978	914.4	90.9	336	71	249		111	209		0.3
	1979	808.0	80.8	610	65	579		449	195		0.8
	1980	727.2	82.5	561	60	538		420	178		0.8
	1981	760.4	83.6	773	83	513		364	232		0.8
PRAIRIE ISLAND 1, 2 Docket 50-282, 50-306; DPR-42, -60 1st commercial operation 12/73, 12/74 Type - PWR Capacity - 503, 500 MWe	1974	181.9	43.9	150	18			5	13		0.1
	1975	836.0	83.3	477	123						0.1
	1976	725.2	76.6	818	447						0.6
	1977	922.9	87.2	718	300	68	379				0.3
	1978	941.1	92.2	546	221	73	227				0.2
	1979	865.0	86.0	594	180	43	178				0.2
	1980	800.7	79.9	983	353	29	151				0.4
	1981	844.9	80.5	936	329	40	313				0.4
	1974	958.1	72.3	678	482	153	176				0.4
	1975	833.6	68.4	1083	1618						0.5
	1976	951.2	73.1	1225	1651	114	1504				1.9
1977	970.1	84.0	907	1031	269	1382				1.7	
1978	1124.5	88.6	1207	1618	108	923				1.1	
1979	1075.0	84.6	1688	2158	156	1462				1.4	
1980	866.9	64.4	3089	4838	215	1943				2.0	
1981	1156.9	81.1	2246	3146	291	4547				5.6	
RANCHO SECO Docket 50-312; DPR-54 1st commercial operation 4/75 Type - PWR Capacity - 873 MWe	1976	268.1	30.4	297	58			17	41		0.2
	1977	706.4	77.1	515	390	6	52				0.5
	1978	607.7	80.5	508	323	61	329				0.5
	1979	687.0	91.1	287	126	76	247				0.2
	1980	530.9	60.4	890	412	27	99				0.8
	1981	321.2	40.2	772	402	110	302				1.3

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

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Total Man-rem	Man-rem per Work Function		Man-rem per Contractor	Man-rem per Station & Utility	Average Dose per Worker (Rems)	Man-rem per MW-Yr
						Operations	Maint. & Others				
ROBINSON 2 Docket 50-261; DPR-23 1st commercial operation 3/71 Type - PWR Capacity - 665 MWe	1972	580.0		245	215	42	173	137	78	0.88	0.4
	1973	455.1	83.3	831	695	185	487			0.84	1.5
	1974	578.1	72.7	853	672					0.79	1.2
	1975	501.8	84.7	849	1142	30	685	457	758	1.34	2.3
	1976	585.5	85.2	597	715	52	403	223	232	1.20	1.2
	1977	511.5	72.0	634	455	63	400	529	434	0.72	0.9
	1978	480.5	70.8	943	963	60	900	794	394	1.02	2.0
	1979	482.0	62.2	1454	1188	79	1128	1379	473	0.82	2.5
	1980	387.3	73.0	2009	1852	45	1773	513	220	0.92	4.8
	1981	426.6	55.6	1462	733	94	688			0.50	1.7
SALEM 1 Docket 50-272; DPR-70 1st commercial operation 6/77 Type - PWR Capacity - 1079 MWe	1978	546.4	55.6	574	122	28	94	32	90	0.21	0.2
	1979	250.0	25.5	1488	584	100	484	359	225	0.39	2.3
	1980	680.6	69.2	1704	449	55	394	281	168	0.26	0.7
	1981	743.0	78.1	1652	254	4	250	152	102	0.15	0.3
SAN ONOFRE 1 Docket 50-206; DPR-13 1st commercial operation 1/68 Type - PWR Capacity - 436 MWe	1969	314.1		123	42	10	32	5	37	0.34	0.1
	1970	365.9		251	155	13	142	59	96	0.62	0.4
	1971	382.1		121	80	12	38	3	47	0.41	0.1
	1972	338.5		326	256	29	227	117	139	0.78	0.8
	1973	273.7		570	353	40	313	168	185	0.62	1.3
	1974	377.8	86.1	219	71					0.32	0.2
	1975	389.0	87.4	424	292					0.69	0.7
	1976	297.9	70.2	1330	880	147	733	629	251	0.66	2.9
	1977	281.2	63.7	985	847	77	770	451	396	0.86	3.0
	1978	323.2	80.2	764	401	25	376	234	167	0.52	1.2
1979	401.0	90.2	521	139	23	116	65	74	0.27	0.3	
1980	97.3	22.3	3063	2387	219	2168	2018	369	0.78	24.5	
1981	95.9	26.7	2902	3223	100	3123	3104	119	1.11	33.6	
ST. LUCIE 1 Docket 50-335; DPR-67 1st commercial operation 12/76 Type - PWR Capacity - 777 MWe	1977	649.1	84.7	445	152	26	126	92	60	0.34	0.2
	1978	606.4	76.5	797	337	15	322	140	197	0.42	0.6
	1979	592.0	74.0	907	438	25	413	209	229	0.48	0.7
	1980	627.9	77.6	1074	632	82	460	196	337	0.50	0.8
1981	599.1	72.7	1473	929	20	909	556	373	0.63	1.6	

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

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Total Man-rem	Man-rem per Work Function		Man-rem per Personnel Type	Average Dose per Worker (Rems)	Man-rem per MM-Yr	
						Operations	Maint. & Others				
SURRY 1, 2 Docket 50-280, 50-281; DPR-32, -37 1st commercial operation 12/72, 5/73 Type - PWR Capacity - 775, 775 MWe	1973	420.6		936	152	72	812		0.16	0.4	
	1974	717.4	49.8	1715	884	27	1622	584	0.51	1.2	
	1975	1079.0	70.8	1948	1649	444	2721	1292	0.85	1.5	
	1976	930.7	60.4	2753	3165	348	1959	927	1.15	3.4	
	1977	1139.0	72.2	1860	2307	726	1111	808	1.24	2.0	
	1978	1210.6	77.2	2203	1837	173	3411	609	0.83	1.5	
	1979	343.0	42.3	5065	3584	353	3483	719	0.71	10.4	
	1980	568.2	40.3	5317	3836	428	3816	1204	0.72	6.6	
	1981	907.6	59.3	3753	4244				1.13	4.7	
* THREE MILE ISLAND 1, 2 Docket 50-289; DPR-50, -73 1st commercial operation-9/74, 12/78 Type - PWR Capacity - 776 MWe	1975	675.9	82.2	131	73	23	263	55	0.56	0.1	
	1976	530.0	65.4	819	286	15	344	217	0.35	0.5	
	1977	664.5	80.9	1122	359	23	481	231	0.32	0.5	
	1978	690.0	85.1	1929	504	23	1195	259	0.26	0.7	
	1979	266.0	21.9	4024	1392	197	365	485	0.85	5.2	
	1980	0.0	0.0	2328	394	29	326	160	0.17	-	
	1981	0.0	0.0	2103	376	50		186	0.18	-	
TROJAN Docket 50-344; NPF-1 1st commercial operation 5/76 Type - PWR Capacity - 1080 MWe	1977	792.0	92.6	591	174	30	144	105	0.29	0.2	
	1978	205.5	20.6	711	119	81	238	124	0.45	1.5	
	1979	631.0	58.1	736	257	74	183	113	0.35	0.4	
	1980	727.5	72.5	1159	421	77	344	305	0.36	0.6	
	1981	775.6	74.1	1311	609	113	496	363	0.46	0.8	
TURKEY POINT 3, 4 Docket 50-250, 50-251; DPR-31, -41 1st commercial operation 12/72, 9/73 Type - PWR Capacity - 646, 646 MWe	1973	401.9		444	78	88	366	202	0.18	0.2	
	1974	953.6		794	454	270	606	559	0.57	0.5	
	1975	1003.7	74.9	1176	876	89	1095	868	0.74	0.9	
	1976	974.2	71.2	1647	1184	94	942	522	0.72	1.2	
	1977	979.5	72.1	1319	1036	90	942	514	0.78	1.1	
	1978	1000.2	78.8	1336	1032	90	942	486	0.77	1.0	
	1979	811.0	62.4	2002	1680	299	1381	997	0.84	2.1	
	1980	990.6	73.6	1803	1651	232	1419	433	0.92	1.7	
1981	654.0	46.8	2932	2251	197	274	1854	0.77	3.4		

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

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

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Total Man-REMs	Man-REMs per Work Function		Man-REMs per Contractor	Man-REMs per Personnel Type Station & Utility	Average Dose per Worker (REMs)	Man-REMs per MW-Yr
						Operations	Maint. & Others				
VERMONT YANKEE Docket 50-271; DPR-28 1st commercial operation 11/72 Type - BWR Capacity - 504 MWe	1973	222.1		244	85	24	192	103	113	0.35	0.4
	1974	303.5	87.8	357	216	70	83	63	90	0.60	0.7
	1975	429.0	77.1	282	153	36	375	246	165	0.54	0.4
	1976	389.6	85.1	815	411	83	175	90	168	0.50	1.0
	1977	423.5	75.9	641	258	78	261	158	181	0.40	0.6
	1978	387.5	82.1	934	339	646	624	642	628	0.36	0.9
	1979	414.0	71.5	1220	1170	141	1197	926	412	0.96	2.8
	1980	357.8	84.6	1443	1338	121	610	408	323	0.93	3.7
1981	429.1		1264	731					0.58	1.7	
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
	1972	78.7		282	255	63	192	146	109	0.90	3.2
	1973	127.1		133	99			47	52	0.74	0.8
	1974	111.3		243	205			99	106	0.84	1.8
	1975	145.1	82.4	249	116	52	64	66	50	0.47	0.8
	1976	152.2	89.8	152	59	17	42	4	55	0.39	0.4
	1977	124.6	73.9	725	356	28	328	174	182	0.49	2.9
	1978	145.0	81.0	565	282	26	256	95	187	0.50	1.9
1979	149.0	81.6	441	127	16	111	52	75	0.29	0.9	
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	17	110	13	43	0.18	0.1
	1975	1181.5	74.9	436	127	64	507	49	78	0.29	0.1
	1976	1134.9	61.9	774	571	43	960	257	314	0.74	0.5
	1977	1358.6	75.0	784	1003	43	867	561	442	1.28	0.7
	1978	1613.5	80.2	1104	1017	150	1106	418	599	0.92	0.6
	1979	1238.0	67.6	1472	1017	168	823	747	527	0.87	1.0
	1980	1411.2	74.1	1363	920	97	1670	560	360	0.67	0.7
	1981	1366.9	72.3	1754	1720	50		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	No. Measurable Exposure	Number of Individuals with Whole Body Doses in the Following Ranges (Rms)													Total Number Monitored	Number with Measurable Exposure	** Total Man-Rms	
		Measurable < 0.10	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.0	1.0-2.0	2.0-4.0	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* PMRs	402	802	442	309	179	138	280	65	3	0	5	1	0	0	1	2,627	2,225	1,102
Beaver Valley PMR	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 PMRs	950	485	353	289	207	101	105	15								2,505	1,555	607
Cook 1, 2 PMRs	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	679
Crystal River PMR	882	453	213	195	101	62	87	6	1	2						2,002	1,120	408

\* Arkansas 2 was omitted for the first time in 1981.  
 \*\* This item is not usually reported by the facility and is calculated by the NRC staff using the method described in this document.  
 \*\*\* The actual collective dose was provided in the 20,407 report and this value is shown here.



APPENDIX B (Cont.)

Plant Name, Type	No Meas-urable Exposure	Number of Individuals with Whole Body Doses in the Following Ranges (Rems)												Total Number Moni-tored	Number with Meas-urable Exposure	Total** (Man-Rems)			
		Meas-urable <0.10	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.0	1.0-2.0	2.0-3.0	3.0-4.0	4.0-5.0	5.0-6.0	6.0-7.0	7.0-8.0				8.0-9.0	9.0-10.0	
Davis-Besse 1 PWR	972	417	98	46	13	2	2										1,550	578	58***
Dresden 1, 2, 3 BWRs	676	661	287	197	160	156	370	294	205							(>12) 1	3,084	2,408	2,802
Duane Arnold BWR	596	528	155	117	101	84	214	73	11	3							1,882	1,286	790
Farley 1 PWR	761	592	226	183	108	62	148	12									2,092	1,331	511
Fitzpatrick BWR	687	834	400	395	216	184	329	94	30	8							3,177	2,490	1,425
Fort Calhoun PWR	129	367	89	85	82	35	108	48	8								951	822	458
Ginna PWR	368	278	120	100	71	62	252	41	1								1,293	925	655
Haddam Neck PWR	527	471	279	145	108	100	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 Meas. Rems	
	No Measurable Exposure	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.0	1.0-2.0	2.0-3.0	3.0-4.0	4.0-5.0	5.0-6.0	6.0-7.0	7.0-8.0	8.0-9.0				9.0-10.0
Humboldt Bay PWR	69	14	8	1											144	75	9
Indian Point 1, 2 PWRs	443	304	333	262	193	554	220	96	106						3,038	2,595	2,731
Indian Point 3 PWR	433	113	129	61	46	106	16	3	1						1,110	677	364***
Kewaunee PWR	212	71	79	37	25	28	2								595	383	141
LaCrosse BWR	361	18	4	5	6	27	20	4							548	187	123
Maine Yankee PWR	341	128	111	95	79	124	12								1,205	868	424
Millstone 1 BWR	871	395	360	246	182	368	125	21							3,377	2,506	1,495
Millstone 2 PWR	309	141	127	87	65	130	44	8							1,199	890	531
Monticello BWR	1,276	214	203	127	96	267	90	15	6	7					2,722	1,446	1,004***

\* Millstone 1 and 2 submitted a combined 20.407 report which was separated in the same proportion as that reported in their 1.18 type reports (see Appendix A).

\*\* This term is not usually measured 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.)

Number of Individuals with Whole Body Doses in the Following Ranges (Rems)

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

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

\*\*\* The actual collective dose was provided in the 20,007 report and this is the value shown here.

APPENDIX B (Cont.)

Plant Name, Type	No. Measurable Exposure	Number of Individuals with Winter Body Doses in the Following Ranges (Rems)														Total Number Monitored	Number with Measurable Exposure	Total** Man-Rms														
		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			
		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	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																	60,177	34,832	25,471	
PWR Totals	16,971	10,202	7,340	6,790	3,616	2,077	6,303	2,061	882	262	61	77																	74,329	47,351	20,671	
Fort St. Vrain HTGR	1,096	31																														1***

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



**APPENDIX C**

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

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

APPENDIX C ( Cont.)

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

PLANT: ARKANSAS 1.2 (PWR) NUMBER OF PERSONNEL (>100 M-REM) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM)		STATION EMPLOYEES		TOTAL PERSONS		TOTAL MAN-REMS	
	UTILITY EMPLOYEES	CONTRACT & OTHERS	UTILITY EMPLOYEES	CONTRACT & OTHERS	UTILITY EMPLOYEES	CONTRACT & OTHERS	UTILITY EMPLOYEES	CONTRACT & OTHERS
<b>REACTOR OPERATIONS &amp; SURV.</b>								
MAINTENANCE PERSONNEL	52	21	4	21	18,448	10,905	1,360	10,905
OPERATING PERSONNEL	53	0	0	0	29,756	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	22	73	0	73	11,996	28,067	0.0	28,067
SUPERVISORY PERSONNEL	10	1	0	1	3,930	0.163	0.0	0.163
ENGINEERING PERSONNEL	1	2	0	2	0.193	0.487	0.0	0.487
<b>TOTAL</b>	<b>138</b>	<b>97</b>	<b>4</b>	<b>239</b>	<b>64,323</b>	<b>39,622</b>	<b>1,360</b>	<b>39,622</b>
<b>ROUTINE MAINTENANCE</b>								
MAINTENANCE PERSONNEL	88	159	13	159	38,537	69,635	3,575	69,635
OPERATING PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	6	12	0	12	6,409	2,961	0.0	2,961
SUPERVISORY PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	5	0	5	0.0	3,202	0.0	3,202
<b>TOTAL</b>	<b>94</b>	<b>176</b>	<b>13</b>	<b>283</b>	<b>44,946</b>	<b>73,998</b>	<b>3,575</b>	<b>73,998</b>
<b>IN-SERVICE INSPECTION</b>								
MAINTENANCE PERSONNEL	1	28	9	28	0.146	11,487	1,174	11,487
OPERATING PERSONNEL	1	0	0	0	0.130	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	1	0	0	0	0.142	0.0	0.0	0.0
SUPERVISORY PERSONNEL	0	1	0	1	0.0	0.132	0.0	0.132
ENGINEERING PERSONNEL	2	10	1	10	0.258	2,101	0.140	2,101
<b>TOTAL</b>	<b>5</b>	<b>39</b>	<b>10</b>	<b>54</b>	<b>0.676</b>	<b>13,720</b>	<b>1,314</b>	<b>13,720</b>
<b>SPECIAL MAINTENANCE</b>								
MAINTENANCE PERSONNEL	45	446	1	446	10,894	217,348	0.112	217,348
OPERATING PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	13	27	0	27	7,959	5,972	0.0	5,972
SUPERVISORY PERSONNEL	0	2	0	2	0.0	0.329	0.0	0.329
ENGINEERING PERSONNEL	1	12	0	12	0.107	2,523	0.0	2,523
<b>TOTAL</b>	<b>59</b>	<b>487</b>	<b>1</b>	<b>547</b>	<b>18,960</b>	<b>226,172</b>	<b>0.112</b>	<b>226,172</b>
<b>WASTE PROCESSING</b>								
MAINTENANCE PERSONNEL	8	19	3	19	1,674	10,759	0.679	10,759
OPERATING PERSONNEL	7	0	0	0	1,253	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	7	6	0	6	4,753	2,267	0.0	2,267
SUPERVISORY PERSONNEL	1	0	0	0	0.797	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	2	0	2	0.0	0.830	0.0	0.830
<b>TOTAL</b>	<b>23</b>	<b>27</b>	<b>3</b>	<b>53</b>	<b>8,677</b>	<b>13,856</b>	<b>0.679</b>	<b>13,856</b>
<b>REFUELING</b>								
MAINTENANCE PERSONNEL	75	457	14	457	44,414	235,472	6,035	235,472
OPERATING PERSONNEL	14	0	0	0	2,935	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	10	77	0	77	5,524	47,264	0.0	47,264
SUPERVISORY PERSONNEL	9	4	0	4	2,756	1,020	0.0	1,020
ENGINEERING PERSONNEL	6	61	0	61	2,859	28,184	0.0	28,184
<b>TOTAL</b>	<b>114</b>	<b>599</b>	<b>14</b>	<b>727</b>	<b>58,488</b>	<b>311,940</b>	<b>6,035</b>	<b>311,940</b>
<b>TOTAL BY JOB FUNCTION</b>								
MAINTENANCE PERSONNEL	269	1130	44	1443	114,113	555,806	12,935	555,806
OPERATING PERSONNEL	75	0	0	75	34,074	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	59	195	0	254	36,783	86,531	0.0	86,531
SUPERVISORY PERSONNEL	20	8	0	28	7,683	1,644	0.0	1,644
ENGINEERING PERSONNEL	10	92	1	103	3,417	37,327	0.140	37,327
<b>GRAND TOTAL</b>	<b>433</b>	<b>1425</b>	<b>45</b>	<b>1903</b>	<b>195,870</b>	<b>681,308</b>	<b>13,075</b>	<b>681,308</b>

\* 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)			NUMBER OF PERSONNEL (>100 M-REM)			TOTAL MAN-REMS		
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS	
REACTOR OPERATIONS & SURV.									
MAINTENANCE PERSONNEL	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		
ENGINEERING PERSONNEL	0	0	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	0.0		
ENGINEERING PERSONNEL	0	2	14		0	0.100	0.0		
TOTAL	115	4	162	281	40,290	0.220	55,865	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	32		0,260	0.0	2,225		
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	35	0	56	91	2,640	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	164	205	10,235	0.0	0.0	10,235	
HEALTH PHYSICS PERSONNEL	40	1	1	42	3,015	0.120	26,815	29,950	
SUPERVISORY PERSONNEL	0	1	0	1	0	0.100	0.0	0.100	
ENGINEERING PERSONNEL	0	4	25	29	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.

PLANT: † BIG ROCK POINT (BWR) NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION

WORK & JOB FUNCTION	STATION EMPLOYEES		UTILITY EMPLOYEES		CONTRACT & OTHERS		TOTAL PERSONS		STATION EMPLOYEES		UTILITY EMPLOYEES		CONTRACT & OTHERS		TOTAL MAN-REMS	
	1981	1982	1981	1982	1981	1982	1981	1982	1981	1982	1981	1982	1981	1982	1981	1982
<b>* MAINTENANCE PERSONNEL</b>	13	24	24	61	0	0	24	61	3,297	0,536	0	0	0	0	2,153	0
OPERATING PERSONNEL	48	2	2	17	0	0	2	17	18,324	0,006	0	0	0	0	0,748	0
HEALTH PHYSICS PERSONNEL	14	7	7	10	0	0	7	10	7,287	0,038	0	0	0	0	1,260	0
SUPERVISORY PERSONNEL	25	1	1	0	0	0	1	0	7,025	0,007	0	0	0	0	0,000	0
ENGINEERING PERSONNEL	34	42	42	24	0	0	42	24	6,976	0,908	0	0	0	0	0,325	0
<b>TOTAL</b>	134	76	76	112	0	0	76	112	42,909	1,493	0	0	0	0	4,486	0
<b>* ROUTINE MAINTENANCE</b>	31	33	33	24	0	0	33	24	14,285	3,842	0	0	0	0	2,355	0
MAINTENANCE PERSONNEL	4	0	0	2	0	0	4	2	0,086	0,000	0	0	0	0	0,012	0
OPERATING PERSONNEL	7	0	0	2	0	0	7	2	1,088	0,000	0	0	0	0	0,169	0
HEALTH PHYSICS PERSONNEL	2	0	0	0	0	0	2	0	0,071	0,000	0	0	0	0,000	0,000	0
SUPERVISORY PERSONNEL	0	1	1	3	0	0	1	3	0,000	0,001	0	0	0	0	0,000	0
ENGINEERING PERSONNEL	44	34	34	31	0	0	34	31	15,530	3,843	0	0	0	0	2,522	0
<b>TOTAL</b>	44	34	34	31	0	0	34	31	15,530	3,843	0	0	0	0	2,522	0
<b>* IN-SERVICE INSPECTION</b>	0	10	10	2	0	0	10	2	0,000	1,072	0	0	0	0	0,118	0
MAINTENANCE PERSONNEL	0	0	0	1	0	0	0	1	0,025	0,000	0	0	0	0	0,016	0
OPERATING PERSONNEL	1	0	0	0	0	0	1	0	0,008	0,000	0	0	0	0	0,000	0
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0	0	0	0,000	0,000	0	0	0	0	0,000	0
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0	0	0,000	0,000	0	0	0	0	0,000	0
ENGINEERING PERSONNEL	1	0	0	0	0	0	1	0	0,304	0,000	0	0	0	0	0,000	0
<b>TOTAL</b>	2	10	10	2	0	0	10	2	0,337	1,072	0	0	0	0	0,134	0
<b>* SPECIAL MAINTENANCE</b>	16	31	31	31	0	0	31	31	10,344	9,312	0	0	0	0	22,768	0
MAINTENANCE PERSONNEL	13	0	0	2	0	0	13	2	0,871	0,000	0	0	0	0	0,079	0
OPERATING PERSONNEL	8	0	0	5	0	0	8	5	7,524	0,000	0	0	0	0	0,292	0
HEALTH PHYSICS PERSONNEL	6	0	0	0	0	0	6	0	0,248	0,000	0	0	0	0	0,000	0
SUPERVISORY PERSONNEL	4	4	4	1	0	0	4	1	0,068	0,000	0	0	0	0	0,019	0
ENGINEERING PERSONNEL	47	35	35	32	0	0	35	32	19,052	9,389	0	0	0	0	23,158	0
<b>TOTAL</b>	47	35	35	32	0	0	35	32	19,052	9,389	0	0	0	0	23,158	0
<b>* WASTE PROCESSING</b>	12	4	4	6	0	0	4	6	4,286	0,361	0	0	0	0	1,269	0
MAINTENANCE PERSONNEL	23	0	0	0	0	0	23	0	1,164	0,000	0	0	0	0	0,000	0
OPERATING PERSONNEL	12	0	0	3	0	0	12	3	1,320	0,000	0	0	0	0	0,039	0
HEALTH PHYSICS PERSONNEL	2	0	0	0	0	0	2	0	0,059	0,000	0	0	0	0	0,000	0
SUPERVISORY PERSONNEL	1	1	1	0	0	0	1	0	0,031	0,004	0	0	0	0	0,000	0
ENGINEERING PERSONNEL	50	5	5	9	0	0	50	9	6,860	0,363	0	0	0	0	1,308	0
<b>TOTAL</b>	50	5	5	9	0	0	50	9	6,860	0,363	0	0	0	0	1,308	0
<b>* REFUELING</b>	0	0	0	0	0	0	0	0	0,000	0,000	0	0	0	0	0,000	0
MAINTENANCE PERSONNEL	19	0	0	0	0	0	19	0	1,131	0,000	0	0	0	0	0,000	0
OPERATING PERSONNEL	0	0	0	0	0	0	0	0	0,000	0,000	0	0	0	0	0,000	0
HEALTH PHYSICS PERSONNEL	4	0	0	0	0	0	4	0	0,171	0,000	0	0	0	0	0,000	0
SUPERVISORY PERSONNEL	6	0	0	2	0	0	6	2	0,167	0,000	0	0	0	0	0,000	0
ENGINEERING PERSONNEL	29	0	0	2	0	0	29	2	1,469	0,000	0	0	0	0	0,306	0
<b>TOTAL</b>	29	0	0	2	0	0	29	2	1,469	0,000	0	0	0	0	0,306	0
<b>* TOTAL BY JOB FUNCTION</b>	72	102	102	124	0	0	102	124	32,212	15,123	0	0	0	0	28,663	0
MAINTENANCE PERSONNEL	107	2	2	22	0	0	107	22	21,601	0,006	0	0	0	0	0,855	0
OPERATING PERSONNEL	42	7	7	69	0	0	42	69	17,227	0,038	0	0	0	0	1,760	0
HEALTH PHYSICS PERSONNEL	39	1	1	40	0	0	39	40	7,574	0,007	0	0	0	0	7,581	0
SUPERVISORY PERSONNEL	44	48	48	30	0	0	44	30	7,546	0,990	0	0	0	0	0,666	0
ENGINEERING PERSONNEL	306	160	160	196	0	0	306	196	86,160	16,164	0	0	0	0	31,944	0
<b>GRAND TOTAL</b>	306	160	160	196	0	0	306	196	86,160	16,164	0	0	0	0	31,944	0

\* 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									
	NUMBER OF PERSONNEL (>100 M-REM)					TOTAL MAN-REMS				
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS	CONTRACT & OTHERS	TOTAL MAN-REMS
<b>* WORK &amp; JOB FUNCTION</b>										
<b>REACTOR OPERATIONS &amp; SURV.</b>										
MAINTENANCE PERSONNEL	11	47	2	60	1,400	19,700	0,300	20,400	0,300	20,700
OPERATING PERSONNEL	97	2	0	99	22,000	0,300	0,0	22,300	0,0	22,300
HEALTH PHYSICS PERSONNEL	19	2	29	48	3,800	0,200	8,000	12,000	8,000	20,000
SUPERVISORY PERSONNEL	0	0	0	0	0,0	0,0	0,0	0,0	0,0	0,0
ENGINEERING PERSONNEL	34	47	1	82	6,300	16,700	0,100	23,100	0,100	23,200
<b>TOTAL</b>	<b>161</b>	<b>98</b>	<b>32</b>	<b>291</b>	<b>33,500</b>	<b>36,900</b>	<b>8,400</b>	<b>78,800</b>	<b>8,400</b>	<b>87,200</b>
<b>* ROUTINE MAINTENANCE</b>										
MAINTENANCE PERSONNEL	364	1352	139	1845	141,300	1040,400	80,900	1232,600	80,900	1313,500
OPERATING PERSONNEL	181	9	4	194	75,000	1,200	2,900	79,100	2,900	82,000
HEALTH PHYSICS PERSONNEL	56	6	53	115	22,600	1,000	26,400	49,000	26,400	75,400
SUPERVISORY PERSONNEL	0	0	0	0	0,0	0,0	0,0	0,0	0,0	0,0
ENGINEERING PERSONNEL	66	168	52	286	36,200	84,300	22,600	143,100	22,600	165,700
<b>TOTAL</b>	<b>667</b>	<b>1535</b>	<b>248</b>	<b>2450</b>	<b>275,100</b>	<b>1,126,900</b>	<b>132,800</b>	<b>1534,800</b>	<b>132,800</b>	<b>1667,600</b>
<b>* IN-SERVICE INSPECTION</b>										
MAINTENANCE PERSONNEL	0	5	4	9	0,0	0,0	1,800	1,800	1,800	3,600
OPERATING PERSONNEL	0	0	0	0	0,0	0,0	0,0	0,0	0,0	0,0
HEALTH PHYSICS PERSONNEL	1	0	0	1	0,100	0,0	0,0	0,100	0,0	0,100
SUPERVISORY PERSONNEL	0	0	0	0	0,0	0,0	0,0	0,0	0,0	0,0
ENGINEERING PERSONNEL	0	5	12	17	0,0	1,700	4,600	6,300	4,600	10,900
<b>TOTAL</b>	<b>1</b>	<b>10</b>	<b>16</b>	<b>27</b>	<b>0,100</b>	<b>1,700</b>	<b>6,400</b>	<b>8,200</b>	<b>6,400</b>	<b>14,600</b>
<b>* SPECIAL MAINTENANCE</b>										
MAINTENANCE PERSONNEL	4	112	3	119	0,800	44,700	1,600	47,100	1,600	48,700
OPERATING PERSONNEL	0	0	0	0	0,0	0,0	0,0	0,0	0,0	0,0
HEALTH PHYSICS PERSONNEL	16	0	3	19	5,600	0,0	0,700	6,300	0,700	7,000
SUPERVISORY PERSONNEL	0	0	0	0	0,0	0,0	0,0	0,0	0,0	0,0
ENGINEERING PERSONNEL	26	7	168	201	6,700	2,600	160,500	170,800	160,500	331,300
<b>TOTAL</b>	<b>46</b>	<b>119</b>	<b>174</b>	<b>339</b>	<b>13,100</b>	<b>47,300</b>	<b>162,800</b>	<b>223,200</b>	<b>162,800</b>	<b>386,000</b>
<b>* WASTE PROCESSING</b>										
MAINTENANCE PERSONNEL	14	0	0	14	3,900	0,0	0,0	3,900	0,0	3,900
OPERATING PERSONNEL	5	0	0	5	1,100	0,0	0,0	1,100	0,0	1,100
HEALTH PHYSICS PERSONNEL	2	0	0	2	0,200	0,0	0,0	0,200	0,0	0,200
SUPERVISORY PERSONNEL	0	0	0	0	0,0	0,0	0,0	0,0	0,0	0,0
ENGINEERING PERSONNEL	0	0	0	0	0,0	0,0	0,0	0,0	0,0	0,0
<b>TOTAL</b>	<b>21</b>	<b>0</b>	<b>0</b>	<b>21</b>	<b>5,200</b>	<b>0,0</b>	<b>0,0</b>	<b>5,200</b>	<b>0,0</b>	<b>5,200</b>
<b>* REFUELING</b>										
MAINTENANCE PERSONNEL	12	58	2	72	2,000	13,100	0,500	15,600	0,500	16,100
OPERATING PERSONNEL	17	0	0	17	5,400	0,0	0,0	5,400	0,0	5,400
HEALTH PHYSICS PERSONNEL	2	0	2	4	0,200	0,0	0,200	0,400	0,200	0,600
SUPERVISORY PERSONNEL	0	0	0	0	0,0	0,0	8,400	8,400	8,400	8,400
ENGINEERING PERSONNEL	1	3	25	29	0,100	0,600	0,0	0,700	0,0	0,700
<b>TOTAL</b>	<b>32</b>	<b>61</b>	<b>29</b>	<b>122</b>	<b>7,700</b>	<b>13,700</b>	<b>9,100</b>	<b>30,500</b>	<b>9,100</b>	<b>39,600</b>
<b>* TOTAL BY JOB FUNCTION</b>										
MAINTENANCE PERSONNEL	605	1574	150	2129	149,400	1117,900	85,100	1352,400	85,100	1437,500
OPERATING PERSONNEL	300	11	4	315	103,500	1,500	2,900	107,900	2,900	110,800
HEALTH PHYSICS PERSONNEL	96	8	87	191	32,500	1,200	35,300	69,000	35,300	104,300
SUPERVISORY PERSONNEL	0	0	0	0	0,0	0,0	8,400	8,400	8,400	8,400
ENGINEERING PERSONNEL	127	230	258	615	49,300	103,900	187,800	341,000	187,800	528,800
<b>GRAND TOTAL</b>	<b>928</b>	<b>1823</b>	<b>499</b>	<b>3250</b>	<b>334,700</b>	<b>1226,500</b>	<b>319,500</b>	<b>1880,700</b>	<b>319,500</b>	<b>2200,200</b>

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

APPENDIX C (Cont.)

PLANT: BRUNSWICK 1,2 (BWR) NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM) 1981		NUMBER OF PERSONNEL (>100 M-REM) 1981		TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT EMPLOYEES	TOTAL MAN-REMS
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT EMPLOYEES	OTHERS					
REACTOR OPERATIONS & SURV.	5	1	0	0	0	6,762	0,157	0,356	7,275
MAINTENANCE PERSONNEL	63	0	93	0	156	70,739	0,000	23,326	94,065
OPERATING PERSONNEL	17	4	21	0	42	19,061	2,650	16,029	37,740
HEALTH PHYSICS PERSONNEL	2	1	2	0	5	0,467	0,301	0,428	1,196
SUPERVISORY PERSONNEL	9	14	5	0	28	6,003	9,914	2,992	18,909
ENGINEERING PERSONNEL	96	20	122	0	238	103,032	8,022	53,151	164,205
TOTAL	187	46	253	0	486	189,354	11,044	86,252	286,650
ROUTINE MAINTENANCE	79	11	208	0	288	124,182	5,665	284,335	414,182
MAINTENANCE PERSONNEL	16	0	0	0	16	17,649	0,000	0,000	17,649
OPERATING PERSONNEL	12	2	16	0	30	13,914	1,726	13,622	28,262
HEALTH PHYSICS PERSONNEL	1	0	0	0	1	0,268	0,000	0,032	0,300
SUPERVISORY PERSONNEL	6	5	17	0	28	3,627	1,658	9,055	14,340
ENGINEERING PERSONNEL	114	13	241	0	368	159,830	9,049	307,054	475,933
TOTAL	114	13	241	0	368	159,830	9,049	307,054	475,933
IN-SERVICE INSPECTION	0	0	0	0	0	0,000	0,000	0,000	0,000
MAINTENANCE PERSONNEL	0	0	0	0	0	0,000	0,000	0,000	0,000
OPERATING PERSONNEL	0	0	0	0	0	0,000	0,000	0,000	0,000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0,000	0,000	0,000	0,000
SUPERVISORY PERSONNEL	0	0	0	0	0	0,000	0,000	0,000	0,000
ENGINEERING PERSONNEL	4	7	3	0	14	2,338	2,278	3,163	7,779
TOTAL	4	7	3	0	14	2,338	2,278	3,163	7,779
SPECIAL MAINTENANCE	110	66	777	0	953	188,044	36,049	1091,104	1325,207
MAINTENANCE PERSONNEL	16	0	0	0	16	17,649	0,000	0,000	17,649
OPERATING PERSONNEL	32	6	42	0	80	35,508	3,620	40,137	79,265
HEALTH PHYSICS PERSONNEL	3	2	3	0	8	0,930	0,277	0,834	2,041
SUPERVISORY PERSONNEL	36	34	117	0	187	22,420	11,202	61,778	95,400
ENGINEERING PERSONNEL	197	108	939	0	1244	264,551	31,344	1193,853	1559,748
TOTAL	197	108	939	0	1244	264,551	31,344	1193,853	1559,748
WASTE PROCESSING	34	4	198	0	236	57,315	1,514	270,157	329,986
MAINTENANCE PERSONNEL	41	0	0	0	41	45,614	0,000	0,000	45,614
OPERATING PERSONNEL	11	2	14	0	27	12,077	1,447	12,311	25,835
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0,281	0,028	0,032	0,341
SUPERVISORY PERSONNEL	6	7	6	0	19	3,827	2,357	3,122	9,311
ENGINEERING PERSONNEL	92	13	218	0	323	118,914	3,356	283,622	405,892
TOTAL	92	13	218	0	323	118,914	3,356	283,622	405,892
REFUELING	0	0	0	0	0	0,000	0,000	0,000	0,000
MAINTENANCE PERSONNEL	0	0	0	0	0	0,000	0,000	0,000	0,000
OPERATING PERSONNEL	0	0	0	0	0	0,000	0,000	0,000	0,000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0,000	0,000	0,000	0,000
SUPERVISORY PERSONNEL	0	0	0	0	0	0,000	0,000	0,000	0,000
ENGINEERING PERSONNEL	0	0	0	0	0	0,000	0,000	0,000	0,000
TOTAL	0	0	0	0	0	0,000	0,000	0,000	0,000
TOTAL BY JOB FUNCTION	229	82	1183	0	1493	376,303	43,381	1645,952	2065,636
MAINTENANCE PERSONNEL	136	0	93	0	229	151,451	0,000	23,326	174,777
OPERATING PERSONNEL	72	14	93	0	179	80,560	9,643	82,099	172,302
HEALTH PHYSICS PERSONNEL	6	3	5	0	14	1,946	0,606	1,326	3,878
SUPERVISORY PERSONNEL	61	67	148	0	276	38,415	22,409	80,110	140,934
ENGINEERING PERSONNEL	603	166	1522	0	2191	648,675	76,039	1832,813	2557,527
GRAND TOTAL	603	166	1522	0	2191	648,675	76,039	1832,813	2557,527

APPENDIX C (Cont.)

PLANT 1 CALVERT CLIFFS 1,2 (PWR) NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM)		TOTAL PERSONS	STATION EMPLOYEES		TOTAL MAN-REMS	UTILITIES CONTRACT & OTHERS		TOTAL MAN-REMS
	EMPLOYEES	OTHERS		EMPLOYEES	OTHERS		EMPLOYEES	OTHERS	
<b>REACTOR OPERATIONS &amp; SURV.</b>									
MAINTENANCE PERSONNEL	6	0	6	0	0.832	0.0	0.0	0.0	0.0
OPERATING PERSONNEL	43	3	46	0	15.819	0.0	0.0	0.0	0.901
HEALTH PHYSICS PERSONNEL	18	7	25	0	4.303	0.0	0.0	2.352	0.0
SUPERVISORY PERSONNEL	1	0	1	0	0.117	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0	0.0
<b>TOTAL</b>	<b>68</b>	<b>10</b>	<b>78</b>	<b>0</b>	<b>21.071</b>	<b>0.0</b>	<b>0.0</b>	<b>3.253</b>	<b>24.324</b>
<b>ROUTINE MAINTENANCE</b>									
MAINTENANCE PERSONNEL	63	7	70	50	14.681	2.505	11.062	2.993	2.993
OPERATING PERSONNEL	16	2	18	12	3.353	0.0	0.0	4.859	0.591
HEALTH PHYSICS PERSONNEL	11	0	11	3	2.328	0.0	0.0	1.315	0.0
SUPERVISORY PERSONNEL	1	0	1	0	0.327	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	2	0	2	0	0.308	0.0	0.0	0.0	0.0
<b>TOTAL</b>	<b>93</b>	<b>9</b>	<b>102</b>	<b>66</b>	<b>20.977</b>	<b>2.505</b>	<b>11.062</b>	<b>7.867</b>	<b>12.537</b>
<b>IN-SERVICE INSPECTION</b>									
MAINTENANCE PERSONNEL	4	24	28	14	1.134	6.056	3.534	0.975	0.121
OPERATING PERSONNEL	1	1	2	1	0.152	0.0	0.0	0.103	0.156
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	1	0	1	0	0.203	0.0	0.0	0.0	0.0
<b>TOTAL</b>	<b>6</b>	<b>25</b>	<b>31</b>	<b>15</b>	<b>1.589</b>	<b>6.056</b>	<b>3.534</b>	<b>1.075</b>	<b>0.277</b>
<b>SPECIAL MAINTENANCE</b>									
MAINTENANCE PERSONNEL	84	96	180	535	37.020	30.136	233.866	8.566	24.044
OPERATING PERSONNEL	28	11	39	25	12.064	4.306	8.566	2.464	4.157
HEALTH PHYSICS PERSONNEL	13	0	13	62	6.424	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	6	0	6	10	2.274	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	5	1	6	13	0.814	0.318	4.157	0.0	0.0
<b>TOTAL</b>	<b>136</b>	<b>108</b>	<b>244</b>	<b>645</b>	<b>58.616</b>	<b>34.760</b>	<b>273.097</b>	<b>10.626</b>	<b>28.204</b>
<b>WASTE PROCESSING</b>									
MAINTENANCE PERSONNEL	0	0	0	2	0.0	0.0	0.269	0.0	0.0
OPERATING PERSONNEL	2	0	2	0	0.686	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	11	14	25	30	4.470	2.372	7.758	0.0	0.0
SUPERVISORY PERSONNEL	1	0	1	0	0.317	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0	0.0
<b>TOTAL</b>	<b>14</b>	<b>14</b>	<b>28</b>	<b>32</b>	<b>5.473</b>	<b>2.372</b>	<b>8.027</b>	<b>0.0</b>	<b>0.0</b>
<b>REFUELING</b>									
MAINTENANCE PERSONNEL	35	28	63	5	15.202	14.124	0.919	0.0	0.0
OPERATING PERSONNEL	14	8	22	0	2.321	2.207	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	5	0	5	2	2.026	0.0	0.462	0.0	0.0
ENGINEERING PERSONNEL	1	0	1	6	0.106	0.0	1.112	0.0	0.0
<b>TOTAL</b>	<b>55</b>	<b>36</b>	<b>91</b>	<b>13</b>	<b>19.655</b>	<b>16.331</b>	<b>2.493</b>	<b>1.112</b>	<b>1.112</b>
<b>TOTAL BY JOB FUNCTION</b>									
MAINTENANCE PERSONNEL	192 (127)	155 (116)	347 (243)	606 (570)	953 (812)	68.869	249.650	13.435	54.613
OPERATING PERSONNEL	104 (84)	22 (17)	126 (101)	49 (47)	175 (148)	34.195	6.983	39.134	8.681
HEALTH PHYSICS PERSONNEL	53 (38)	14 (17)	67 (55)	112 (86)	179 (161)	17.525	2.372	3.620	6.509
SUPERVISORY PERSONNEL	14 (12)	0	14 (12)	16 (15)	30 (27)	5.061	0.0	0.0	0.0
ENGINEERING PERSONNEL	9 (9)	1 (2)	10 (11)	27 (30)	37 (41)	1.451	0.318	6.749	8.509
<b>GRAND TOTAL</b>	<b>372 (270)</b>	<b>192 (161)</b>	<b>564 (457)</b>	<b>810 (768)</b>	<b>1374 (1178)</b>	<b>127.101</b>	<b>312.579</b>	<b>24.435</b>	<b>70.204</b>

\*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: COOK 1.2	(PWR)	NUMBER OF PERSONNEL AND MAN-REM (>100 M-REM)		NUMBER OF PERSONNEL AND MAN-REM		STATION		TOTAL MAN-REMS		
		EMPLOYEES	UTILITY CONTRACTORS & OTHERS	EMPLOYEES	UTILITY CONTRACTORS & OTHERS	EMPLOYEES	UTILITY CONTRACTORS & OTHERS	EMPLOYEES	UTILITY CONTRACTORS & OTHERS	
<b>WORK &amp; JOB FUNCTION</b>										
REACTIONS OPERATIONS & SURV.										
MAINTENANCE PERSONNEL	84	0	5	3,830	0.0	0.0	1,855			
OPERATING PERSONNEL	69	0	2	28,385	0.0	0.150	0.0			
HEALTH PHYSICS PERSONNEL	17	0	29	2,630	0.0	0.0	6,437			
SUPERVISORY PERSONNEL	17	0	4	1,950	0.430	0.330	0.330			
ENGINEERING PERSONNEL	9	0	1	0,500	0.0	0.040	0.040			
TOTAL	196	2	71	37,295	0.430	0.430	6,812		66,537	
<b>ROUTINE MAINTENANCE</b>										
MAINTENANCE PERSONNEL	117	0	192	85,680	0.0	0.0	33,433			
OPERATING PERSONNEL	29	0	7	1,380	0.0	0.0	0,942			
HEALTH PHYSICS PERSONNEL	17	0	31	2,470	0.0	0.0	6,974			
SUPERVISORY PERSONNEL	11	1	11	2,580	0.140	0.140	2,150			
ENGINEERING PERSONNEL	7	0	2	0,470	0.0	0.0	0,980			
TOTAL	181	1	243	92,580	0.140	0.140	43,529		136,279	
<b>IN-SERVICE INSPECTION</b>										
MAINTENANCE PERSONNEL	78	0	110	16,360	0.0	0.0	15,828			
OPERATING PERSONNEL	9	0	11	1,140	0.0	0.0	3,648			
HEALTH PHYSICS PERSONNEL	11	0	27	0,630	0.0	0.0	6,840			
SUPERVISORY PERSONNEL	10	0	6	0,990	0.0	0.390	0,390			
ENGINEERING PERSONNEL	10	0	12	1,170	0.0	0.0	2,990			
TOTAL	115	0	166	20,290	0.0	0.0	29,696		49,986	
<b>SPECIAL MAINTENANCE</b>										
MAINTENANCE PERSONNEL	82	1	425	15,080	0.140	0.140	207,965			
OPERATING PERSONNEL	8	0	19	0,360	0.0	0.0	8,380			
HEALTH PHYSICS PERSONNEL	11	0	34	0,640	0.0	0.0	7,642			
SUPERVISORY PERSONNEL	9	0	24	1,650	3,980	3,980	11,182			
ENGINEERING PERSONNEL	119	1	3	0,300	0.200	0.200	0,210			
TOTAL	119	7	505	18,230	4,320	4,320	235,379		257,929	
<b>WASTE PROCESSING</b>										
MAINTENANCE PERSONNEL	50	0	142	8,140	0.0	0.0	36,321			
OPERATING PERSONNEL	26	0	10	1,390	0.0	0.0	8,244			
HEALTH PHYSICS PERSONNEL	14	0	24	2,770	0.0	0.0	1,680			
SUPERVISORY PERSONNEL	4	0	6	0,550	0.0	0.0	1,760			
ENGINEERING PERSONNEL	3	0	1	3,130	0.0	0.0	0,100			
TOTAL	97	0	183	15,980	0.0	0.0	48,105		64,085	
<b>REFUELING</b>										
MAINTENANCE PERSONNEL	59	0	92	5,380	0.0	0.0	39,577			
OPERATING PERSONNEL	12	0	2	0,770	0.0	0.0	0,410			
HEALTH PHYSICS PERSONNEL	2	0	23	0,050	0.0	0.0	3,120			
SUPERVISORY PERSONNEL	6	0	7	0,700	0.0	0.0	1,090			
ENGINEERING PERSONNEL	2	0	2	0,280	0.0	0.0	0,340			
TOTAL	81	0	126	7,120	0.0	0.0	44,537		51,657	
<b>TOTAL BY JOB FUNCTION</b>										
MAINTENANCE PERSONNEL	470 (117)	1	996 (641)	134,470	0.140	0.140	334,979		469,589	
OPERATING PERSONNEL	153 (68)	0	204 (100)	33,425	0.0	0.0	21,774		55,199	
HEALTH PHYSICS PERSONNEL	68 (18)	0	168 (84)	9,390	0.0	0.0	30,693		40,083	
SUPERVISORY PERSONNEL	58 (20)	8 (5)	58 (27)	8,420	4,550	4,550	16,902		29,872	
ENGINEERING PERSONNEL	40 (16)	1	21 (15)	5,790	0.200	0.200	3,740		9,730	
GRAND TOTAL	789 (240)	10 (7)	1,294 (650)	191,495	4,890	4,890	408,088		604,473	

\*Workers may be estimated 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)	NUMBER OF PERSONNEL (>100 M-REM) 1981				TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
		STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS					
<b>* WORK &amp; JOB FUNCTION</b>										
<b>REACTOR OPERATIONS &amp; SURV.</b>										
MAINTENANCE PERSONNEL	3	0	0	0	3	1,091	0.0	0.0	0.0	
OPERATING PERSONNEL	43	0	0	0	43	31,431	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	13	0	0	0	13	7,305	0.0	0.0	0.0	
SUPERVISORY PERSONNEL	8	2	1	1	12	5,180	0.272	0.0	0.272	
ENGINEERING PERSONNEL	19	5	0	0	24	12,663	0.382	0.0	0.382	
TOTAL	86	7	1	1	95	57,470	1,227	0.272	58,969	
<b>ROUTINE MAINTENANCE</b>										
MAINTENANCE PERSONNEL	52	0	197	0	249	79,467	0.0	0.0	76,115	
OPERATING PERSONNEL	8	0	0	0	8	0,493	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	13	0	0	0	13	5,780	0.0	0.0	0.0	
SUPERVISORY PERSONNEL	6	0	1	0	7	1,072	0.0	0.084	0.084	
ENGINEERING PERSONNEL	5	1	14	0	20	0,751	0.003	2,913	2,913	
TOTAL	84	1	212	0	297	87,563	0.003	79,112	166,678	
<b>IN-SERVICE INSPECTION</b>										
MAINTENANCE PERSONNEL	0	0	13	0	13	0.0	0.0	3,730	3,730	
OPERATING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	1	0	0	0	1	0.009	0.0	0.0	0.0	
SUPERVISORY PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	
ENGINEERING PERSONNEL	3	0	0	0	3	0,659	0.0	0.0	0.0	
TOTAL	4	0	13	0	17	0,668	0.0	3,730	4,398	
<b>SPECIAL MAINTENANCE</b>										
MAINTENANCE PERSONNEL	13	0	339	0	352	8,663	0.0	260,084	268,747	
OPERATING PERSONNEL	7	0	0	0	7	0,565	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	3	0	0	0	3	2,042	0.0	0.0	0.0	
SUPERVISORY PERSONNEL	1	6	8	0	15	0,073	4,690	4,350	8,043	
ENGINEERING PERSONNEL	2	13	19	0	34	0,799	9,789	11,705	21,494	
TOTAL	26	19	366	0	411	12,142	14,479	276,139	302,760	
<b>WASTE PROCESSING</b>										
MAINTENANCE PERSONNEL	2	0	0	0	2	0,050	0.0	0.0	0.0	
OPERATING PERSONNEL	17	0	0	0	17	3,044	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	10	0	0	0	10	1,887	0.0	0.0	0.0	
SUPERVISORY PERSONNEL	1	0	0	0	1	0,014	0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	
TOTAL	30	0	0	0	30	4,995	0.0	0.0	4,995	
<b>FUELING</b>										
MAINTENANCE PERSONNEL	1	0	0	0	1	0,579	0.0	0.0	0.0	
OPERATING PERSONNEL	33	0	0	0	33	4,509	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	12	0	0	0	12	0,830	0.0	0.0	0.0	
SUPERVISORY PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	
ENGINEERING PERSONNEL	3	0	0	0	3	0,411	0.0	0.0	0.0	
TOTAL	49	0	0	0	49	6,329	0.0	0.0	6,329	
<b>TOTAL BY JOB FUNCTION</b>										
MAINTENANCE PERSONNEL	71	(62)	0	0	620	(443)	0.0	339,929	429,779	
OPERATING PERSONNEL	104	(44)	0	0	104	(44)	0.0	0.0	40,042	
HEALTH PHYSICS PERSONNEL	56	(13)	0	0	56	(13)	0.0	0.0	17,853	
SUPERVISORY PERSONNEL	16	(9)	8	(9)	10	(9)	5,535	4,706	16,580	
ENGINEERING PERSONNEL	32	(19)	19	(31)	33	(31)	10,174	14,618	39,675	
TOTAL	279	(137)	27	(20)	898	(431)	15,709	359,253	583,929	

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

APPENDIX C (Cont.)

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

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REMS)		TOTAL MAN-REMS	
	STATION EMPLOYEES	UTILITY EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS
REACTOR OPERATIONS & SURV.	0	0	0.030	0.0
MAINTENANCE PERSONNEL	2	0	0.0	0.0
OPERATING PERSONNEL	26	3	7.770	0.0
HEALTH PHYSICS PERSONNEL	31	0	7.600	0.0
SUPERVISORY PERSONNEL	0	0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0.0	0.0
TOTAL	59	3	15.410	0.010
ROUTINE MAINTENANCE		62	0.730	0.030
MAINTENANCE PERSONNEL	61	109	65.430	120.440
OPERATING PERSONNEL	22	2	0.460	0.400
HEALTH PHYSICS PERSONNEL	9	59	0.060	34.380
SUPERVISORY PERSONNEL	8	16	0.610	7.720
ENGINEERING PERSONNEL	3	28	0.670	21.640
TOTAL	103	115	66.880	184.580
IN-SERVICE INSPECTION		607	52.740	184.580
MAINTENANCE PERSONNEL	0	10	0.050	2.500
OPERATING PERSONNEL	0	1	0.0	0.150
HEALTH PHYSICS PERSONNEL	0	1	0.0	0.380
SUPERVISORY PERSONNEL	0	1	0.010	0.440
ENGINEERING PERSONNEL	1	1	1.200	0.570
TOTAL	1	14	1.260	4.040
SPECIAL MAINTENANCE		15	0.950	5.350
MAINTENANCE PERSONNEL	0	0	0.0	0.0
OPERATING PERSONNEL	0	0	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0.0	0.0
TOTAL	0	0	0.0	0.0
MASS PROCESSING		24	0.930	11.470
MAINTENANCE PERSONNEL	0	11	0.110	7.060
OPERATING PERSONNEL	0	3	0.040	3.300
HEALTH PHYSICS PERSONNEL	1	3	0.710	0.980
SUPERVISORY PERSONNEL	0	1	0.070	0.130
ENGINEERING PERSONNEL	0	0	0.0	0.0
TOTAL	1	18	0.930	11.470
REFUELING		71	8.880	22.670
MAINTENANCE PERSONNEL	11	31	3.400	5.470
OPERATING PERSONNEL	0	0	0.400	0.170
HEALTH PHYSICS PERSONNEL	0	4	0.020	1.010
SUPERVISORY PERSONNEL	0	1	0.170	0.340
ENGINEERING PERSONNEL	0	9	0.180	2.630
TOTAL	11	31	4.170	9.620
TOTAL BY JOB FUNCTION		779	74.510	209.750
MAINTENANCE PERSONNEL	74	165	44.670	135.500
OPERATING PERSONNEL	48	5	14.060	4.020
HEALTH PHYSICS PERSONNEL	41	67	9.460	36.750
SUPERVISORY PERSONNEL	8	19	4.270	8.630
ENGINEERING PERSONNEL	4	43	2.050	24.850
GRAND TOTAL	175	154	74.510	209.750

\* 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)	NUMBER OF PERSONNEL (>100 M-REM) 1981		TOTAL PERSONS		STATION EMPLOYEES		UTILITY EMPLOYEES		CONTRACT & OTHERS		TOTAL MAN-REMS	
	STATION EMPLOYEES	UTILITY EMPLOYEES	STATION EMPLOYEES	UTILITY EMPLOYEES	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	CONTRACT & OTHERS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
<b>WORK &amp; JOB FUNCTION</b>												
<b>REACTOR OPERATIONS &amp; SURV.</b>												
MAINTENANCE PERSONNEL	7	1	5		0.075		0.025		0.050			
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			
<b>TOTAL</b>	<b>41</b>	<b>1</b>	<b>18</b>	<b>60</b>	<b>0.695</b>		<b>0.025</b>		<b>0.375</b>			<b>1.095</b>
<b>ROUTINE MAINTENANCE</b>												
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			
<b>TOTAL</b>	<b>243</b>	<b>21</b>	<b>371</b>	<b>635</b>	<b>27.620</b>		<b>0.890</b>		<b>31.690</b>			<b>60.200</b>
<b>IN-SERVICE INSPECTION</b>												
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			
<b>TOTAL</b>	<b>23</b>	<b>1</b>	<b>0</b>	<b>24</b>	<b>0.310</b>		<b>0.005</b>		<b>0.0</b>			<b>0.315</b>
<b>SPECIAL MAINTENANCE</b>												
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			
<b>TOTAL</b>	<b>111</b>	<b>11</b>	<b>195</b>	<b>317</b>	<b>7.475</b>		<b>0.670</b>		<b>14.790</b>			<b>22.935</b>
<b>WASTE PROCESSING</b>												
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			
<b>TOTAL</b>	<b>12</b>	<b>0</b>	<b>13</b>	<b>25</b>	<b>0.350</b>		<b>0.0</b>		<b>0.265</b>			<b>0.615</b>
<b>REFUELING</b>												
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			
<b>TOTAL</b>	<b>16</b>	<b>1</b>	<b>1</b>	<b>18</b>	<b>0.170</b>		<b>0.025</b>		<b>0.010</b>			<b>0.205</b>
<b>TOTAL BY JOB FUNCTION</b>												
MAINTENANCE PERSONNEL	216	29	506	751	17.970		1.075		37.650			56.695
OPERATING PERSONNEL	112	0	0	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
<b>GRAND TOTAL</b>	<b>446</b>	<b>35</b>	<b>598</b>	<b>1079</b>	<b>36.620</b>		<b>1.615</b>		<b>47.130</b>			<b>83.365</b>

\* 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)	NUMBER OF PERSONNEL (>100 M-REM) 1981				TOTAL MAN-REMS			
		STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
<b>WORK &amp; JOB FUNCTION &amp; SURV...</b>									
REACTOR OPERATIONS PERSONNEL	11	0	0	0	0	33,300	0.0	0.0	0.0
MAINTENANCE PERSONNEL	32	3	0	0	0	47,000	1,300	0.0	0.0
HEALTH PHYSICS PERSONNEL	2	4	0	0	0	4,000	0.600	0.0	0.0
SUPERVISORY PERSONNEL	5	0	0	0	0	11,700	0.0	0.0	0.0
ENGINEERING PERSONNEL	3	0	0	0	0	1,200	0.0	0.0	0.0
<b>TOTAL</b>	<b>53</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>60</b>	<b>97,200</b>	<b>1,700</b>	<b>0.0</b>	<b>98,900</b>
<b>ROUTINE MAINTENANCE</b>									
MAINTENANCE PERSONNEL	73	26	0	0	0	218,200	36,200	0.0	0.0
OPERATING PERSONNEL	14	95	0	0	0	20,900	37,300	0.0	0.0
HEALTH PHYSICS PERSONNEL	26	165	0	0	0	62,700	20,500	0.0	0.0
SUPERVISORY PERSONNEL	17	0	0	0	0	39,700	0.0	0.0	0.0
ENGINEERING PERSONNEL	53	0	669	0	0	21,500	0.0	143,900	0.0
<b>TOTAL</b>	<b>183</b>	<b>236</b>	<b>669</b>	<b>1138</b>	<b>1138</b>	<b>363,000</b>	<b>94,000</b>	<b>143,900</b>	<b>1900,900</b>
<b>IN-SERVICE INSPECTION</b>									
MAINTENANCE PERSONNEL	9	1	0	0	0	26,000	1,100	0.0	0.0
OPERATING PERSONNEL	3	3	0	0	0	4,200	1,300	0.0	0.0
HEALTH PHYSICS PERSONNEL	3	0	0	0	0	6,000	0.0	0.0	0.0
SUPERVISORY PERSONNEL	1	0	0	0	0	1,600	0.0	0.0	0.0
ENGINEERING PERSONNEL	7	0	21	0	0	2,600	0.0	43,600	0.0
<b>TOTAL</b>	<b>23</b>	<b>4</b>	<b>21</b>	<b>43</b>	<b>43</b>	<b>40,400</b>	<b>2,400</b>	<b>43,600</b>	<b>88,400</b>
<b>SPECIAL MAINTENANCE</b>									
MAINTENANCE PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
OPERATING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>WASTE PROCESSING</b>									
MAINTENANCE PERSONNEL	12	0	0	0	0	37,000	0.0	0.0	0.0
OPERATING PERSONNEL	17	5	0	0	0	24,000	2,100	0.0	0.0
HEALTH PHYSICS PERSONNEL	9	5	0	0	0	21,900	0,700	0.0	0.0
SUPERVISORY PERSONNEL	6	0	0	0	0	13,200	0.0	0.0	0.0
ENGINEERING PERSONNEL	4	0	14	0	0	1,700	0.0	30,400	0.0
<b>TOTAL</b>	<b>48</b>	<b>10</b>	<b>14</b>	<b>72</b>	<b>72</b>	<b>97,800</b>	<b>2,800</b>	<b>30,400</b>	<b>131,000</b>
<b>REFUELING</b>									
MAINTENANCE PERSONNEL	18	0	0	0	0	55,500	0.0	0.0	0.0
OPERATING PERSONNEL	6	0	0	0	0	8,400	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	2	4	0	0	0	4,000	0.400	0.0	0.0
SUPERVISORY PERSONNEL	5	0	0	0	0	11,700	0.0	0.0	0.0
ENGINEERING PERSONNEL	3	0	0	0	0	2,000	0.0	0.0	0.0
<b>TOTAL</b>	<b>36</b>	<b>4</b>	<b>0</b>	<b>40</b>	<b>40</b>	<b>82,600</b>	<b>0,400</b>	<b>0.0</b>	<b>83,000</b>
<b>TOTAL BY JOB FUNCTION</b>									
MAINTENANCE PERSONNEL	123	27	0	150	150	370,000	37,300	0.0	407,300
OPERATING PERSONNEL	72	106	0	178	178	104,500	42,000	0.0	146,500
HEALTH PHYSICS PERSONNEL	42	178	0	220	220	99,600	22,000	0.0	121,600
SUPERVISORY PERSONNEL	34	0	0	34	34	77,900	0.0	0.0	77,900
ENGINEERING PERSONNEL	72	0	704	776	776	29,000	0.0	151,900	1548,900
<b>GRAND TOTAL</b>	<b>343</b>	<b>311</b>	<b>704</b>	<b>1358</b>	<b>1358</b>	<b>681,000</b>	<b>101,300</b>	<b>151,900</b>	<b>2302,200</b>

APPENDIX C (Cont.)

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

1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM)		TOTAL MAN-REMS		STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACTORS	OTHERS	TOTAL MAN-REMS
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACTORS	OTHERS					
REACTOR OPERATIONS & SURV.									
MAINTENANCE PERSONNEL	13	12	39		0.676	1.616			2.407
OPERATING PERSONNEL	34	3	7		30.218	0.292			0.129
HEALTH PHYSICS PERSONNEL	10	0	75		2.482	0.0			15.248
SUPERVISORY PERSONNEL	13	2	18		1.395	0.511			0.511
ENGINEERING PERSONNEL	4	11	27		0.298	2.238			1.419
TOTAL	74	28	166	288	35.063	4.429			19.716
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
IN-SERVICE IMPROVEMENT									
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
SPECIAL MAINTENANCE									
MAINTENANCE PERSONNEL	23	29	358		16.283	19.122			185.939
OPERATING PERSONNEL	27	3	8		7.786	0.930			0.220
HEALTH PHYSICS PERSONNEL	1	0	28		0.010	0.0			1.353
SUPERVISORY PERSONNEL	12	2	26		2.249	0.120			2.425
ENGINEERING PERSONNEL	7	10	42		0.404	0.636			6.924
TOTAL	70	44	462	576	26.732	20.808			196.863
MANUE 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	1.663			9.570
REFUELLING									
MAINTENANCE PERSONNEL	3	4	10		0.020	0.518			0.180
OPERATING PERSONNEL	34	3	5		4.763	0.245			0.806
HEALTH PHYSICS PERSONNEL	1	0	13		0.010	0.0			0.210
SUPERVISORY PERSONNEL	5	1	3		0.670	0.020			0.655
ENGINEERING PERSONNEL	3	1	5		0.220	0.015			0.057
TOTAL	46	9	36	91	5.683	0.798			1.908
TOTAL BY JOB FUNCTION									
MAINTENANCE PERSONNEL	76 (27)	112 (51)	976 (500)	1164 (578)	37.509	44.313			511.408
OPERATING PERSONNEL	150 (48)	18 (7)	38 (16)	206 (73)	80.212	9.517			8.819
HEALTH PHYSICS PERSONNEL	29 (14)	0	231 (101)	260 (116)	10.059	0.0			47.147
SUPERVISORY PERSONNEL	72 (32)	15 (8)	179 (108)	266 (148)	7.651	1.387			13.541
ENGINEERING PERSONNEL	31 (9)	57 (23)	268 (153)	356 (186)	6.492	6.550			54.501
GRAND TOTAL	358 (130)	202 (80)	1692 (880)	2252 (1100)	141.824	61.767			639.007

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

APPENDIX C (Cont.)

PLANT: FARLEY (PHR) NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM)		TOTAL PERSONS		STATION EMPLOYEES		UTILITY CONTRACTORS & OTHERS		TOTAL MAN-REMS	
	STATION EMPLOYEES	UTILITY CONTRACTORS & OTHERS	STATION EMPLOYEES	UTILITY CONTRACTORS & OTHERS	STATION EMPLOYEES	UTILITY CONTRACTORS & OTHERS	STATION EMPLOYEES	UTILITY CONTRACTORS & OTHERS	STATION EMPLOYEES	UTILITY CONTRACTORS & OTHERS
<b>REACTOR OPERATIONS &amp; SURV.</b>										
MAINTENANCE PERSONNEL	67	2	69		2,693	0.0	0.013			
OPERATING PERSONNEL	119	6	125		27,354	0.0	0.0			
HEALTH PHYSICS PERSONNEL	59	57	116		16,227	0.0	28,497			
SUPERVISORY PERSONNEL	124	17	141		9,872	0.0	0.525			
ENGINEERING PERSONNEL	22	163	185		1,143	0.028	7,530			
<b>TOTAL</b>	<b>391</b>	<b>239</b>	<b>630</b>		<b>57,289</b>	<b>0.028</b>	<b>36,565</b>			<b>93,852</b>
<b>ROUTINE MAINTENANCE</b>										
MAINTENANCE PERSONNEL	172	11	183		23,795	0.0	0.464			
OPERATING PERSONNEL	68	0	68		23,313	0.0	0.0			
HEALTH PHYSICS PERSONNEL	11	14	25		2,044	0.0	0.385			
SUPERVISORY PERSONNEL	37	2	39		2,698	0.0	0.080			
ENGINEERING PERSONNEL	4	267	271		0,052	0.090	23,346			
<b>TOTAL</b>	<b>292</b>	<b>294</b>	<b>586</b>		<b>51,902</b>	<b>0.090</b>	<b>24,273</b>			<b>76,267</b>
<b>IN-SERVICE INSPECTION</b>										
MAINTENANCE PERSONNEL	11	0	11		0,105	0.0	0.0			
OPERATING PERSONNEL	1	0	1		0,073	0.0	0.0			
HEALTH PHYSICS PERSONNEL	0	0	0		0.0	0.0	0.0			
SUPERVISORY PERSONNEL	2	1	3		0,016	0.0	0,096			
ENGINEERING PERSONNEL	3	85	88		0,364	0.460	46,223			
<b>TOTAL</b>	<b>17</b>	<b>86</b>	<b>103</b>		<b>0,565</b>	<b>0.460</b>	<b>46,319</b>			<b>47,342</b>
<b>SPECIAL MAINTENANCE</b>										
MAINTENANCE PERSONNEL	169	12	181		80,814	0.0	2,195			
OPERATING PERSONNEL	43	0	43		3,841	0.0	0.0			
HEALTH PHYSICS PERSONNEL	15	18	33		1,530	0.0	2,593			
SUPERVISORY PERSONNEL	39	3	42		5,498	0.0	0,107			
ENGINEERING PERSONNEL	9	560	569		0,561	0.218	135,559			
<b>TOTAL</b>	<b>275</b>	<b>593</b>	<b>868</b>		<b>92,244</b>	<b>0.218</b>	<b>140,454</b>			<b>232,916</b>
<b>WASTE PROCESSING</b>										
MAINTENANCE PERSONNEL	6	0	6		0,274	0.0	0.0			
OPERATING PERSONNEL	13	0	13		0,437	0.0	0.0			
HEALTH PHYSICS PERSONNEL	5	7	12		2,516	0.0	1,933			
SUPERVISORY PERSONNEL	6	0	6		1,117	0.0	0.0			
ENGINEERING PERSONNEL	0	5	5		0.0	0.0	0,079			
<b>TOTAL</b>	<b>30</b>	<b>12</b>	<b>42</b>		<b>4,344</b>	<b>0.0</b>	<b>2,012</b>			<b>6,356</b>
<b>REFUELING</b>										
MAINTENANCE PERSONNEL	106	4	110		22,830	0.0	0,300			
OPERATING PERSONNEL	36	0	36		2,455	0.0	0.0			
HEALTH PHYSICS PERSONNEL	6	9	15		0,236	0.0	0,486			
SUPERVISORY PERSONNEL	28	1	29		2,553	0.0	0,039			
ENGINEERING PERSONNEL	11	43	54		0,222	0.0	12,344			
<b>TOTAL</b>	<b>187</b>	<b>57</b>	<b>244</b>		<b>28,296</b>	<b>0.0</b>	<b>13,169</b>			<b>41,465</b>
<b>TOTAL BY JOB FUNCTION</b>										
MAINTENANCE PERSONNEL	531	29	560		130,514	0.0	2,972			133,486
OPERATING PERSONNEL	280	0	280		57,473	0.0	0.0			57,473
HEALTH PHYSICS PERSONNEL	96	105	201		22,553	0.0	33,894			56,447
SUPERVISORY PERSONNEL	236	24	260		21,754	0.0	0,847			22,601
ENGINEERING PERSONNEL	49	1123	1172		2,344	0.796	225,081			228,221
<b>GRAND TOTAL</b>	<b>1192</b>	<b>1281</b>	<b>2473</b>		<b>235,638</b>	<b>0.796</b>	<b>262,794</b>			<b>498,228</b>

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

APPENDIX C (Cont.)

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

PLANT: FITZPATRICK	(BWR)	NUMBER OF PERSONNEL (>100 M-REM) 1981				TOTAL MAN-REMS			
		STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
<b>* WORK &amp; JOB FUNCTION &amp; SURV.</b>									
REACTOR OPERATIONS PERSONNEL	88	0	142	0	142	14,000	0.0	27,000	0.0
MAINTENANCE PERSONNEL	183	0	23	0	23	62,000	0.0	2,000	0.0
OPERATING PERSONNEL	25	0	73	0	73	10,000	0.0	59,000	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	34	0	35	0	35	5,000	0.0	2,000	0.0
ENGINEERING PERSONNEL	330	0	273	0	603	89,000	0.0	90,000	179,000
<b>TOTAL</b>									
<b>* ROUTINE MAINTENANCE</b>									
MAINTENANCE PERSONNEL	89	0	707	0	796	134,000	0.0	238,000	0.0
OPERATING PERSONNEL	74	0	13	0	87	11,000	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	6	0	3	0	9	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	30	0	123	0	153	5,000	0.0	20,000	0.0
<b>TOTAL</b>	199	0	846	0	1045	150,000	0.0	260,000	410,000
<b>* IN-SERVICE INSPECTION</b>									
MAINTENANCE PERSONNEL	43	0	206	0	249	6,000	0.0	26,000	0.0
OPERATING PERSONNEL	49	0	15	0	64	8,000	0.0	10,000	0.0
HEALTH PHYSICS PERSONNEL	0	0	4	0	4	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	24	0	77	0	101	3,000	0.0	13,000	0.0
<b>TOTAL</b>	116	0	302	0	418	17,000	0.0	49,000	66,000
<b>* SPECIAL MAINTENANCE</b>									
MAINTENANCE PERSONNEL	69	0	954	0	1023	12,000	0.0	509,000	0.0
OPERATING PERSONNEL	51	0	46	0	97	2,000	0.0	12,000	0.0
HEALTH PHYSICS PERSONNEL	6	0	2	0	8	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	23	0	110	0	133	2,000	0.0	35,000	0.0
<b>TOTAL</b>	149	0	1112	0	1261	16,000	0.0	556,000	572,000
<b>* WASTE PROCESSING</b>									
MAINTENANCE PERSONNEL	104	0	299	0	403	19,000	0.0	40,000	0.0
OPERATING PERSONNEL	61	0	12	0	73	45,000	0.0	6,000	0.0
HEALTH PHYSICS PERSONNEL	10	0	6	0	16	1,000	0.0	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	9	0	52	0	61	1,000	0.0	25,000	0.0
<b>TOTAL</b>	184	0	369	0	553	66,000	0.0	71,000	137,000
<b>* REFUELING</b>									
MAINTENANCE PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
OPERATING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
<b>TOTAL</b>	0	0	0	0	0	0.0	0.0	0.0	0.0
<b>* TOTAL BY JOB FUNCTION</b>									
MAINTENANCE PERSONNEL	393	0	2308	0	2701	185,000	0.0	860,000	1025,000
OPERATING PERSONNEL	418	0	109	0	527	128,000	0.0	32,000	160,000
HEALTH PHYSICS PERSONNEL	47	0	88	0	135	11,000	0.0	59,000	70,000
SUPERVISORY PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	120	0	397	0	517	14,000	0.0	95,000	109,000
<b>GRAND TOTAL</b>	978	0	2902	0	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)	NUMBER OF PERSONNEL (>100 M-REM) 1981				TOTAL MAN-REMS			
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
<b>WORK &amp; JOB FUNCTION</b>								
<b>REACTOR OPERATIONS &amp; SURV.</b>								
MAINTENANCE PERSONNEL	9	1	11	21	3,401	1,506	7,873	12,780
OPERATING PERSONNEL	9	8	12	29	3,222	6,130	7,706	17,058
HEALTH PHYSICS PERSONNEL	1	1	0	2	0.563	0.191	0.0	0.754
SUPERVISORY PERSONNEL	19	0	0	19	6,928	0.0	0.0	6,928
ENGINEERING PERSONNEL	10	1	23	34	5,266	0.287	16,644	22,197
<b>TOTAL</b>	<b>48</b>	<b>11</b>	<b>46</b>	<b>105</b>	<b>19,380</b>	<b>8,114</b>	<b>32,423</b>	<b>59,917</b>
<b>ROUTINE MAINTENANCE</b>								
MAINTENANCE PERSONNEL	44	45	48	137	24,845	26,970	25,809	77,624
OPERATING PERSONNEL	2	2	10	14	1,338	0.968	7,100	9,406
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.040	0.005	0.0	0.045
SUPERVISORY PERSONNEL	1	0	0	1	0.251	0.0	0.0	0.251
ENGINEERING PERSONNEL	0	0	0	0	0.070	0.010	0.108	0.188
<b>TOTAL</b>	<b>47</b>	<b>47</b>	<b>58</b>	<b>152</b>	<b>26,544</b>	<b>27,953</b>	<b>33,017</b>	<b>87,514</b>
<b>IN-SERVICE INSPECTION</b>								
MAINTENANCE PERSONNEL	2	1	18	21	1,660	0.420	11,043	13,123
OPERATING PERSONNEL	1	2	7	10	0.0	0.284	0.202	0.486
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.0	0.015	0.0	0.015
SUPERVISORY PERSONNEL	0	0	0	0	0.023	0.0	0.0	0.023
ENGINEERING PERSONNEL	0	1	1	2	0.036	0.0	0.145	0.181
<b>TOTAL</b>	<b>3</b>	<b>3</b>	<b>26</b>	<b>32</b>	<b>1,519</b>	<b>0.719</b>	<b>11,390</b>	<b>13,628</b>
<b>SPECIAL MAINTENANCE</b>								
MAINTENANCE PERSONNEL	37	51	168	256	19,216	28,964	134,940	183,120
OPERATING PERSONNEL	5	13	20	38	1,844	6,606	7,053	15,503
HEALTH PHYSICS PERSONNEL	1	0	0	1	0.170	0.022	0.007	0.199
SUPERVISORY PERSONNEL	0	0	0	0	0.317	0.0	0.0	0.317
ENGINEERING PERSONNEL	4	1	4	9	1,257	0.130	2,258	3,645
<b>TOTAL</b>	<b>47</b>	<b>65</b>	<b>192</b>	<b>304</b>	<b>22,804</b>	<b>35,722</b>	<b>144,258</b>	<b>202,784</b>
<b>WASTE PROCESSING</b>								
MAINTENANCE PERSONNEL	20	10	0	30	5,947	2,357	0.080	8,384
OPERATING PERSONNEL	0	0	0	0	0.0	0.046	0.0	0.046
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.060	0.010	0.0	0.070
SUPERVISORY PERSONNEL	0	0	0	0	0.514	0.0	0.0	0.514
ENGINEERING PERSONNEL	2	0	1	3	2,789	0.0	0.147	2,936
<b>TOTAL</b>	<b>22</b>	<b>10</b>	<b>1</b>	<b>33</b>	<b>9,310</b>	<b>2,413</b>	<b>0,227</b>	<b>11,950</b>
<b>REFUELING</b>								
MAINTENANCE PERSONNEL	24	36	42	102	13,963	22,987	22,887	59,837
OPERATING PERSONNEL	4	1	8	13	2,072	0.689	4,337	7,098
HEALTH PHYSICS PERSONNEL	8	0	0	8	1,521	0.002	0.0	1,523
SUPERVISORY PERSONNEL	14	0	0	14	3,273	0.0	0.0	3,273
ENGINEERING PERSONNEL	0	0	0	0	0.070	0.0	0.100	0.170
<b>TOTAL</b>	<b>50</b>	<b>37</b>	<b>50</b>	<b>137</b>	<b>20,899</b>	<b>23,678</b>	<b>27,324</b>	<b>71,901</b>
<b>TOTAL BY JOB FUNCTION</b>								
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
<b>GRAND TOTAL</b>	<b>217 (100)</b>	<b>173 (83)</b>	<b>373 (263)</b>	<b>763 (448)</b>	<b>100,456</b>	<b>98,599</b>	<b>248,639</b>	<b>447,694</b>

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

APPENDIX C (Cont.)

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

PLANT: GINNA	(PWR)	NUMBER OF PERSONNEL (>100 M-REM) 1981				TOTAL PERSONS	STATION EMPLOYEES	TOTAL MAN-REMS		TOTAL MAN-REMS
		STATION EMPLOYEES	UTILITY CONTRACT & OTHERS	UTILITY CONTRACT & OTHERS	UTILITY CONTRACT & OTHERS					
<b>WORK &amp; JOB FUNCTION</b>										
REACTOR OPERATIONS & SURV.	121	34	130			7,276	3,146	5,579	5,579	
MAINTENANCE PERSONNEL	0	26	1			0.0	12,023	0.360	0.360	
OPERATING PERSONNEL	28	13	1			4,952	5,950	0.061	0.061	
HEALTH PHYSICS PERSONNEL	31	15	10			1,813	3,398	0.256	0.256	
SUPERVISORY PERSONNEL	33	2	11			0.736	0.290	0.290	0.290	
ENGINEERING PERSONNEL	213	90	153		456	14,777	24,722	6,546	6,546	46,045
<b>TOTAL</b>										
<b>ROUTINE MAINTENANCE</b>										
MAINTENANCE PERSONNEL	196	33	180			79,026	22,363	142,907	142,907	
OPERATING PERSONNEL	0	16	0			0.0	1,045	0.0	0.0	
HEALTH PHYSICS PERSONNEL	29	13	1			12,658	7,237	0.065	0.065	
SUPERVISORY PERSONNEL	33	12	13			7,385	3,382	5.783	5.783	
ENGINEERING PERSONNEL	58	2	10			32,118	0.119	8.249	8.249	
<b>TOTAL</b>	316	76	204		596	134,187	34,146	157,004	157,004	325,337
<b>IN-SERVICE INSPECTION</b>										
MAINTENANCE PERSONNEL	39	16	96			3,508	1,405	21,816	21,816	
OPERATING PERSONNEL	0	1	0			0.0	0.005	0.0	0.0	
HEALTH PHYSICS PERSONNEL	18	12	0			1,230	1,172	0.0	0.0	
SUPERVISORY PERSONNEL	9	9	9			1,226	0.756	1.782	1.782	
ENGINEERING PERSONNEL	27	1	2			7,058	0.013	0.565	0.565	
<b>TOTAL</b>	93	39	107		239	13,022	3,351	24,163	24,163	40,536
<b>SPECIAL MAINTENANCE</b>										
MAINTENANCE PERSONNEL	176	34	153			87,829	6,578	39,076	39,076	
OPERATING PERSONNEL	0	10	0			0.0	0.399	0.0	0.0	
HEALTH PHYSICS PERSONNEL	29	11	0			8,511	2,007	0.0	0.0	
SUPERVISORY PERSONNEL	32	13	10			7,365	1,148	0.857	0.857	
ENGINEERING PERSONNEL	38	2	7			6,359	0.004	0.859	0.859	
<b>TOTAL</b>	275	70	170		515	110,064	10,136	40,792	40,792	160,992
<b>WASTE PROCESSING</b>										
MAINTENANCE PERSONNEL	25	21	21			2,519	1,248	0.227	0.227	
OPERATING PERSONNEL	0	10	0			0.0	0.104	0.0	0.0	
HEALTH PHYSICS PERSONNEL	10	6	0			0.722	0.690	0.0	0.0	
SUPERVISORY PERSONNEL	2	5	0			0.118	0.017	0.0	0.0	
ENGINEERING PERSONNEL	3	0	3			0.007	0.0	0.0	0.0	
<b>TOTAL</b>	40	44	24		108	3,366	2,259	0.227	0.227	5,352
<b>REFUELING</b>										
MAINTENANCE PERSONNEL	22	19	36			2,715	0,830	5,438	5,438	
OPERATING PERSONNEL	0	4	0			0.0	2,363	0.0	0.0	
HEALTH PHYSICS PERSONNEL	23	4	0			3,497	0,030	0.0	0.0	
SUPERVISORY PERSONNEL	5	5	3			1,513	0,175	0,915	0,915	
ENGINEERING PERSONNEL	20	1	1			17,279	0.0	0,090	0,090	
<b>TOTAL</b>	70	32	40		142	25,004	3,398	6,443	6,443	34,845
<b>TOTAL BY JOB FUNCTION</b>										
MAINTENANCE PERSONNEL	579 (214)	157 (34)	616 (185)		1352 (433)	182,873	55,570	215,043	215,043	433,486
OPERATING PERSONNEL	0	67 (26)	1		68 (27)	0.0	15,939	0.360	0.360	16,299
HEALTH PHYSICS PERSONNEL	137 (29)	61 (13)	2 (11)		200 (43)	31,570	17,286	0.126	0.126	48,982
SUPERVISORY PERSONNEL	112 (35)	59 (15)	45 (13)		216 (63)	19,420	8,876	9,593	9,593	37,889
ENGINEERING PERSONNEL	179 (82)	7 (12)	34 (11)		220 (75)	66,557	0,341	10,053	10,053	76,951
<b>GRAND TOTAL</b>	1007 (340)	351 (90)	698 (211)		2056 (641)	300,420	78,012	235,175	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) NUMBER OF PERSONNEL (>100 M-REM) 1981

WORK & JOB FUNCTION	STATION EMPLOYEES		UTILITY EMPLOYEES		CONTRACT & OTHERS		TOTAL PERSONS	STATION EMPLOYEES		UTILITY EMPLOYEES		CONTRACT & OTHERS		TOTAL MAN-REMS
	EMPLOYEES	CONTRACT & OTHERS	EMPLOYEES	CONTRACT & OTHERS	EMPLOYEES	CONTRACT & OTHERS		EMPLOYEES	CONTRACT & OTHERS	EMPLOYEES	CONTRACT & OTHERS	EMPLOYEES	CONTRACT & OTHERS	
<b>REACTOR OPERATIONS &amp; SURV.</b>														
MAINTENANCE PERSONNEL	2	0	0	0	0	0	2	0	0	0	0	0	0	0.330
OPERATING PERSONNEL	44	57	2	0	49	140	91	49	140	0	0	13	940	0.560
HEALTH PHYSICS PERSONNEL	24	114	3	0	12	230	137	12	230	1	0	99	650	1.750
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0.010
ENGINEERING PERSONNEL	3	0	1	0	0	980	984	0	0	0	0	0	0	0.090
<b>TOTAL</b>	<b>73</b>	<b>171</b>	<b>6</b>	<b>0</b>	<b>63</b>	<b>170</b>	<b>250</b>	<b>63</b>	<b>170</b>	<b>3</b>	<b>170</b>	<b>113</b>	<b>810</b>	<b>180.150</b>
<b>ROUTINE MAINTENANCE</b>														
MAINTENANCE PERSONNEL	48	221	11	0	66	170	221	66	170	5	610	211	280	5.610
OPERATING PERSONNEL	10	10	0	0	4	460	470	4	460	0	290	7	650	0.290
HEALTH PHYSICS PERSONNEL	15	114	1	0	7	540	610	7	540	0	170	72	990	0.170
SUPERVISORY PERSONNEL	0	0	1	0	0	0	1	0	0	0	0	0	0	0.320
ENGINEERING PERSONNEL	8	24	5	0	2	680	711	2	680	2	570	38	540	0.270
<b>TOTAL</b>	<b>81</b>	<b>374</b>	<b>18</b>	<b>0</b>	<b>80</b>	<b>850</b>	<b>473</b>	<b>80</b>	<b>850</b>	<b>8</b>	<b>960</b>	<b>334</b>	<b>600</b>	<b>424.410</b>
<b>IN-SERVICE INSPECTION</b>														
MAINTENANCE PERSONNEL	3	41	0	0	2	060	44	2	060	0	040	29	470	0.040
OPERATING PERSONNEL	6	4	0	0	2	140	146	2	140	0	060	2	180	0.060
HEALTH PHYSICS PERSONNEL	0	1	0	0	0	100	101	0	100	0	0	0	420	0.420
SUPERVISORY PERSONNEL	0	1	0	0	0	0	1	0	0	0	0	0	380	0.380
ENGINEERING PERSONNEL	3	3	3	0	2	350	359	2	350	2	240	0	980	0.980
<b>TOTAL</b>	<b>12</b>	<b>50</b>	<b>3</b>	<b>0</b>	<b>6</b>	<b>650</b>	<b>65</b>	<b>6</b>	<b>650</b>	<b>2</b>	<b>370</b>	<b>33</b>	<b>430</b>	<b>42.450</b>
<b>SPECIAL MAINTENANCE</b>														
MAINTENANCE PERSONNEL	20	186	10	0	6	910	926	6	910	9	400	159	190	9.400
OPERATING PERSONNEL	1	1	7	0	0	510	518	0	510	2	700	0	610	0.610
HEALTH PHYSICS PERSONNEL	2	23	1	0	0	890	893	0	890	1	330	8	530	0.530
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0	0	0	0	0	0	100	0.100
ENGINEERING PERSONNEL	1	9	10	0	0	600	619	0	600	3	440	7	420	7.420
<b>TOTAL</b>	<b>24</b>	<b>219</b>	<b>28</b>	<b>0</b>	<b>8</b>	<b>870</b>	<b>271</b>	<b>8</b>	<b>870</b>	<b>16</b>	<b>890</b>	<b>175</b>	<b>850</b>	<b>201.450</b>
<b>WASTE PROCESSING</b>														
MAINTENANCE PERSONNEL	0	0	0	0	0	490	490	0	490	0	0	0	020	0.020
OPERATING PERSONNEL	3	0	0	0	1	440	443	1	440	0	0	0	060	0.060
HEALTH PHYSICS PERSONNEL	14	95	1	0	26	700	720	26	700	0	210	46	220	46.220
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0.000
ENGINEERING PERSONNEL	0	0	0	0	0	0	0	0	0	0	0	0	010	0.010
<b>TOTAL</b>	<b>17</b>	<b>95</b>	<b>1</b>	<b>0</b>	<b>28</b>	<b>630</b>	<b>113</b>	<b>28</b>	<b>630</b>	<b>0</b>	<b>210</b>	<b>46</b>	<b>310</b>	<b>75.150</b>
<b>REFUELING</b>														
MAINTENANCE PERSONNEL	23	105	1	0	10	940	1084	10	940	0	420	110	240	110.240
OPERATING PERSONNEL	4	8	0	0	1	160	168	1	160	0	070	3	960	3.960
HEALTH PHYSICS PERSONNEL	5	40	1	0	1	810	816	1	810	0	600	16	890	16.890
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0	0	0	0	010	0	0	0.010
ENGINEERING PERSONNEL	0	4	1	0	0	350	355	0	350	0	290	3	000	3.000
<b>TOTAL</b>	<b>32</b>	<b>157</b>	<b>3</b>	<b>0</b>	<b>14</b>	<b>260</b>	<b>192</b>	<b>14</b>	<b>260</b>	<b>1</b>	<b>390</b>	<b>134</b>	<b>090</b>	<b>149.740</b>
<b>TOTAL BY JOB FUNCTION</b>														
MAINTENANCE PERSONNEL	96	553	22	0	87	390	671	87	390	15	550	510	530	613.470
OPERATING PERSONNEL	68	80	9	0	58	850	907	58	850	3	680	28	400	90.930
HEALTH PHYSICS PERSONNEL	60	387	7	0	49	270	454	49	270	4	080	244	500	297.650
SUPERVISORY PERSONNEL	0	6	1	0	0	0	7	0	0	0	370	4	620	4.990
ENGINEERING PERSONNEL	15	60	20	0	6	760	795	6	760	9	310	50	940	66.110
<b>GRAND TOTAL</b>	<b>239</b>	<b>1066</b>	<b>59</b>	<b>0</b>	<b>202</b>	<b>270</b>	<b>1364</b>	<b>202</b>	<b>270</b>	<b>32</b>	<b>990</b>	<b>838</b>	<b>090</b>	<b>1073.350</b>

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



APPENDIX C (Cont.)

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

PLANT: MATCH 12	(BWR)	NUMBER OF PERSONNEL (>100 M-REM)		1981		STATION EMPLOYERS	TOTAL PERSONS	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS	UTILITY CONTRACTORS	OTHERS	TOTAL MAN-REMS
		STATION EMPLOYERS	UTILITY EMPLOYEES	CONTRACT & OTHERS	UTILITY CONTRACTORS								
<b>* WORK &amp; JOB FUNCTION</b>													
REACTOR OPERATIONS & SURV.	15	2	14	7,000	1,000	2,000							
MAINTENANCE PERSONNEL	114	5	0	77,000	3,000	0.0							
OPERATING PERSONNEL	31	1	82	17,000	0.0	42,000							
HEALTH PHYSICS PERSONNEL	57	14	3	16,000	5,000	0.0							
SUPERVISORY PERSONNEL	44	7	10	12,000	2,000	2,000							
ENGINEERING PERSONNEL	237	29	109	129,000	11,000	46,000							
TOTAL							395						184,000
<b>* ROUTINE MAINTENANCE</b>													
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	140,000	2,000	45,000							187,000
<b>* IN-SERVICE INSPECTION</b>													
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	1	0	2	0.0	0.0	0.0							
ENGINEERING PERSONNEL	9	0	4	1,000	0.0	0.0							
TOTAL							13						1,000
<b>* SPECIAL MAINTENANCE</b>													
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	19	3	26	1,000	1,000	6,000							
ENGINEERING PERSONNEL	269	31	94	8,000	4,000	29,000							
TOTAL							1393						608,000
<b>* WASTE PROCESSING</b>													
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	4	0	2	0.0	0.0	1,000							
ENGINEERING PERSONNEL	49	0	3	1,000	0.0	0.0							
TOTAL							106						27,000
<b>* REFUELING</b>													
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	4	0	5	0.0	0.0	0.0							
ENGINEERING PERSONNEL	117	1	90	1,000	0.0	1,000							
TOTAL							211						67,000
<b>* TOTAL BY JOB FUNCTION</b>													
MAINTENANCE PERSONNEL	410 (201)	27 (22)	1199 (919)	240,000	9,000	603,000							852,000
OPERATING PERSONNEL	338 (168)	10 (6)	4 (3)	169,000	4,000	0.0							173,000
HEALTH PHYSICS PERSONNEL	59 (37)	2 (1)	235 (121)	27,000	0.0	93,000							120,000
SUPERVISORY PERSONNEL	61 (60)	19 (18)	33 (34)	18,000	6,000	7,000							31,000
ENGINEERING PERSONNEL	83 (70)	17 (14)	119 (111)	27,000	6,000	33,000							66,000
GRAND TOTAL	951 (636)	75 (61)	1590 (1188)	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			
<b>TOTAL</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>1.9</b>	<b>0.0</b>	<b>0.0</b>	<b>1.9</b>
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			
<b>TOTAL</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>1.5</b>	<b>0.0</b>	<b>0.0</b>	<b>1.5</b>
In-Service Inspection								
Maintenance Personnel								
Operating Personnel								
Health Physics Personnel								
Supervisory Personnel								
Engineering Personnel								
<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
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	
<b>TOTAL</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>4</b>	<b>0.2</b>	<b>0.0</b>	<b>1.1</b>	<b>1.3</b>
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		
<b>TOTAL</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0.2</b>	<b>0.1</b>	<b>0.0</b>	<b>0.3</b>
Refueling								
Maintenance Personnel								
Operating Personnel								
Health Physics Personnel								
Supervisory Personnel								
Engineering Personnel								
<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Total By Job Function</b>								
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
<b>GRAND TOTAL</b>	<b>16</b>	<b>1</b>	<b>3</b>	<b>20</b>	<b>3.8</b>	<b>0.1</b>	<b>1.1</b>	<b>5.0</b>

APPENDIX C (Cont.)

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

PLANT: INDIAN POINT 1,2 (PWR)	NUMBER OF PERSONNEL (>100 M-REM) 1981		TOTAL		TOTAL MAN-REMS		
	STATION EMPLOYEES	UTILITY EMPLOYEES	PERSONS	EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	MAN-REMS
WORK & JOB FUNCTION							
REACTOR OPERATIONS & SURV.							
MAINTENANCE PERSONNEL	38	0	0	5,200	0.0	0.0	0.0
OPERATING PERSONNEL	91	0	0	171,600	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	8	0	7	2,800	0.0	16,400	16,400
SUPERVISORY PERSONNEL	42	0	1	24,700	0.0	0.900	0.900
ENGINEERING PERSONNEL	7	16	1	4,800	1,700	0.500	0.500
TOTAL	186	16	9	209,100	1,700	17,800	228,600
ROUTINE MAINTENANCE							
MAINTENANCE PERSONNEL	34	14	67	94,200	11,800	62,500	62,500
OPERATING PERSONNEL	12	0	0	9,700	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	8	0	19	1,800	0.0	11,200	11,200
SUPERVISORY PERSONNEL	12	4	0	31,500	7,500	0.0	0.0
ENGINEERING PERSONNEL	2	12	0	2,800	1,800	0.0	0.0
TOTAL	68	30	86	139,800	21,100	73,700	234,600
IN-SERVICE INSPECTION							
MAINTENANCE PERSONNEL	0	0	38	0.0	0.0	10,200	10,200
OPERATING PERSONNEL	0	0	0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	1	0	2	0,300	0.0	2,900	2,900
SUPERVISORY PERSONNEL	4	0	5	3,100	0.0	2,100	2,100
ENGINEERING PERSONNEL	0	1	0	0.0	0.300	0.0	0.0
TOTAL	5	1	65	3,400	0,300	15,200	18,900
SPECIAL MAINTENANCE							
MAINTENANCE PERSONNEL	0	302	1084	0.0	495,800	1111,600	1111,600
OPERATING PERSONNEL	15	0	0	12,500	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	6	0	113	17,200	0.0	105,800	105,800
SUPERVISORY PERSONNEL	4	41	37	1,400	56,800	44,200	44,200
ENGINEERING PERSONNEL	6	8	10	3,200	1,600	1,800	1,800
TOTAL	31	351	1244	34,300	554,000	1263,400	1851,700
WASTE PROCESSING							
MAINTENANCE PERSONNEL	28	0	74	16,400	0.0	125,100	125,100
OPERATING PERSONNEL	5	0	8	4,700	0.0	6,100	6,100
HEALTH PHYSICS PERSONNEL	5	0	8	2,800	0.0	6,400	6,400
SUPERVISORY PERSONNEL	4	0	8	6,800	0.0	14,200	14,200
ENGINEERING PERSONNEL	0	0	0	0.0	0.0	0.0	0.0
TOTAL	42	0	98	30,700	0.0	151,800	182,500
REFUELING							
MAINTENANCE PERSONNEL	14	34	14	21,600	40,900	12,300	12,300
OPERATING PERSONNEL	27	0	0	22,800	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	1	0	5	0,600	0.0	3,200	3,200
SUPERVISORY PERSONNEL	11	4	0	8,800	6,200	0.0	0.0
ENGINEERING PERSONNEL	0	1	1	0.0	0.300	0.200	0.200
TOTAL	53	39	20	53,800	47,400	15,700	116,700
TOTAL BY JOB FUNCTION							
MAINTENANCE PERSONNEL	114	350	1741	137,400	548,500	1321,700	2007,600
OPERATING PERSONNEL	150	0	158	221,300	0.0	6,100	227,600
HEALTH PHYSICS PERSONNEL	29	0	183	25,100	0.0	145,900	171,000
SUPERVISORY PERSONNEL	77	49	177	76,300	70,500	61,400	208,200
ENGINEERING PERSONNEL	15	38	65	10,800	5,500	2,500	18,800
GRAND TOTAL	385	437	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	(EMR)	NUMBER OF PERSONNEL (>100 M-REM) 1981		TOTAL PERSONS		STATION EMPLOYEES		UTILITY CONTRACTORS & OTHERS		TOTAL MAN-REMS	
		EMPLOYEES	UTILITY CONTRACTORS & OTHERS	EMPLOYEES	UTILITY CONTRACTORS & OTHERS	EMPLOYEES	UTILITY CONTRACTORS & OTHERS	EMPLOYEES	UTILITY CONTRACTORS & OTHERS	EMPLOYEES	UTILITY CONTRACTORS & OTHERS
<b>WORK &amp; JOB FUNCTION</b>											
<b>REACTOR OPERATIONS &amp; SURV.</b>											
MAINTENANCE PERSONNEL	1	0	0	0	0	1,240	0.0	0.0	0.0	0.570	
OPERATING PERSONNEL	29	1	2	2	2	17,790	0.300	0.300	0.0	1.510	
HEALTH PHYSICS PERSONNEL	18	1	28	29	28	9,150	0.570	0.570	0.0	14.610	
SUPERVISORY PERSONNEL	10	0	0	0	0	3,850	0.0	0.0	0.0	0.120	
ENGINEERING PERSONNEL	4	0	0	0	0	1,500	0.0	0.0	0.0	0.300	
<b>TOTAL</b>	<b>62</b>	<b>2</b>	<b>30</b>	<b>32</b>	<b>30</b>	<b>33,430</b>	<b>0.880</b>	<b>0.880</b>	<b>0.0</b>	<b>17.110</b>	<b>51.420</b>
<b>ROUTINE MAINTENANCE</b>											
MAINTENANCE PERSONNEL	23	0	42	42	42	7,160	0.010	0.010	0.0	21.660	
OPERATING PERSONNEL	4	0	0	0	0	1,670	0.010	0.010	0.0	0.820	
HEALTH PHYSICS PERSONNEL	0	0	1	1	1	0,010	0.020	0.020	0.0	0.350	
SUPERVISORY PERSONNEL	0	0	0	0	0	0,220	0.010	0.010	0.0	0.040	
ENGINEERING PERSONNEL	0	0	0	0	0	0,090	0.020	0.020	0.0	0.230	
<b>TOTAL</b>	<b>27</b>	<b>0</b>	<b>43</b>	<b>43</b>	<b>43</b>	<b>9,150</b>	<b>0.070</b>	<b>0.070</b>	<b>0.0</b>	<b>23.100</b>	<b>32.320</b>
<b>IN-SERVICE INSPECTION</b>											
MAINTENANCE PERSONNEL	4	0	1	1	1	1,470	0.010	0.010	0.0	0.260	
OPERATING PERSONNEL	0	0	0	0	0	0,050	0.060	0.060	0.0	0.040	
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0,050	0.010	0.010	0.0	0.060	
SUPERVISORY PERSONNEL	0	1	0	1	0	0,250	0.180	0.180	0.0	0.250	
ENGINEERING PERSONNEL	3	0	5	5	5	0,950	0.320	0.320	0.0	2.630	
<b>TOTAL</b>	<b>7</b>	<b>1</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>2,750</b>	<b>0.580</b>	<b>0.580</b>	<b>0.0</b>	<b>3.440</b>	<b>6.770</b>
<b>SPECIAL MAINTENANCE</b>											
MAINTENANCE PERSONNEL	69	0	214	214	214	47,400	0.0	0.0	0.0	200.950	
OPERATING PERSONNEL	18	1	1	1	1	5,050	0.160	0.160	0.0	0.330	
HEALTH PHYSICS PERSONNEL	11	0	34	34	34	11,760	0.020	0.020	0.0	17.960	
SUPERVISORY PERSONNEL	5	0	10	10	10	5,530	0.200	0.200	0.0	10.540	
ENGINEERING PERSONNEL	114	2	266	266	266	71,970	0.310	0.310	0.0	5.130	
<b>TOTAL</b>	<b>114</b>	<b>2</b>	<b>266</b>	<b>266</b>	<b>266</b>	<b>71,970</b>	<b>0.690</b>	<b>0.690</b>	<b>0.0</b>	<b>234.910</b>	<b>307.570</b>
<b>WASTE PROCESSING</b>											
MAINTENANCE PERSONNEL	0	0	2	2	2	0,360	0.0	0.0	0.0	4.800	
OPERATING PERSONNEL	0	0	0	0	0	0,040	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	2	0	1	1	1	0,610	0.0	0.0	0.0	0.380	
SUPERVISORY PERSONNEL	0	0	0	0	0	0,0	0.0	0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0	0	0	0,050	0.0	0.0	0.0	0.080	
<b>TOTAL</b>	<b>2</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>1,060</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>5.260</b>	<b>6.320</b>
<b>REFUELING</b>											
MAINTENANCE PERSONNEL	2	0	0	0	0	0,500	0.0	0.0	0.0	0.0	
OPERATING PERSONNEL	0	0	0	0	0	0,020	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0,0	0.0	0.0	0.0	0.0	
SUPERVISORY PERSONNEL	0	0	0	0	0	0,010	0.0	0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0	0	0	0,030	0.040	0.040	0.0	0.210	
<b>TOTAL</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0,560</b>	<b>0.040</b>	<b>0.040</b>	<b>0.0</b>	<b>0.210</b>	<b>0.810</b>
<b>TOTAL BY JOB FUNCTION</b>											
MAINTENANCE PERSONNEL	99	0	259	259	259	58,130	0.020	0.020	0.0	228.240	286.390
OPERATING PERSONNEL	51	2	3	3	3	24,620	0.530	0.530	0.0	2.700	27.850
HEALTH PHYSICS PERSONNEL	31	1	64	64	64	21,580	0.620	0.620	0.0	33.560	55.560
SUPERVISORY PERSONNEL	21	1	10	10	10	9,840	0.370	0.370	0.0	10.950	21.180
ENGINEERING PERSONNEL	12	1	25	25	25	4,730	0.700	0.700	0.0	8.780	14.230
<b>GRAND TOTAL</b>	<b>214</b>	<b>5</b>	<b>348</b>	<b>348</b>	<b>348</b>	<b>118,920</b>	<b>2.260</b>	<b>2.260</b>	<b>0.0</b>	<b>284.030</b>	<b>405.210</b>

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

APPENDIX C (Cont.)

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

1981

PLANT KEHAUNUI	(PWR)	NUMBER OF PERSONNEL (>100 M-REM)		STATION EMPLOYEES		TOTAL PERSONS		TOTAL MAN-REMS	
		STATION EMPLOYEES	UTILITY CONTRACT & OTHERS	STATION EMPLOYEES	UTILITY CONTRACT & OTHERS	UTILITY EMPLOYEES	CONTRACT & OTHERS	MAN-REMS	TOTAL MAN-REMS
<b>* WORK &amp; JOB FUNCTION</b>									
REACTOR OPERATIONS & SURV.		0	0	0	0	0	0	0.0	0.0
MAINTENANCE PERSONNEL	2	0	0	0	0	0	0	0.0	0.0
OPERATING PERSONNEL	17	1	2	3	604	607	0.080	0.171	0.251
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	5	0	1	1	133	134	0.0	0.0	0.0
ENGINEERING PERSONNEL	3	2	2	4	252	256	0.324	0.408	0.732
TOTAL	27	3	5	8	1,129	1,137	0.404	0.579	1.083
<b>* ROUTINE MAINTENANCE</b>									
MAINTENANCE PERSONNEL	33	19	49	68	832	900	3.743	18.127	21.870
OPERATING PERSONNEL	13	1	4	14	1,240	1,254	0.035	0.050	0.085
HEALTH PHYSICS PERSONNEL	15	0	11	26	3,562	3,588	0.0	4.174	4.174
SUPERVISORY PERSONNEL	1	0	13	14	0,029	0,043	0.0	2.883	2.883
ENGINEERING PERSONNEL	3	1	2	4	0,016	0,020	0.015	0.032	0.047
TOTAL	65	21	79	100	12,879	13,000	3.793	25.269	29.062
<b>* IN-SERVICE INSPECTION</b>									
MAINTENANCE PERSONNEL	0	0	25	25	0	0	0.0	13.219	13.219
OPERATING PERSONNEL	0	0	7	7	0	0	0.0	2.960	2.960
HEALTH PHYSICS PERSONNEL	2	0	0	2	0	0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	1	0	0	1	0,040	0,041	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0
TOTAL	3	0	32	35	0,040	0,041	0.0	16.179	16.219
<b>* SPECIAL MAINTENANCE</b>									
MAINTENANCE PERSONNEL	32	19	93	124	5,085	5,209	1.921	31.656	33.577
OPERATING PERSONNEL	7	1	6	14	0,708	0,722	0.111	0.205	0.316
HEALTH PHYSICS PERSONNEL	5	0	0	5	0,003	0,003	0.0	0.0	0.0
SUPERVISORY PERSONNEL	2	0	1	3	0,078	0,079	0.0	0.0	0.0
ENGINEERING PERSONNEL	2	2	3	7	0,260	0,267	0.085	0.397	0.662
TOTAL	48	22	103	173	6,134	6,268	2.117	32.258	34.375
<b>* WASTE PROCESSING</b>									
MAINTENANCE PERSONNEL	15	14	10	39	0,670	0,684	0.086	0.715	1.385
OPERATING PERSONNEL	5	1	2	8	2,799	2,807	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	10	0	0	10	1,851	1,861	0.0	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0
TOTAL	30	15	12	57	5,320	5,352	0.086	0.715	6.121
<b>* REFUELING</b>									
MAINTENANCE PERSONNEL	16	16	8	30	2,503	2,511	3.208	1.459	4.667
OPERATING PERSONNEL	10	1	12	22	0,386	0,398	0.0	8.395	8.781
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	2	0	0	2	0,101	0,103	0.0	0.0	0.0
ENGINEERING PERSONNEL	2	0	0	2	0,009	0,011	0.0	0.0	0.0
TOTAL	30	17	20	67	2,999	3,021	3.208	9.854	13.062
<b>* TOTAL BY JOB FUNCTION</b>									
MAINTENANCE PERSONNEL	98	68	185	351	16,630	16,981	8.938	65.176	74.106
OPERATING PERSONNEL	52	5	33	90	8,537	8,587	0.226	11.781	12.273
HEALTH PHYSICS PERSONNEL	32	0	43	75	5,416	5,449	0.0	4.174	4.264
SUPERVISORY PERSONNEL	11	0	15	26	1,381	1,407	0.0	2.883	3.264
ENGINEERING PERSONNEL	10	5	7	22	0,537	0,544	0.424	0.840	1.364
GRAND TOTAL	203	78	251	532	32,501	33,168	9.608	84.854	94.458

Workers may be counted in more than one category.

APPENDIX C (Cont.)

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

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM)		NUMBER OF PERSONNEL (<100 M-REM)		TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS	UTILITY CONTRACT & OTHERS	TOTAL MAN-REMS
	STATION EMPLOYEES	UTILITY EMPLOYEES	STATION EMPLOYEES	UTILITY EMPLOYEES							
<b>* REACTOR OPERATIONS &amp; SURV.</b>											
MAINTENANCE PERSONNEL	9	0	0	0	9	3,174	0.0	0.0	0.0	0.0	3,174
OPERATING PERSONNEL	20	0	0	0	20	35,208	0.0	0.0	0.0	0.0	35,208
HEALTH PHYSICS PERSONNEL	7	0	0	0	7	8,943	0.0	0.088	0.0	0.088	9,031
SUPERVISORY PERSONNEL	11	0	0	0	11	8,534	0.0	0.213	0.0	0.213	8,747
ENGINEERING PERSONNEL	5	0	0	0	5	2,944	0.0	0.175	0.0	0.175	3,119
<b>TOTAL</b>	<b>52</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>52</b>	<b>57,903</b>	<b>0.023</b>	<b>0.476</b>	<b>0.023</b>	<b>0.476</b>	<b>58,408</b>
<b>* ROUTINE MAINTENANCE</b>											
MAINTENANCE PERSONNEL	18	0	1	0	19	23,603	0.0	0.256	0.0	0.256	23,859
OPERATING PERSONNEL	6	0	0	0	6	2,076	0.0	0.0	0.0	0.0	2,076
HEALTH PHYSICS PERSONNEL	6	0	0	0	6	1,604	0.0	0.0	0.0	0.0	1,604
SUPERVISORY PERSONNEL	8	0	0	0	8	4,304	0.0	0.002	0.0	0.002	4,306
ENGINEERING PERSONNEL	1	0	0	0	1	0,643	0.0	0.060	0.0	0.060	0,703
<b>TOTAL</b>	<b>39</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>40</b>	<b>32,230</b>	<b>0.0</b>	<b>0.318</b>	<b>0.0</b>	<b>0.318</b>	<b>32,548</b>
<b>* IN-SERVICE INSPECTION</b>											
MAINTENANCE PERSONNEL	6	0	0	0	6	1,174	0.0	0.0	0.0	0.0	1,174
OPERATING PERSONNEL	0	0	0	0	0	0,172	0.0	0.0	0.0	0.0	0,172
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0,026	0.0	0.0	0.0	0.0	0,026
SUPERVISORY PERSONNEL	1	0	0	0	1	0,232	0.0	0.0	0.0	0.0	0,232
ENGINEERING PERSONNEL	0	0	0	0	0	0,0	0.0	0.0	0.0	0.0	0,0
<b>TOTAL</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>1,602</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>1,602</b>
<b>* SPECIAL MAINTENANCE</b>											
MAINTENANCE PERSONNEL	14	2	0	0	16	7,472	0.310	0.002	0.310	0.002	7,784
OPERATING PERSONNEL	7	0	0	0	7	1,866	0.0	0.0	0.0	0.0	1,866
HEALTH PHYSICS PERSONNEL	5	0	0	0	5	1,894	0.0	0.0	0.0	0.0	1,894
SUPERVISORY PERSONNEL	5	0	0	0	5	2,006	0.0	0.0	0.0	0.0	2,006
ENGINEERING PERSONNEL	3	0	0	0	3	1,922	0.0	0.134	0.0	0.134	2,056
<b>TOTAL</b>	<b>34</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>36</b>	<b>15,160</b>	<b>0.310</b>	<b>0.136</b>	<b>0.310</b>	<b>0.136</b>	<b>15,606</b>
<b>* WASTE PROCESSING</b>											
MAINTENANCE PERSONNEL	2	0	2	0	4	0,478	0.0	1.448	0.0	1.448	1,926
OPERATING PERSONNEL	4	0	0	0	4	0,821	0.0	0.0	0.0	0.0	0,821
HEALTH PHYSICS PERSONNEL	3	0	0	0	3	0,905	0.0	0.0	0.0	0.0	0,905
SUPERVISORY PERSONNEL	1	0	0	0	1	0,650	0.0	0.0	0.0	0.0	0,650
ENGINEERING PERSONNEL	0	0	0	0	0	0,050	0.0	0.0	0.0	0.0	0,050
<b>TOTAL</b>	<b>10</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>12</b>	<b>2,904</b>	<b>0.0</b>	<b>1.448</b>	<b>0.0</b>	<b>1.448</b>	<b>4,352</b>
<b>* REFUELING</b>											
MAINTENANCE PERSONNEL	5	0	0	0	5	1,501	0.0	0.0	0.0	0.0	1,501
OPERATING PERSONNEL	0	0	0	0	0	0,555	0.0	0.0	0.0	0.0	0,555
HEALTH PHYSICS PERSONNEL	3	0	0	0	3	0,537	0.0	0.0	0.0	0.0	0,537
SUPERVISORY PERSONNEL	1	0	1	0	2	0,277	0.0	0.135	0.0	0.135	0,412
ENGINEERING PERSONNEL	1	0	0	0	1	0,217	0.0	0.018	0.0	0.018	0,235
<b>TOTAL</b>	<b>10</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>11</b>	<b>3,087</b>	<b>0.0</b>	<b>0.153</b>	<b>0.0</b>	<b>0.153</b>	<b>3,240</b>
<b>* TOTAL BY JOB FUNCTION</b>											
MAINTENANCE PERSONNEL	54 (18)	2	3	0	59 (23)	37,402	0.310	1.706	0.310	1.706	39,418
OPERATING PERSONNEL	37 (20)	0	0	0	37 (20)	40,698	0.0	0.0	0.0	0.0	40,698
HEALTH PHYSICS PERSONNEL	24 (8)	0	0	0	24 (8)	13,907	0.0	0.088	0.0	0.088	13,995
SUPERVISORY PERSONNEL	27 (18)	0	1	0	28 (19)	16,003	0.0	0.350	0.0	0.350	16,353
ENGINEERING PERSONNEL	10 (7)	0	0	0	10 (7)	4,876	0.029	0.387	0.029	0.387	5,292
<b>GRAND TOTAL</b>	<b>152 (71)</b>	<b>2</b>	<b>4</b>	<b>0</b>	<b>158 (77)</b>	<b>112,886</b>	<b>0.339</b>	<b>2.531</b>	<b>0.339</b>	<b>2.531</b>	<b>115,756</b>

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

APPENDIX C (Cont.)

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

PLANT: MAINE YANKEE	(PMR)	NUMBER OF PERSONNEL (>100 M-REM)		TOTAL		STATION		TOTAL MAN-REMS	
		EMPLOYEES	UTILITY CONTRACT & OTHERS	PERSONS	EMPLOYEES	EMPLOYEES	UTILITY CONTRACT & OTHERS	MAN-REMS	MAN-REMS
* WORK & JOB FUNCTION									
REACTOR OPERATIONS & SURV.									
MAINTENANCE PERSONNEL	0	0	0	0	0.410	0.005	0.115	0.030	
OPERATING PERSONNEL	17	0	0	0	4.490	0.0	0.210	0.005	
HEALTH PHYSICS PERSONNEL	4	0	0	0	1.140	0.047	0.122	0.005	
SUPERVISORY PERSONNEL	1	0	0	0	0.370	0.385	1.277	0.005	
ENGINEERING PERSONNEL	3	0	0	0	1.160	0.437	1.754	0.005	
TOTAL	25	0	0	30	7.550	0.857	3.528	0.005	9.741
* ROUTINE MAINTENANCE									
MAINTENANCE PERSONNEL	33	0	0	19	18.351	0.0	6.414	0.005	
OPERATING PERSONNEL	2	0	0	0	1.122	0.0	0.105	0.005	
HEALTH PHYSICS PERSONNEL	6	0	0	0	1.930	0.0	0.230	0.005	
SUPERVISORY PERSONNEL	1	0	0	0	0.276	0.0	0.355	0.005	
ENGINEERING PERSONNEL	2	0	0	0	0.550	0.010	0.355	0.005	
TOTAL	44	0	0	66	22.229	0.010	7.109	0.005	29.348
* IN-SERVICE INSPECTION									
MAINTENANCE PERSONNEL	3	0	0	49	0.850	0.0	28.478	0.005	
OPERATING PERSONNEL	0	0	0	0	0.165	0.0	0.005	0.005	
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.0	0.0	0.170	0.005	
SUPERVISORY PERSONNEL	0	0	0	0	0.0	0.0	0.005	0.005	
ENGINEERING PERSONNEL	1	1	0	20	0.395	0.355	8.875	0.005	
TOTAL	4	1	0	75	1.410	0.355	37.528	0.005	39.293
* SPECIAL MAINTENANCE									
MAINTENANCE PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0	
OPERATING PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0	
SUPERVISORY PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0	
TOTAL	0	0	0	0	0.0	0.0	0.0	0.0	0.0
* WASTE PROCESSING									
MAINTENANCE PERSONNEL	11	0	11	11	3.870	0.0	4.395	0.005	
OPERATING PERSONNEL	20	0	2	2	5.892	0.0	0.245	0.005	
HEALTH PHYSICS PERSONNEL	2	0	1	1	0.265	0.0	0.005	0.005	
SUPERVISORY PERSONNEL	0	0	0	0	0.090	0.160	0.005	0.005	
ENGINEERING PERSONNEL	0	0	0	0	0.167	0.0	0.005	0.005	
TOTAL	33	0	14	47	10.284	0.160	5.645	0.005	15.989
* REFUELLING									
MAINTENANCE PERSONNEL	32	0	282	282	26.360	0.0	187.953	0.005	
OPERATING PERSONNEL	3	0	2	2	18.876	0.0	0.237	0.005	
HEALTH PHYSICS PERSONNEL	11	0	43	43	4.704	0.0	25.654	0.005	
SUPERVISORY PERSONNEL	5	0	1	1	3.655	0.025	0.496	0.005	
ENGINEERING PERSONNEL	11	6	23	23	5.295	3.137	9.930	0.005	
TOTAL	96	6	351	453	58.890	3.162	224.270	0.005	286.322
* TOTAL BY JOB FUNCTION									
MAINTENANCE PERSONNEL	79	0	361	440	49.841	0.005	227.355	0.005	277.201
OPERATING PERSONNEL	76	0	4	80	30.545	0.0	1.267	0.005	31.812
HEALTH PHYSICS PERSONNEL	23	0	46	69	8.039	0.0	26.344	0.005	34.383
SUPERVISORY PERSONNEL	7	0	2	9	4.391	0.232	0.798	0.005	5.421
ENGINEERING PERSONNEL	17	7	49	73	7.547	3.887	20.442	0.005	31.876
GRAND TOTAL	202	7	462	671	100.363	4.124	276.206	0.005	380.693

APPENDIX C (Cont.)

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

PLANT MILLIONRE (BWR)	NUMBER OF PERSONNEL (>100 M-REM) 1981		TOTAL PERSONS		STATION EMPLOYEES		TOTAL MAN-REMS	
	STATION EMPLOYEES	CONTRACT EMPLOYEES	STATION EMPLOYEES	CONTRACT EMPLOYEES	STATION EMPLOYEES	CONTRACT EMPLOYEES	STATION EMPLOYEES	CONTRACT EMPLOYEES
	15	0	2	0	10.400	0.010	0.690	0.000
REACTOR OPERATIONS & SURV.	54	0	0	0	49.990	0.000	0.180	0.000
MAINTENANCE PERSONNEL	15	3	47	0	9.210	1.920	15.050	0.000
OPERATING PERSONNEL	0	0	0	0	0.160	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	85	3	50	0	70.720	2.920	16.360	0.000
	4	0	1	0	2.870	0.120	0.510	0.000
ROUTINE MAINTENANCE	4	0	1	0	2.380	0.120	0.320	0.000
MAINTENANCE PERSONNEL	0	0	0	0	0.430	0.000	0.000	0.000
OPERATING PERSONNEL	0	0	0	0	0.060	0.000	0.160	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	4	0	1	0	2.870	0.120	0.510	0.000
	1	0	45	0	0.250	0.130	14.020	0.000
IN-SERVICE INSPECTION	0	0	0	0	0.440	0.000	0.070	0.000
MAINTENANCE PERSONNEL	0	0	2	0	0.170	0.050	1.160	0.000
OPERATING PERSONNEL	0	0	0	0	0.040	0.000	0.010	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	1.210	2.290	7.280	0.000
SUPERVISORY PERSONNEL	3	2	13	0	1.210	2.290	7.280	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	4	2	60	0	2.110	2.470	22.540	0.000
	47	40	1178	0	70.350	26.690	857.680	0.000
SPECIAL MAINTENANCE	40	0	43	0	12.590	0.050	48.350	0.000
MAINTENANCE PERSONNEL	16	4	103	0	11.060	1.830	73.690	0.000
OPERATING PERSONNEL	4	0	7	0	0.790	0.000	3.190	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	8.720	11.340	66.210	0.000
SUPERVISORY PERSONNEL	19	21	102	0	8.720	11.340	66.210	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	126	65	1433	0	103.510	39.910	1049.120	0.000
	2	0	24	0	0.760	0.100	13.230	0.000
WASTE PROCESSING	29	2	11	0	9.960	0.000	0.770	0.000
MAINTENANCE PERSONNEL	5	0	0	0	2.260	0.460	3.790	0.000
OPERATING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	1	0	7	0	0.540	0.000	7.710	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	37	2	43	0	13.520	0.560	25.500	0.000
	26	12	5	0	14.450	8.650	3.040	0.000
REFUELING	35	0	0	0	10.700	0.000	0.250	0.000
MAINTENANCE PERSONNEL	2	0	10	0	0.570	0.110	3.390	0.000
OPERATING PERSONNEL	0	0	0	0	0.130	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	4	5	4	0	1.590	2.250	1.690	0.000
ENGINEERING PERSONNEL	0	0	0	0	0.000	0.000	0.000	0.000
TOTAL	67	17	19	0	27.440	11.010	8.370	0.000
	95	52	1255	0	98.590	35.700	888.980	1023.270
TOTAL BY JOB FUNCTION	158	0	44	0	84.110	0.050	49.620	133.780
MAINTENANCE PERSONNEL	38	9	173	0	23.330	4.370	97.240	124.940
OPERATING PERSONNEL	4	0	7	0	1.120	0.000	3.200	4.320
HEALTH PHYSICS PERSONNEL	4	0	0	0	0.000	0.000	0.000	0.000
SUPERVISORY PERSONNEL	28	28	127	183	13.020	15.970	83.560	112.550
ENGINEERING PERSONNEL	323	89	1606	2018	220.170	56.090	1122.600	1398.860
GRAND TOTAL								

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



APPENDIX C (Cont.)

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

PLANT: MILLSTONE 2 (PMR) 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM)		TOTAL PERSONS		STATION EMPLOYEES		UTILITY EMPLOYEES		TOTAL MAN-REMS	
	EMPLOYEES	CONTRACT & OTHERS	EMPLOYEES	CONTRACT & OTHERS	EMPLOYEES	CONTRACT & OTHERS	EMPLOYEES	CONTRACT & OTHERS	EMPLOYEES	CONTRACT & OTHERS
<b>REACTOR OPERATIONS &amp; SURV.</b>										
MAINTENANCE PERSONNEL	3	0	1	0	1,290	0.030	0.260	0.0	0.030	0.0
OPERATING PERSONNEL	35	0	0	0	17,130	0.020	0.0	0.0	0.020	0.0
HEALTH PHYSICS PERSONNEL	13	41	0	0	8,910	11.120	0.0	0.0	11.120	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0.110	0.0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	3	2	1	0	1,000	0.610	0.500	0.0	0.610	0.0
<b>TOTAL</b>	<b>54</b>	<b>43</b>	<b>2</b>	<b>99</b>	<b>28,440</b>	<b>11.780</b>	<b>0.770</b>	<b>0.0</b>	<b>11.780</b>	<b>40.990</b>
<b>ROUTINE MAINTENANCE</b>										
MAINTENANCE PERSONNEL	8	0	0	0	1,740	0.100	0.020	0.0	0.100	0.0
OPERATING PERSONNEL	0	0	0	0	0.010	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.050	0.0	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
<b>TOTAL</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>1,800</b>	<b>0.100</b>	<b>0.020</b>	<b>0.0</b>	<b>0.100</b>	<b>1.920</b>
<b>IN-SERVICE INSPECTION</b>										
MAINTENANCE PERSONNEL	1	25	0	0	0.640	12.750	0.090	0.0	12.750	0.0
OPERATING PERSONNEL	0	4	0	0	0.0	5.060	0.0	0.0	5.060	0.0
HEALTH PHYSICS PERSONNEL	0	7	0	0	0.0	2.110	0.0	0.0	2.110	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0.0	0.140	0.0	0.0	0.140	0.0
ENGINEERING PERSONNEL	0	12	0	0	0.0	7.350	0.0	0.0	7.350	0.0
<b>TOTAL</b>	<b>1</b>	<b>48</b>	<b>0</b>	<b>49</b>	<b>0.640</b>	<b>27.410</b>	<b>0.090</b>	<b>0.0</b>	<b>27.410</b>	<b>28.140</b>
<b>SPECIAL MAINTENANCE</b>										
MAINTENANCE PERSONNEL	49	409	32	0	49,780	256.310	11.810	0.0	256.310	0.0
OPERATING PERSONNEL	32	16	0	0	8,410	10.750	0.0	0.0	10.750	0.0
HEALTH PHYSICS PERSONNEL	8	52	1	0	5,250	18.780	0.450	0.0	18.780	0.0
SUPERVISORY PERSONNEL	0	5	0	0	0.070	5.660	0.0	0.0	5.660	0.0
ENGINEERING PERSONNEL	9	45	8	0	3,050	21.280	2.920	0.0	21.280	0.0
<b>TOTAL</b>	<b>98</b>	<b>527</b>	<b>41</b>	<b>666</b>	<b>66,560</b>	<b>312.580</b>	<b>15.180</b>	<b>0.0</b>	<b>312.580</b>	<b>394.320</b>
<b>WASTE PROCESSING</b>										
MAINTENANCE PERSONNEL	7	8	0	0	2,310	1.980	0.010	0.0	1.980	0.0
OPERATING PERSONNEL	6	0	0	0	1,880	0.200	0.0	0.0	0.200	0.0
HEALTH PHYSICS PERSONNEL	3	0	0	0	0.810	0.950	0.0	0.0	0.950	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0.040	0.020	0.0	0.0	0.020	0.0
<b>TOTAL</b>	<b>16</b>	<b>8</b>	<b>0</b>	<b>24</b>	<b>5,040</b>	<b>3.150</b>	<b>0.010</b>	<b>0.0</b>	<b>3.150</b>	<b>8.200</b>
<b>REFUELING</b>										
MAINTENANCE PERSONNEL	23	15	0	0	10,200	6.370	0.020	0.0	6.370	0.0
OPERATING PERSONNEL	0	0	0	0	0.580	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	2	0	0	0.0	0.610	0.0	0.0	0.610	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0.010	3.280	0.060	0.0	3.280	0.0
<b>TOTAL</b>	<b>23</b>	<b>24</b>	<b>0</b>	<b>47</b>	<b>10,790</b>	<b>12.270</b>	<b>0.080</b>	<b>0.0</b>	<b>12.270</b>	<b>23.140</b>
<b>TOTAL BY JOB FUNCTION</b>										
MAINTENANCE PERSONNEL	91	457	33	581	65,960	279.540	12.210	0.0	279.540	357.710
OPERATING PERSONNEL	73	20	0	93	28,010	16.030	0.0	0.0	16.030	44.040
HEALTH PHYSICS PERSONNEL	24	102	1	127	15,020	33.570	0.560	0.0	33.570	49.150
SUPERVISORY PERSONNEL	0	5	0	5	0.180	5.610	0.0	0.0	5.610	5.790
ENGINEERING PERSONNEL	12	66	9	87	4,100	32.540	3.380	0.0	32.540	40.020
<b>GRAND TOTAL</b>	<b>200</b>	<b>650</b>	<b>43</b>	<b>893</b>	<b>113,270</b>	<b>367.290</b>	<b>16.150</b>	<b>0.0</b>	<b>367.290</b>	<b>496.710</b>

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

APPENDIX C (Cont.)

NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION  
1981

PLANT: MONTICELLO (BWR)	NUMBER OF PERSONNEL (>100 M-REM)				TOTAL MAN-REMS			
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	MAN-REMS
<b>WORK &amp; JOB FUNCTION</b>								
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	52	42	246		16,420	1,811	19,052	
OPERATING PERSONNEL	47	0	2		36,804	0.0	0.043	
HEALTH PHYSICS PERSONNEL	21	0	32		10,062	0.0	5,058	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	25	15	48		4,838	0,766	4,872	
TOTAL	145	57	328	530	68,129	2,577	29,031	99,732
<b>ROUTINE MAINTENANCE</b>								
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	637	23,316	12,686	55,377	91,379
<b>IN-SERVICE INSPECTION</b>								
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
<b>SPECIAL MAINTENANCE</b>								
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
<b>WASTE PROCESSING</b>								
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
<b>REFUELING</b>								
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
<b>TOTAL BY JOB FUNCTION</b>								
MAINTENANCE PERSONNEL	221	308	1278	1807	64,015	66,434	594,794	725,243
OPERATING PERSONNEL	195	0	4	199	68,242	0.0	2,328	70,570
HEALTH PHYSICS PERSONNEL	61	0	86	147	15,381	0.0	33,901	49,282
SUPERVISORY PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	83	57	247	387	14,530	15,895	115,916	146,341
GRAND TOTAL	560	365	1615	2540	162,168	82,329	746,939	991,436

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

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

APPENDIX C (Cont.)

PLANT: 9 NINE MILE POINT (BWR) NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM)			TOTAL MAN-REMS			
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
<b>REACTOR OPERATIONS &amp; SURV.</b>							
MAINTENANCE PERSONNEL	137	39	172	19,009	1,818	9,669	
HEALTH PHYSICS PERSONNEL	134	0	8	27,113	0.0	1,174	
SUPERVISORY PERSONNEL	26	0	75	33,158	0.0	32,879	
ENGINEERING PERSONNEL	21	10	15	14,446	0.0	0,829	
<b>TOTAL</b>	<b>338</b>	<b>49</b>	<b>303</b>	<b>95,449</b>	<b>2,033</b>	<b>46,583</b>	<b>144,063</b>
<b>ROUTINE MAINTENANCE</b>							
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	
<b>TOTAL</b>	<b>545</b>	<b>118</b>	<b>876</b>	<b>97,194</b>	<b>31,877</b>	<b>120,217</b>	<b>249,288</b>
<b>IN-SERVICE INSPECTION</b>							
MAINTENANCE PERSONNEL	24	23	146	1,013	0.329	107,504	
OPERATING PERSONNEL	18	0	2	0,101	0.0	0,007	
HEALTH PHYSICS PERSONNEL	6	0	14	0,192	0.0	0,154	
SUPERVISORY PERSONNEL	5	0	10	0,155	0.0	5,775	
ENGINEERING PERSONNEL	2	8	12	0,015	0.278	0,706	
<b>TOTAL</b>	<b>59</b>	<b>31</b>	<b>184</b>	<b>1,436</b>	<b>0,607</b>	<b>114,146</b>	<b>116,189</b>
<b>SPECIAL MAINTENANCE</b>							
MAINTENANCE PERSONNEL	533	369	1201	95,946	71,957	626,861	
OPERATING PERSONNEL	131	0	16	4,823	0.0	4,975	
HEALTH PHYSICS PERSONNEL	49	0	103	1,369	0.0	9,588	
SUPERVISORY PERSONNEL	70	0	33	8,511	0.0	5,744	
ENGINEERING PERSONNEL	51	32	127	3,042	2,138	32,782	
<b>TOTAL</b>	<b>834</b>	<b>401</b>	<b>1480</b>	<b>118,691</b>	<b>74,095</b>	<b>679,953</b>	<b>872,739</b>
<b>WASTE PROCESSING</b>							
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	
<b>TOTAL</b>	<b>171</b>	<b>31</b>	<b>109</b>	<b>44,283</b>	<b>1,573</b>	<b>15,553</b>	<b>61,411</b>
<b>REFUELING</b>							
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	
<b>TOTAL</b>	<b>212</b>	<b>79</b>	<b>340</b>	<b>36,128</b>	<b>23,031</b>	<b>85,504</b>	<b>144,663</b>
<b>TOTAL BY JOB FUNCTION</b>							
MAINTENANCE PERSONNEL	1161	626	2540	239,368	130,066	914,646	1284,029
OPERATING PERSONNEL	549	0	43	68,053	0.0	9,770	77,823
HEALTH PHYSICS PERSONNEL	148	0	332	41,729	0.0	65,679	107,408
SUPERVISORY PERSONNEL	193	0	96	28,536	0.0	19,643	48,179
ENGINEERING PERSONNEL	128	83	281	13,595	3,148	52,220	70,863
<b>GRAND TOTAL</b>	<b>2179</b>	<b>709</b>	<b>3292</b>	<b>393,181</b>	<b>133,214</b>	<b>1061,958</b>	<b>1588,353</b>

\*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	(PMR)	NUMBER OF PERSONNEL (>100 M-REM) 1981					TOTAL MAN-REMS				
		STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS		
<b>WORK &amp; JOB FUNCTION</b>											
ROUTINE MAINTENANCE		199	7	518		29,560	0.031	36,424			
MAINTENANCE PERSONNEL		109	3	54		52,307	0.006	1,357			
OPERATING PERSONNEL		54	14	90		41,667	0.357	43,238			
HEALTH PHYSICS PERSONNEL		88	7	1		3,890	0.090	0.109			
SUPERVISORY PERSONNEL		29	12	91		1,003	0.139	4,832			
ENGINEERING PERSONNEL		479	43	754		128,427	0.573	85,960			214,960
TOTAL											
<b>ROUTINE MAINTENANCE</b>											
MAINTENANCE PERSONNEL		158	6	413		133,629	0.630	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		9,201	0.022	7,024			
TOTAL		326	11	562		159,774	0.660	110,201			279,635
<b>IN-SERVICE INSPECTION</b>											
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		8,064	0.0	3,078			
TOTAL		61	2	184		22,196	0.425	41,239			63,832
<b>SPECIAL MAINTENANCE</b>											
MAINTENANCE PERSONNEL		74	0	538		25,452	0.0	118,962			
OPERATING PERSONNEL		26	0	19		0,979	0.0	1,791			
HEALTH PHYSICS PERSONNEL		8	0	18		0,349	0.0	0.805			
SUPERVISORY PERSONNEL		32	1	0		1,834	0.002	0.0			
ENGINEERING PERSONNEL		2	0	66		9,830	0.0	2,658			
TOTAL		142	1	621		27,644	0.002	124,213			152,836
<b>WASTE PROCESSING</b>											
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		9,046	0.0	0.045			
TOTAL		238	5	159		18,269	0.015	25,199			33,573
<b>REFUELING</b>											
MAINTENANCE PERSONNEL		73	0	47		18,997	0.0	9,642			
OPERATING PERSONNEL		78	0	1		4,798	0.0	0.018			
HEALTH PHYSICS PERSONNEL		18	0	28		0,829	0.0	3,784			
SUPERVISORY PERSONNEL		18	1	0		1,273	0.088	0.0			
ENGINEERING PERSONNEL		3	0	18		9,017	0.120	8,241			
TOTAL		190	1	93		25,914	0.408	15,685			42,007
<b>TOTAL BY JOB FUNCTION</b>											
MAINTENANCE PERSONNEL		618	17	1730		227,140	1.100	296,248			524,488
OPERATING PERSONNEL		394	4	143		81,933	0.008	96,199			96,199
HEALTH PHYSICS PERSONNEL		157	16	395		59,446	0.364	61,627			121,437
SUPERVISORY PERSONNEL		210	9	221		12,524	0.130	0,497			13,151
ENGINEERING PERSONNEL		57	23	277		1,363	0.481	18,864			21,788
TOTAL		1412	60	3576		482,706	2.081	522,442			977,663

APPENDIX C (Cont.)

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

PLANT: DEGREE 1.2.3	(PMR)	NUMBER OF PERSONNEL (>188 M-REH) 1981				TOTAL MAN-REH			
		STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REH
<b>WORK &amp; JOB FUNCTION</b>									
<b>REACTION OPERATIONS &amp; SURV.</b>									
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	0	0	0.260	0.105	0.0			
ENGINEERING PERSONNEL	30	30	25	18,875	3,550	0.855			
<b>TOTAL</b>	<b>334</b>	<b>223</b>	<b>173</b>	<b>87,250</b>	<b>20,150</b>	<b>21,750</b>			<b>129,150</b>
<b>ROUTINE MAINTENANCE</b>									
MAINTENANCE PERSONNEL	214	375	88	77,370	71,040	46,275			
OPERATING PERSONNEL	32	8	0	1,845	1,395	0.0			
HEALTH PHYSICS PERSONNEL	63	12	103	6,785	0.440	17,830			
SUPERVISORY PERSONNEL	3	0	0	0.140	0.0	0.0			
ENGINEERING PERSONNEL	59	67	54	9,585	3,887	6,488			
<b>TOTAL</b>	<b>371</b>	<b>553</b>	<b>253</b>	<b>97,733</b>	<b>77,932</b>	<b>88,583</b>			<b>243,202</b>
<b>AN-SERVICE INSPECTION</b>									
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	4,585	3,508	50,450			
<b>TOTAL</b>	<b>134</b>	<b>279</b>	<b>188</b>	<b>15,863</b>	<b>108,650</b>	<b>74,975</b>			<b>199,430</b>
<b>SPECIAL MAINTENANCE</b>									
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	16,680	2,045	39,695			
SUPERVISORY PERSONNEL	5	1	0	1,515	0.060	0.0			
ENGINEERING PERSONNEL	74	70	185	27,235	23,570	52,820			
<b>TOTAL</b>	<b>415</b>	<b>601</b>	<b>274</b>	<b>158,330</b>	<b>358,380</b>	<b>106,020</b>			<b>622,730</b>
<b>WASTE PROCESSING</b>									
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			
<b>TOTAL</b>	<b>130</b>	<b>60</b>	<b>78</b>	<b>20,650</b>	<b>2,175</b>	<b>8,230</b>			<b>31,055</b>
<b>REFUELLING</b>									
MAINTENANCE PERSONNEL	157	276	52	55,665	38,130	11,800			
OPERATING PERSONNEL	76	14	0	9,680	1,750	0.0			
HEALTH PHYSICS PERSONNEL	37	18	86	4,480	2,830	11,935			
SUPERVISORY PERSONNEL	3	1	0	0.915	0.030	0.0			
ENGINEERING PERSONNEL	62	32	66	10,255	3,930	11,690			
<b>TOTAL</b>	<b>335</b>	<b>341</b>	<b>204</b>	<b>80,800</b>	<b>53,770</b>	<b>35,425</b>			<b>161,995</b>
<b>TOTAL BY JOB FUNCTION</b>									
MAINTENANCE PERSONNEL	744	1606	280	285,975	993,785	84,410			
OPERATING PERSONNEL	298	59	357	67,580	13,725	0.0			
HEALTH PHYSICS PERSONNEL	299	81	548	59,735	6,615	110,220			
SUPERVISORY PERSONNEL	19	4	23	3,005	0.195	0.0			
ENGINEERING PERSONNEL	339	199	327	74,525	38,727	120,275			
<b>GRAND TOTAL</b>	<b>1719</b>	<b>1969</b>	<b>1163</b>	<b>640,720</b>	<b>613,047</b>	<b>314,905</b>			<b>1388,672</b>

APPENDIX C (Cont.)

PLANT: OYSTER CREEK	(BMR)	NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION							TOTAL MAN-REMS
		1987		1987		1987		TOTAL MAN-REMS	
WORK & JOB FUNCTION	STATION EMPLOYEES	STATION EMPLOYEES	CONTRACTORS & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACTORS & OTHERS		TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.	68	4	36		3,292	0.127	4,861		
MAINTENANCE PERSONNEL	87	1	5		19,888	0.0	0.754		
OPERATING PERSONNEL	10	0	31		0,223	0.0	4,240		
HEALTH PHYSICS PERSONNEL	8	0	0		1,210	0.0	0.0		
SUPERVISORY PERSONNEL	16	1	8		1,008	0.052	1,163		
ENGINEERING PERSONNEL	189	6	80		23,621	0.180	11,918	36,819	
TOTAL									
ROUTINE MAINTENANCE	212	43	401		136,137	19,997	99,819		
MAINTENANCE PERSONNEL	115	2	39		49,239	2,169	2,429		
OPERATING PERSONNEL	34	0	131		11,974	0.0	78,351		
HEALTH PHYSICS PERSONNEL	36	1	3		7,672	0.378	0,009		
SUPERVISORY PERSONNEL	45	6	63		3,482	0.288	5,144		
ENGINEERING PERSONNEL	442	52	637		208,504	22,826	185,728	417,358	
TOTAL									
IN-SERVICE INSPECTION	24	0	42		0,522	0.0	5,562		
MAINTENANCE PERSONNEL	11	0	7		0,383	0.0	0,334		
OPERATING PERSONNEL	5	0	8		0,172	0.0	0,418		
HEALTH PHYSICS PERSONNEL	11	0	0		0,213	0.0	0.0		
SUPERVISORY PERSONNEL	15	4	16		0,337	0.035	2,245		
ENGINEERING PERSONNEL	66	5	73		1,627	0.035	8,579	18,261	
TOTAL									
SPECIAL MAINTENANCE	182	29	477		42,541	7,766	136,303		
MAINTENANCE PERSONNEL	70	2	23		8,503	0,688	3,763		
OPERATING PERSONNEL	17	0	79		1,909	0.0	9,593		
HEALTH PHYSICS PERSONNEL	18	0	0		3,275	0.0	0.0		
SUPERVISORY PERSONNEL	18	3	33		1,733	0.035	2,595		
ENGINEERING PERSONNEL	305	34	612		57,961	8,989	152,236	218,786	
TOTAL									
WASTE PROCESSING	102	2	37		5,090	0.003	3,729		
MAINTENANCE PERSONNEL	26	0	3		1,758	0.0	0,067		
OPERATING PERSONNEL	3	0	10		0,127	0.0	2,467		
HEALTH PHYSICS PERSONNEL	2	0	1		0,031	0.0	0.0		
SUPERVISORY PERSONNEL	0	0	4		0.0	0.0	0.0		
ENGINEERING PERSONNEL	133	2	55		7,006	0.003	8,359	15,381	
TOTAL									
REFUELING	3	1	0		0,020	0.005	0.0		
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	1	0	0		0,018	0.0	0.0		
TOTAL	4	0	0		0,038	0.005	0.0	0,038	
TOTAL BY JOB FUNCTION									
MAINTENANCE PERSONNEL	591 (216)	79 (43)	993 (864)	1663 (812)	187,602	27,899	250,274	645,775	
OPERATING PERSONNEL	309 (116)	5 (2)	77 (62)	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 (39)	1 (1)	4 (4)	80 (43)	12,401	0,372	6,889	12,778	
ENGINEERING PERSONNEL	95 (61)	13 (9)	124 (78)	233 (138)	6,570	0,418	11,243	18,243	
GRAND TOTAL	1,139 (665)	99 (65)	1,557 (823)	2,695 (1,333)	308,743	31,338	383,338	636,225	

APPENDIX C (Cont.)

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

PLANT: PALISADES	(PMR)	NUMBER OF PERSONNEL (>100 M-REM) 1981				TOTAL MAN-REMS			
		STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
<b>WORK &amp; JOB FUNCTION</b>									
REACTOR OPERATIONS & SURV.									
MAINTENANCE PERSONNEL	1	0	7		0.342	0.061	2.080		
OPERATING PERSONNEL	45	2	4		16.832	0.315	0.748		
HEALTH PHYSICS PERSONNEL	40	3	152		12.667	1.951	89.309		
SUPERVISORY PERSONNEL	5	0	2		2.227	0.149	9.306		
ENGINEERING PERSONNEL	9	0	14		1.765	0.073	4.555		
TOTAL	100	5	186	291	33.533	2.555	103.998	152.486	
<b>AQUATIC MAINTENANCE</b>									
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		1.058	0.191	2.986		
TOTAL	103	29	105	237	47.934	11.261	49.306	184.581	
<b>IN-SERVICE INSPECTION</b>									
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		0.429	1.030	4.040		
TOTAL	4	2	33	39	0.981	1.114	12.168	14.281	
<b>SPECIAL MAINTENANCE</b>									
MAINTENANCE PERSONNEL	33	99	840		10.348	26.958	494.181		
OPERATING PERSONNEL	0	0	4		1.006	0.0	0.036		
HEALTH PHYSICS PERSONNEL	0	0	4		0.009	0.0	1.451		
SUPERVISORY PERSONNEL	1	1	22		0.430	0.694	7.339		
ENGINEERING PERSONNEL	6	4	60		1.595	0.744	11.925		
TOTAL	40	104	908	1050	12.183	28.396	426.942	463.323	
<b>WASTE PROCESSING</b>									
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	0.007	0.164		
SUPERVISORY PERSONNEL	0	0	4		0.006	0.0	2.317		
ENGINEERING PERSONNEL	0	0	23		0.474	0.0	1.942		
TOTAL	1	3	25	29	0.974	0.661	10.683	11.820	
<b>REFUELING</b>									
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	
<b>TOTAL BY JOB FUNCTION</b>									
MAINTENANCE PERSONNEL	120	128	967	1215	52.464	37.857	464.589	554.038	
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	104.676	119.774	
SUPERVISORY PERSONNEL	21	3	46	70	1.557	1.557	22.754	31.912	
ENGINEERING PERSONNEL	19	6	119	144	4.903	2.053	31.090	38.046	
GRAND TOTAL	250	143	1297	1690	96.622	43.987	624.914	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.)

PLANT: PEACH BOTTOM 2.3 (BWR) NUMBER OF PERSONNEL AND MAN-REH BY WORK AND JOB FUNCTION 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REH)		TOTAL PERSONS		STATION EMPLOYEES		UTILITY EMPLOYEES		TOTAL MAN-REH	
	EMPLOYEES	CONTRACT & OTHERS	EMPLOYEES	CONTRACT & OTHERS	EMPLOYEES	CONTRACT & OTHERS	EMPLOYEES	CONTRACT & OTHERS	EMPLOYEES	CONTRACT & OTHERS
REACTOR OPERATIONS & SURV.	5	76	82		2,630		37,925		23,081	
MAINTENANCE PERSONNEL	68	25	93		45,647		5,201		4,541	
OPERATING PERSONNEL	47	73	120		43,854		3,250		42,441	
HEALTH PHYSICS PERSONNEL	4	1	5		0		0		0	
SUPERVISORY PERSONNEL	30	18	48		25,030		4,328		0,305	
ENGINEERING PERSONNEL	150	193	343		117,161		50,938		15,224	
TOTAL			109	452					83,532	253,689
ROUTINE MAINTENANCE										
MAINTENANCE PERSONNEL	10	1034	543		3,924		360,312		1274,803	
OPERATING PERSONNEL	6	6	12		1,134		0,684		8,386	
HEALTH PHYSICS PERSONNEL	16	33	49		0		0,711		20,523	
SUPERVISORY PERSONNEL	0	0	0		0		1,712		0	
ENGINEERING PERSONNEL	6	8	14		1,664		7,809		3,181	
TOTAL	38	1081	519	1638	14,717		371,228		1386,813	1632,738
IN-SERVICE INSPECTION										
MAINTENANCE PERSONNEL	0	47	47		0		7,424		51,407	
OPERATING PERSONNEL	0	0	0		0		0		0	
HEALTH PHYSICS PERSONNEL	0	0	0		0		0		0	
SUPERVISORY PERSONNEL	0	0	0		0		0		0	
ENGINEERING PERSONNEL	0	3	3		0		0,131		2,001	
TOTAL	0	50	50	61	0		1,858		53,408	62,821
SPECIAL MAINTENANCE										
MAINTENANCE PERSONNEL	0	185	185		0		1,287		256,445	
OPERATING PERSONNEL	1	0	1		0		0		0	
HEALTH PHYSICS PERSONNEL	0	0	0		0		0		0	
SUPERVISORY PERSONNEL	0	0	0		0		0		0	
ENGINEERING PERSONNEL	0	4	4		0		0		0	
TOTAL	1	189	190	193	0		1,287		256,445	260,971
MASTE PROCESSING										
MAINTENANCE PERSONNEL	0	83	83		0		1,857		26,019	
OPERATING PERSONNEL	8	1	9		6,612		0		0,156	
HEALTH PHYSICS PERSONNEL	7	4	11		3,301		0		2,330	
SUPERVISORY PERSONNEL	0	0	0		0		0		0	
ENGINEERING PERSONNEL	0	0	0		0		0		0	
TOTAL	15	88	103	108	9,913		1,857		28,505	40,275
REFUELLING										
MAINTENANCE PERSONNEL	0	34	34		0		2,410		9,969	
OPERATING PERSONNEL	1	1	2		0		0		0	
HEALTH PHYSICS PERSONNEL	3	1	4		1,511		0		0,153	
SUPERVISORY PERSONNEL	0	0	0		0		0		0	
ENGINEERING PERSONNEL	0	0	0		0		0		0	
TOTAL	4	36	40	49	1,511		2,410		10,282	15,675
TOTAL BY JOB FUNCTION										
MAINTENANCE PERSONNEL	15	(12)	653	(593)	1459	(1207)	2127	(1872)	611,215	1641,724
OPERATING PERSONNEL	84	(76)	11	(11)	32	(41)	127	(127)	5,885	13,083
HEALTH PHYSICS PERSONNEL	73	(50)	6	(6)	111	(83)	190	(148)	3,961	65,447
SUPERVISORY PERSONNEL	0	0	8	(7)	1	(1)	9	(8)	2,075	0,305
ENGINEERING PERSONNEL	36	(31)	32	(29)	34	(27)	182	(87)	14,127	23,761
GRAND TOTAL	208	(168)	710	(646)	1837	(1428)	2555	(2242)	637,263	1744,320

\*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: PALORIM	(DHR)	NUMBER OF PERSONNEL (>100 M-REM) 1981		STATION		TOTAL MAN-REMS	
		EMPLOYEES	CONTRACT & OTHERS	EMPLOYEES	CONTRACT & OTHERS	EMPLOYEES	CONTRACT & OTHERS
<b>WORK AND JOB FUNCTION</b>							
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	5,510	
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	53,310	0.0	11,123	64,433
<b>ROUTINE MAINTENANCE</b>							
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	66	4,035	1.605	2,400	
ENGINEERING PERSONNEL	12	54	54	5,849	0.195	2,080	
TOTAL	222	24	1521	45,369	1.800	237,000	284,161
<b>IN-SERVICE INSPECTION</b>							
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	4,415	0.0	38,470	42,383
<b>SPECIAL MAINTENANCE</b>							
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	24	192	92	12,325	8,990	19,010	
TOTAL	264	339	1810	136,745	63,125	919,870	1171,811
<b>WASTE PROCESSING</b>							
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	41	4	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	41	324	44,575	0.0	16,250	60,825
<b>REFUELING</b>							
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	42	0	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	81	192	20,555	10,700	26,620	57,875
<b>TOTAL BY JOB FUNCTION</b>							
MAINTENANCE PERSONNEL	374 (86)	50 (26)	3464 (1686)	3888 (1686)	103,200	1181,235	1294,460
OPERATING PERSONNEL	228 (48)	0	334 (48)	334 (48)	85,410	0.0	85,410
HEALTH PHYSICS PERSONNEL	178 (36)	0	393 (103)	571 (141)	58,900	90,045	128,945
SUPERVISORY PERSONNEL	157 (33)	178 (146)	84 (30)	419 (269)	76,230	6,685	140,330
ENGINEERING PERSONNEL	73 (15)	25 (18)	158 (62)	256 (137)	23,230	21,370	52,885
GRAND TOTAL	1007 (277)	253 (180)	4099 (1810)	5339 (2277)	306,970	1299,335	1682,031

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

APPENDIX C (Cont.)

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

Plant: † Point Beach 1, 2 (PBR)

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 man-rem)				TOTAL MAN-REMS			
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REM
<b>Reactor Operations &amp; Sup.</b>								
Maintenance Personnel					0.0			
Operating Personnel					2,745			
Health Physics Personnel					24,360			
Supervisory Personnel					1,342			
Engineering Personnel					0,239			
<b>TOTAL</b>					<b>78,686</b>		<b>0,703</b>	<b>79,389</b>
<b>Routine Maintenance</b>								
Maintenance Personnel					14,605			
Operating Personnel					0.0			
Health Physics Personnel					0.0			
Supervisory Personnel					0.0			
Engineering Personnel					0.0			
<b>TOTAL</b>					<b>14,605</b>		<b>0.0</b>	<b>14,605</b>
<b>In-Service Inspection</b>								
Maintenance Personnel					20,483			
Operating Personnel					12,338			
Health Physics Personnel					0.0			
Supervisory Personnel					8,426			
Engineering Personnel					0,305			
<b>TOTAL</b>					<b>41,552</b>		<b>96,364</b>	<b>137,916</b>
<b>Special Maintenance</b>								
Maintenance Personnel					39,867			
Operating Personnel					0.0			
Health Physics Personnel					0.0			
Supervisory Personnel					0.0			
Engineering Personnel					0.0			
<b>TOTAL</b>					<b>39,867</b>		<b>249,669</b>	<b>289,536</b>
<b>Waste Processing</b>								
Maintenance Personnel					0.0			
Operating Personnel					8,868			
Health Physics Personnel					3,021			
Supervisory Personnel					0.0			
Engineering Personnel					0.0			
<b>TOTAL</b>					<b>11,889</b>		<b>0.0</b>	<b>11,889</b>
<b>Refueling</b>								
Maintenance Personnel					28,604			
Operating Personnel					2,754			
Health Physics Personnel					2,238			
Supervisory Personnel					0,234			
Engineering Personnel					0,493			
<b>TOTAL</b>					<b>34,323</b>		<b>0.0</b>	<b>34,323</b>
<b>Total By Job Function</b>								
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			
<b>GRAND TOTAL</b>	<b>193</b>		<b>431</b>		<b>220,922</b>		<b>246,736</b>	<b>567,658</b>

APPENDIX C (Cont.)

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

PLANT, PRAIRIE ISLAND 1.2 (CMB)	1981		1981		1981		1981		1981		1981	
	STATION EMPLOYEES	STATION CONTRACTORS & OTHERS	TOTAL PERSONNEL	STATION EMPLOYEES	STATION CONTRACTORS & OTHERS	TOTAL PERSONNEL	STATION EMPLOYEES	STATION CONTRACTORS & OTHERS	TOTAL PERSONNEL	STATION EMPLOYEES	STATION CONTRACTORS & OTHERS	TOTAL PERSONNEL
<b>WORK &amp; JOB FUNCTION</b>												
REACTOR OPERATIONS & SURV.	74	73	147	7,082	3,427	1,868	0.0	0.0	0.0	0.0	0.0	0.0
MAINTENANCE PERSONNEL	50	0	50	9,366	0.0	0.322	0.0	0.0	0.0	0.0	0.0	0.0
OPERATING PERSONNEL	26	0	26	8,062	0.0	2.024	0.0	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	3	0	3	0.882	0.023	0.492	0.0	0.0	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	15	4	19	1,088	0.172	0.835	0.0	0.0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	168	77	245	26,480	3,622	5,541	0.0	0.0	0.0	0.0	0.0	0.0
<b>TOTAL</b>			322									35,633
<b>ROUTINE MAINTENANCE</b>												
MAINTENANCE PERSONNEL	38	38	76	2,638	0.840	0.014	0.0	0.0	0.0	0.0	0.0	0.0
OPERATING PERSONNEL	1	0	1	0.006	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	1	0	1	0.123	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	1	0	1	0.022	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	2	0	2	0.225	0.0	0.021	0.0	0.0	0.0	0.0	0.0	0.0
<b>TOTAL</b>	43	38	81	3,014	0.840	0.033	0.0	0.0	0.0	0.0	0.0	0.0
<b>IN-SERVICE INSPECTION</b>												
MAINTENANCE PERSONNEL	33	51	84	5,861	4,677	47,399	0.0	0.0	0.0	0.0	0.0	0.0
OPERATING PERSONNEL	2	0	2	0.035	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	10	7	17	0.967	0.0	0.264	0.0	0.0	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	1	0	1	0.010	0.0	0.292	0.0	0.0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	11	3	14	1,411	1,025	6,030	0.0	0.0	0.0	0.0	0.0	0.0
<b>TOTAL</b>	57	54	111	8,284	5,702	53,985	0.0	0.0	0.0	0.0	0.0	0.0
<b>SPECIAL MAINTENANCE</b>												
MAINTENANCE PERSONNEL	72	136	208	35,914	48,628	36,443	0.0	0.0	0.0	0.0	0.0	0.0
OPERATING PERSONNEL	39	0	39	2,324	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	24	0	24	1,155	0.0	3,323	0.0	0.0	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	2	0	2	0.660	0.036	1,146	0.0	0.0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	17	4	21	3,104	0.897	12,372	0.0	0.0	0.0	0.0	0.0	0.0
<b>TOTAL</b>	150	140	290	43,157	49,961	53,284	0.0	0.0	0.0	0.0	0.0	0.0
<b>WASTE PROCESSING</b>												
MAINTENANCE PERSONNEL	33	14	47	2,727	0.984	0.312	0.0	0.0	0.0	0.0	0.0	0.0
OPERATING PERSONNEL	22	0	22	1,090	0.0	0.231	0.0	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	12	0	12	2,147	0.0	0.015	0.0	0.0	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	1	0	1	0.031	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>TOTAL</b>	68	14	82	5,995	0.984	0.558	0.0	0.0	0.0	0.0	0.0	0.0
<b>REFUELING</b>												
MAINTENANCE PERSONNEL	45	98	143	12,264	22,964	3,119	0.0	0.0	0.0	0.0	0.0	0.0
OPERATING PERSONNEL	44	0	44	4,031	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	21	0	21	2,488	0.0	5,606	0.0	0.0	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	1	0	1	0.602	0.0	0.129	0.0	0.0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	11	1	12	1,256	0.211	0.223	0.0	0.0	0.0	0.0	0.0	0.0
<b>TOTAL</b>	122	99	221	20,641	23,173	9,077	0.0	0.0	0.0	0.0	0.0	0.0
<b>TOTAL BY JOB FUNCTION</b>												
MAINTENANCE PERSONNEL	295	410	705	66,486	81,520	89,155	0.0	0.0	0.0	0.0	0.0	0.0
OPERATING PERSONNEL	158	0	158	16,892	0.0	11,232	0.0	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	94	0	94	14,942	0.0	2,059	0.0	0.0	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	9	0	9	2,207	0.059	2,059	0.0	0.0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	52	12	64	7,884	2,303	19,481	0.0	0.0	0.0	0.0	0.0	0.0
<b>GRAND TOTAL</b>	608	422	1,030	107,571	83,884	122,480	0.0	0.0	0.0	0.0	0.0	0.0

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

APPENDIX C (Cont.)

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

1981

PLANT: QUAD CITIES 12	(CNR)	NUMBER OF PERSONNEL (>100 M-REM)		TOTAL MAN-REMS	
		STATION EMPLOYEES	UTILITY CONTRACTORS & OTHERS	STATION EMPLOYEES	UTILITY CONTRACTORS & OTHERS
<b>WORK &amp; JOB FUNCTION</b>					
REACTOR OPERATIONS & SURV.					
MAINTENANCE PERSONNEL	13	0	0	25,600	0.0
OPERATING PERSONNEL	39	0	0	46,200	0.0
HEALTH PHYSICS PERSONNEL	18	0	0	15,700	0.0
SUPERVISORY PERSONNEL	48	0	0	44,900	0.0
ENGINEERING PERSONNEL	7	6	6	3,700	5,183
TOTAL	125	11	12	136,100	5,183
<b>ROUTINE MAINTENANCE</b>					
MAINTENANCE PERSONNEL	52	64	784	158,700	46,700
OPERATING PERSONNEL	8	0	0	11,100	0.0
HEALTH PHYSICS PERSONNEL	8	0	12	11,700	0.0
SUPERVISORY PERSONNEL	30	0	0	20,400	0.0
ENGINEERING PERSONNEL	22	11	64	10,700	2,200
TOTAL	120	75	862	212,600	48,900
<b>IN-SERVICE INSPECTION</b>					
MAINTENANCE PERSONNEL	5	0	76	9,900	0.0
OPERATING PERSONNEL	1	0	0	2,200	0.0
HEALTH PHYSICS PERSONNEL	5	0	0	6,500	0.0
SUPERVISORY PERSONNEL	9	0	0	5,800	0.0
ENGINEERING PERSONNEL	14	11	57	19,800	2,800
TOTAL	34	11	123	44,200	2,800
<b>SPECIAL MAINTENANCE</b>					
MAINTENANCE PERSONNEL	0	0	0	0.0	0.0
OPERATING PERSONNEL	0	0	0	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0.0	0.0
TOTAL	0	0	0	0.0	0.0
<b>WASTE PROCESSING</b>					
MAINTENANCE PERSONNEL	20	0	29	64,300	0.0
OPERATING PERSONNEL	53	0	14	85,600	0.0
HEALTH PHYSICS PERSONNEL	15	0	0	19,100	0.0
SUPERVISORY PERSONNEL	63	0	0	26,900	0.0
ENGINEERING PERSONNEL	151	6	12	0.0	10,400
TOTAL	302	6	55	195,900	1,200
<b>REFUELING</b>					
MAINTENANCE PERSONNEL	28	0	0	76,200	0.0
OPERATING PERSONNEL	6	0	0	11,100	0.0
HEALTH PHYSICS PERSONNEL	9	0	0	12,200	0.0
SUPERVISORY PERSONNEL	18	0	0	15,400	0.0
ENGINEERING PERSONNEL	3	3	25	3,000	0.800
TOTAL	64	3	25	117,900	0.800
<b>TOTAL BY JOB FUNCTION</b>					
MAINTENANCE PERSONNEL	118	64	889	334,700	46,700
OPERATING PERSONNEL	107	0	14	156,200	0.0
HEALTH PHYSICS PERSONNEL	55	0	12	65,200	0.0
SUPERVISORY PERSONNEL	168	0	168	113,400	0.0
ENGINEERING PERSONNEL	44	42	156	28,200	9,200
GRAND TOTAL	494	106	1071	697,700	55,900

2571,700  
1020,200  
75,500  
113,400  
169,885  
4336,685

APPENDIX C (Cont.)

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

PLANT: RAMCHO SECO 1	(PMR)	NUMBER OF PERSONNEL (>100 M-REM)				TOTAL MAN-REMS			
		STATION EMPLOYEES		UTILITY EMPLOYEES		STATION EMPLOYEES		UTILITY EMPLOYEES	
		CONTRACT	OTHERS	CONTRACT	OTHERS	CONTRACT	OTHERS	CONTRACT	OTHERS
<b>WORK AND JOB FUNCTION</b>									
<b>REACTOR OPERATIONS &amp; SURV.</b>									
MAINTENANCE PERSONNEL	71	5	85	4,250	0.140	3,450	0.140	3,450	
OPERATING PERSONNEL	73	1	83	15,610	0.090	2,890	0.090	2,890	
HEALTH PHYSICS PERSONNEL	41	1	72	7,850	0.020	25,660	0.020	25,660	
SUPERVISORY PERSONNEL	20	1	26	1,080	0.0	0.100	0.0	0.100	
ENGINEERING PERSONNEL	50	2	56	3,540	0.040	3,250	0.040	3,250	
<b>TOTAL</b>	<b>255</b>	<b>10</b>	<b>342</b>	<b>37</b>	<b>0.290</b>	<b>35,650</b>	<b>0.290</b>	<b>35,650</b>	<b>68,170</b>
<b>ROUTINE MAINTENANCE</b>									
MAINTENANCE PERSONNEL	72	5	178	29,380	1.950	3,320	1.950	3,320	
OPERATING PERSONNEL	18	0	4	1,140	0.0	0.040	0.0	0.040	
HEALTH PHYSICS PERSONNEL	30	0	48	6,830	0.0	6,690	0.0	6,690	
SUPERVISORY PERSONNEL	11	0	6	2,260	0.0	1,800	0.0	1,800	
ENGINEERING PERSONNEL	20	0	75	2,780	0.0	13,670	0.0	13,670	
<b>TOTAL</b>	<b>151</b>	<b>5</b>	<b>311</b>	<b>42,370</b>	<b>1.950</b>	<b>25,520</b>	<b>1.950</b>	<b>25,520</b>	<b>69,830</b>
<b>IN-SERVICE INSPECTION</b>									
MAINTENANCE PERSONNEL	0	0	0	0.0	0.0	0.0	0.0	0.0	
OPERATING PERSONNEL	0	0	0	0.0	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0	0.0	0.0	0.0	0.0	0.0	
SUPERVISORY PERSONNEL	0	0	0	0.0	0.0	0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0	0.0	0.0	0.0	0.0	0.0	
<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>SPECIAL MAINTENANCE</b>									
MAINTENANCE PERSONNEL	53	5	223	11,410	0.430	75,590	0.430	75,590	
OPERATING PERSONNEL	15	0	2	0,400	0.0	0.200	0.0	0.200	
HEALTH PHYSICS PERSONNEL	23	0	43	3,870	0.0	3,070	0.0	3,070	
SUPERVISORY PERSONNEL	8	0	9	0,920	0.0	1,910	0.0	1,910	
ENGINEERING PERSONNEL	22	2	92	1,930	0.030	8,820	0.030	8,820	
<b>TOTAL</b>	<b>123</b>	<b>7</b>	<b>369</b>	<b>18,530</b>	<b>0.460</b>	<b>91,590</b>	<b>0.460</b>	<b>91,590</b>	<b>110,580</b>
<b>WASTE PROCESSING</b>									
MAINTENANCE PERSONNEL	41	1	95	2,060	0.030	19,650	0.030	19,650	
OPERATING PERSONNEL	12	0	1	0,380	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	30	0	15	7,740	0.0	29,640	0.0	29,640	
SUPERVISORY PERSONNEL	5	0	4	0,030	0.0	0.680	0.0	0.680	
ENGINEERING PERSONNEL	3	0	2	0,010	0.0	0.0	0.0	0.0	
<b>TOTAL</b>	<b>91</b>	<b>1</b>	<b>117</b>	<b>10,230</b>	<b>0.030</b>	<b>49,970</b>	<b>0.030</b>	<b>49,970</b>	<b>60,250</b>
<b>REFUELING</b>									
MAINTENANCE PERSONNEL	22	2	50	1,750	0.050	9,190	0.050	9,190	
OPERATING PERSONNEL	6	1	7	2,440	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	5	0	17	0,260	0.0	0.680	0.0	0.680	
SUPERVISORY PERSONNEL	6	0	31	0,390	0.0	0.930	0.0	0.930	
ENGINEERING PERSONNEL	6	0	31	0,700	0.0	4,370	0.0	4,370	
<b>TOTAL</b>	<b>61</b>	<b>3</b>	<b>102</b>	<b>5,550</b>	<b>0.050</b>	<b>15,170</b>	<b>0.050</b>	<b>15,170</b>	<b>20,760</b>
<b>TOTAL BY JOB FUNCTION</b>									
MAINTENANCE PERSONNEL	241	18	631	49,880	8.600	111,800	8.600	111,800	168,480
OPERATING PERSONNEL	140	1	90	19,970	0.090	3,130	0.090	3,130	23,190
HEALTH PHYSICS PERSONNEL	130	2	326	26,590	0.020	67,740	0.020	67,740	94,350
SUPERVISORY PERSONNEL	49	1	29	4,680	0.0	5,420	0.0	5,420	10,100
ENGINEERING PERSONNEL	91	4	266	8,870	0.070	30,410	0.070	30,410	39,350
<b>GRAND TOTAL</b>	<b>671</b>	<b>26</b>	<b>1938</b>	<b>108,960</b>	<b>2.780</b>	<b>217,900</b>	<b>2.780</b>	<b>217,900</b>	<b>329,640</b>

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

APPENDIX C (Cont.)

PLANT: ROBINSON 2	(PMR)	NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION					1981				
		STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACTORS	OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACTORS	OTHERS	TOTAL MAN-REMS
<b>WORK &amp; JOB FUNCTION</b>											
REACTION OPERATIONS & SURV.											
MAINTENANCE PERSONNEL	2	0	0	0	0	1,258	0.091	0.0	0.0	0.0	
OPERATING PERSONNEL	29	0	0	0	0	22,837	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	7	2	1	1	1	6,938	3.082	0.389	0.407	0.0	
SUPERVISORY PERSONNEL	1	0	0	0	0	0,191	0.0	0.0	0.0	0.0	
ENGINEERING PERSONNEL	8	2	0	0	0	3,736	0.877	0.0	0.0	0.0	
<b>TOTAL</b>	<b>47</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>34,960</b>	<b>4.204</b>	<b>0.796</b>	<b>0.0</b>	<b>39,960</b>	
<b>ROUTINE MAINTENANCE</b>											
MAINTENANCE PERSONNEL	22	1	0	0	0	26,990	0.143	0.0	0.0	19,307	
OPERATING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	6	1	0	0	0	6,254	1.941	0.0	0.0	5,043	
SUPERVISORY PERSONNEL	2	0	0	0	0	1,050	0.0	0.0	0.0	0.0	
ENGINEERING PERSONNEL	2	0	0	0	0	1,050	0.132	0.0	0.0	0.0	
<b>TOTAL</b>	<b>30</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>34,294</b>	<b>2.216</b>	<b>0.0</b>	<b>0.0</b>	<b>24,350</b>	
<b>IN-SERVICE INSPECTION</b>											
MAINTENANCE PERSONNEL	1	0	0	0	0	0.140	0.0	0.0	0.0	0.0	
OPERATING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0.141	0.0	0.0	0.0	0.0	
SUPERVISORY PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	
ENGINEERING PERSONNEL	4	0	0	0	0	4,232	0.0	0.0	0.0	0.0	
<b>TOTAL</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4,513</b>	<b>0.013</b>	<b>0.0</b>	<b>0.0</b>	<b>4,528</b>	
<b>SPECIAL MAINTENANCE</b>											
MAINTENANCE PERSONNEL	33	1	0	0	0	40,420	0.303	0.0	0.0	352,037	
OPERATING PERSONNEL	3	0	0	0	0	1,892	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	14	0	0	0	0	17,627	7.781	0.0	0.0	24,451	
SUPERVISORY PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	
ENGINEERING PERSONNEL	24	0	0	0	0	14,751	4.142	0.0	0.0	42,820	
<b>TOTAL</b>	<b>74</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>74,690</b>	<b>12.226</b>	<b>0.0</b>	<b>0.0</b>	<b>419,308</b>	
<b>WASTE PROCESSING</b>											
MAINTENANCE PERSONNEL	10	1	0	0	0	11,644	0.085	0.0	0.0	11,332	
OPERATING PERSONNEL	17	0	0	0	0	13,335	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	2	1	0	0	0	2,200	0.687	0.0	0.0	0.910	
SUPERVISORY PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	
ENGINEERING PERSONNEL	1	0	0	0	0	0.552	0.055	0.0	0.0	0.0	
<b>TOTAL</b>	<b>30</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>27,731</b>	<b>0.827</b>	<b>0.055</b>	<b>0.0</b>	<b>12,242</b>	
<b>FUELLING</b>											
MAINTENANCE PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	
OPERATING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	
SUPERVISORY PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	
<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	
<b>TOTAL BY JOB FUNCTION</b>											
MAINTENANCE PERSONNEL	68	3	0	0	0	80,452	0.622	0.0	0.0	463,750	
OPERATING PERSONNEL	49	0	0	0	0	38,064	0.0	0.0	0.0	38,064	
HEALTH PHYSICS PERSONNEL	29	1	0	0	0	33,160	13.506	30.792	0.752	77,459	
SUPERVISORY PERSONNEL	1	0	0	0	0	0.191	0.154	0.407	0.0	0.752	
ENGINEERING PERSONNEL	38	8	0	0	0	24,321	5.209	42.820	0.0	72,350	
<b>TOTAL</b>	<b>186</b>	<b>21</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>176,188</b>	<b>19.491</b>	<b>456.636</b>	<b>0.0</b>	<b>632,373</b>	

APPENDIX C (Cont.)

PLANT, SALEM 1	(CUB)	NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION									
		NUMBER OF PERSONNEL (>100 M-REM)					1981				
		STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS	UTILITY EMPLOYEES	CONTRACT & OTHERS
<b>WORK &amp; JOB FUNCTION</b> <b>REACTOR OPERATIONS &amp; SURV.</b> MAINTENANCE PERSONNEL 1 0 0 0 0.407 0.0 0.15C OPERATING PERSONNEL 0 0 0 0 1.060 0.0 0.070 HEALTH PHYSICS PERSONNEL 0 0 0 0 0.464 0.0 0.774 SUPERVISORY PERSONNEL 0 0 0 0 0.010 0.0 0.0 ENGINEERING PERSONNEL 0 0 0 0 0.010 0.0 0.0 <b>TOTAL</b> 1 0 0 0 1.951 0.0 0.934 <b>2.953</b>											
<b>ROUTINE MAINTENANCE</b> MAINTENANCE PERSONNEL 6 0 0 0 3.280 0.010 0.185 OPERATING PERSONNEL 0 0 0 0 0.030 0.0 0.020 HEALTH PHYSICS PERSONNEL 0 0 0 0 0.235 0.0 0.445 SUPERVISORY PERSONNEL 1 0 0 0 0.165 0.0 0.0 ENGINEERING PERSONNEL 0 0 0 0 0.0 0.0 0.0 <b>TOTAL</b> 7 0 0 0 3.710 0.010 0.630 <b>4.376</b>											
<b>IN-SERVICE INSPECTION</b> MAINTENANCE PERSONNEL 8 0 0 10 3.657 0.0 4.685 OPERATING PERSONNEL 0 0 0 0 0.235 0.0 0.030 HEALTH PHYSICS PERSONNEL 0 0 0 0 0.232 0.0 0.555 SUPERVISORY PERSONNEL 1 0 0 0 0.485 0.0 0.235 ENGINEERING PERSONNEL 0 0 0 1 0.145 0.115 0.460 <b>TOTAL</b> 9 0 0 11 4.554 0.115 5.965 <b>10.634</b>											
<b>SPECIAL MAINTENANCE</b> MAINTENANCE PERSONNEL 102 0 0 171 46.098 0.135 73.959 OPERATING PERSONNEL 2 0 0 0 2.190 0.0 0.265 HEALTH PHYSICS PERSONNEL 11 0 0 51 4.197 0.0 19.254 SUPERVISORY PERSONNEL 7 0 0 1 2.619 0.0 1.510 ENGINEERING PERSONNEL 0 0 0 4 0.237 0.040 0.215 <b>TOTAL</b> 122 0 0 227 55.341 0.195 95.203 <b>150.759</b>											
<b>WASTE PROCESSING</b> MAINTENANCE PERSONNEL 5 0 0 2 1.599 0.0 0.915 OPERATING PERSONNEL 0 0 0 1 0.075 0.0 0.415 HEALTH PHYSICS PERSONNEL 3 0 0 1 1.365 0.0 0.452 SUPERVISORY PERSONNEL 3 0 0 0 1.035 0.0 0.0 ENGINEERING PERSONNEL 0 0 0 0 0.010 0.0 0.0 <b>TOTAL</b> 11 0 0 4 4.084 0.0 1.782 <b>5.866</b>											
<b>REFUELING</b> MAINTENANCE PERSONNEL 0 0 0 0 0.140 0.0 0.0 OPERATING PERSONNEL 0 0 0 0 0.0 0.0 0.0 HEALTH PHYSICS PERSONNEL 0 0 0 0 0.0 0.0 0.0 SUPERVISORY PERSONNEL 0 0 0 0 0.0 0.0 0.0 ENGINEERING PERSONNEL 0 0 0 0 0.0 0.0 0.0 <b>TOTAL</b> 0 0 0 0 0.140 0.0 0.0 <b>0.140</b>											
<b>TOTAL BY JOB FUNCTION</b> MAINTENANCE PERSONNEL 122 0 0 183 54.981 0.145 79.894 <b>135.020</b> OPERATING PERSONNEL 2 0 0 1 3.590 0.0 0.800 <b>4.390</b> HEALTH PHYSICS PERSONNEL 14 0 0 53 6.493 0.0 21.480 <b>27.973</b> SUPERVISORY PERSONNEL 12 0 0 1 4.314 0.0 1.745 <b>6.059</b> ENGINEERING PERSONNEL 0 0 0 5 0.402 0.175 0.675 <b>1.252</b> <b>GRAND TOTAL</b> 150 0 0 243 69.780 0.320 104.594 <b>174.694</b>											

APPENDIX C (Cont.)

PLANT: SAN ONDRE 1 (PHR) NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION 1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM)		NUMBER OF PERSONNEL (<100 M-REM)		TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
	STATION EMPLOYEES	UTILITY EMPLOYEES	STATION EMPLOYEES	UTILITY EMPLOYEES					
MAINTENANCE PERSONNEL	12	0	16	0	16	2,980	0.0	6,738	0.0
OPERATING PERSONNEL	14	0	12	0	26	14,790	0.0	3,496	0.0
HEALTH PHYSICS PERSONNEL	8	0	96	0	104	1,530	0.0	39,978	0.0
SUPERVISORY PERSONNEL	10	0	8	0	18	5,210	0.0	7,240	0.0
ENGINEERING PERSONNEL	14	1	13	0	27	6,728	0.158	18,548	0.158
TOTAL	58	1	131	0	190	30,338	0.158	88,230	0.158
ROUTINE MAINTENANCE					210				
MAINTENANCE PERSONNEL	68	19	1496	0	1583	63,600	7,830	2736,228	0.0
OPERATING PERSONNEL	9	0	29	0	38	1,478	0.0	16,728	0.0
HEALTH PHYSICS PERSONNEL	9	0	187	0	196	5,670	0.0	149,120	0.0
SUPERVISORY PERSONNEL	8	1	37	0	46	4,460	0.378	19,728	0.0
ENGINEERING PERSONNEL	10	3	88	0	101	2,338	0.840	68,288	0.0
TOTAL	104	23	1837	0	1954	77,538	9,050	2990,868	0.0
IN-SERVICE INSPECTION					1954				
MAINTENANCE PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
OPERATING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
TOTAL	0	0	0	0	0	0.0	0.0	0.0	0.0
SPECIAL MAINTENANCE					0				
MAINTENANCE PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
OPERATING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
TOTAL	0	0	0	0	0	0.0	0.0	0.0	0.0
WASTE PROCESSING					0				
MAINTENANCE PERSONNEL	0	1	3	0	4	0.0	0.110	1,250	0.0
OPERATING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	1	0	8	0	9	0.120	0.0	1,940	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
TOTAL	1	1	11	0	13	0.120	0.110	3,190	0.0
REFUELLING					0				
MAINTENANCE PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
OPERATING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0
TOTAL	0	0	0	0	0	0.0	0.0	0.0	0.0
TOTAL BY JOB FUNCTION									
MAINTENANCE PERSONNEL	89 (70)	15 (15)	1615 (1500)	0	1615 (1500)	65,680	7,940	2744,200	2817,820
OPERATING PERSONNEL	23 (21)	0	64 (87)	0	64 (87)	16,260	0.0	20,210	36,478
HEALTH PHYSICS PERSONNEL	18 (14)	0	291 (206)	0	309 (220)	7,320	0.0	191,030	198,358
SUPERVISORY PERSONNEL	18 (11)	1	45 (41)	0	64 (53)	9,670	0.378	26,960	37,000
ENGINEERING PERSONNEL	24 (18)	4	187 (101)	0	215 (123)	9,558	0.390	29,140	39,188
GRAND TOTAL	163 (134)	20 (20)	1999 (1886)	0	2187 (2083)	107,938	9,330	386,130	517,828

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



APPENDIX C (Cont.)

PLANT: ST. LUCIE	(PMR)	NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION				NUMBER OF PERSONNEL (>100 M-REM) 1981				TOTAL MAN-REMS			
		STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT EMPLOYEES & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT EMPLOYEES & OTHERS	TOTAL MAN-REMS				
<b>WORK AREA JOB FUNCTIONS &amp; SURV.</b>													
REACTION OPERATIONS PERSONNEL	0	0	0	0	0	0	0	0	0	0	0	0	0
MAINTENANCE PERSONNEL	25	0	0	0	0	0	0	0	0	0	0	0	0
OPERATING PHYSICS PERSONNEL	22	0	17	0	0	0	0	0	0	0	0	0	5,300
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0	0	0	0	0	0	0	0
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0	0	0	0	0	0	0
ENGINEERING PERSONNEL	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>TOTAL</b>	<b>47</b>	<b>0</b>	<b>17</b>	<b>0</b>	<b>64</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5,300</b>
<b>EQUINE MAINTENANCE</b>													
MAINTENANCE PERSONNEL	106	27	0	0	0	0	0	0	0	0	0	0	0
OPERATING PERSONNEL	16	0	0	0	0	0	0	0	0	0	0	0	0
HEALTH PHYSICS PERSONNEL	21	0	2	0	0	0	0	0	0	0	0	0	0
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0	0	0	0	0	0	0
ENGINEERING PERSONNEL	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>TOTAL</b>	<b>143</b>	<b>27</b>	<b>2</b>	<b>0</b>	<b>172</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>IN-SERVICE INSPECTION</b>													
MAINTENANCE PERSONNEL	43	33	60	0	0	0	0	0	0	0	0	0	0
OPERATING PERSONNEL	21	0	0	0	0	0	0	0	0	0	0	0	0
HEALTH PHYSICS PERSONNEL	12	0	16	0	0	0	0	0	0	0	0	0	0
SUPERVISORY PERSONNEL	4	0	5	0	0	0	0	0	0	0	0	0	0
ENGINEERING PERSONNEL	2	3	14	0	0	0	0	0	0	0	0	0	0
<b>TOTAL</b>	<b>82</b>	<b>36</b>	<b>95</b>	<b>0</b>	<b>213</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>SPRAY PAINT PERSONNEL</b>													
MAINTENANCE PERSONNEL	118	39	54	0	0	0	0	0	0	0	0	0	0
OPERATING PERSONNEL	18	0	0	0	0	0	0	0	0	0	0	0	0
HEALTH PHYSICS PERSONNEL	17	0	52	0	0	0	0	0	0	0	0	0	0
SUPERVISORY PERSONNEL	7	0	8	0	0	0	0	0	0	0	0	0	0
ENGINEERING PERSONNEL	4	6	15	0	0	0	0	0	0	0	0	0	0
<b>TOTAL</b>	<b>164</b>	<b>45</b>	<b>139</b>	<b>0</b>	<b>348</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>WASTE PROCESSING</b>													
MAINTENANCE PERSONNEL	64	12	0	0	0	0	0	0	0	0	0	0	0
OPERATING PERSONNEL	13	0	0	0	0	0	0	0	0	0	0	0	0
HEALTH PHYSICS PERSONNEL	15	0	11	0	0	0	0	0	0	0	0	0	0
SUPERVISORY PERSONNEL	6	0	0	0	0	0	0	0	0	0	0	0	0
ENGINEERING PERSONNEL	2	0	0	0	0	0	0	0	0	0	0	0	0
<b>TOTAL</b>	<b>100</b>	<b>12</b>	<b>11</b>	<b>0</b>	<b>123</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>REFUELLING</b>													
MAINTENANCE PERSONNEL	119	66	0	0	0	0	0	0	0	0	0	0	0
OPERATING PERSONNEL	47	0	0	0	0	0	0	0	0	0	0	0	0
HEALTH PHYSICS PERSONNEL	18	0	64	0	0	0	0	0	0	0	0	0	0
SUPERVISORY PERSONNEL	5	0	6	0	0	0	0	0	0	0	0	0	0
ENGINEERING PERSONNEL	0	1	0	0	0	0	0	0	0	0	0	0	0
<b>TOTAL</b>	<b>189</b>	<b>67</b>	<b>70</b>	<b>0</b>	<b>326</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>TOTAL BY JOB FUNCTION</b>													
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	38,900					
HEALTH PHYSICS PERSONNEL	103 (26)	0	162 (70)	265 (86)	29,600	0	50,300	79,900					
SUPERVISORY PERSONNEL	22 (9)	0	19 (15)	41 (24)	13,300	0	9,600	22,900					
ENGINEERING PERSONNEL	8 (7)	10 (8)	29 (27)	47 (42)	0,900	3,100	11,200	15,200					
<b>GRAND TOTAL</b>	<b>725 (236)</b>	<b>187 (80)</b>	<b>854 (748)</b>	<b>1768 (1074)</b>	<b>233,700</b>	<b>123,400</b>	<b>532,200</b>	<b>889,900</b>					

Numbers in parentheses are total numbers of individuals.

APPENDIX C (Cont.)

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

Plant: Surry 1, 2 (PWR)

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

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

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

APPENDIX C (Cont.)

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

PLANT: † THREE MILE ISLAND 1 (PMR)	NUMBER OF PERSONNEL (>100 M-REM) 1981		STATION EMPLOYEES		TOTAL PERSONS		STATION EMPLOYEES		TOTAL MAN-REMS	
	EMPLOYEES	UTILITY CONTRACT & OTHERS	EMPLOYEES	UTILITY CONTRACT & OTHERS	EMPLOYEES	UTILITY CONTRACT & OTHERS	EMPLOYEES	UTILITY CONTRACT & OTHERS	EMPLOYEES	UTILITY CONTRACT & OTHERS
<b>WORK &amp; JOB FUNCTION</b>										
REACTOR OPERATIONS & SURV.										
MAINTENANCE PERSONNEL	161	8	100		2,145		0.024	0.811		
OPERATING PERSONNEL	178	29	40		10,824		0.143	0.351		
HEALTH PHYSICS PERSONNEL	81	1	21		11,071		0.0	0.175		
SUPERVISORY PERSONNEL	53	5	13		0,439		0.034	0.040		
ENGINEERING PERSONNEL	43	31	31		0,735		0.114	0.248		
<b>TOTAL</b>	<b>536</b>	<b>77</b>	<b>205</b>		<b>25,214</b>	<b>818</b>	<b>0.315</b>	<b>1,625</b>		<b>27,154</b>
<b>ROUTINE MAINTENANCE</b>										
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		
<b>TOTAL</b>	<b>469</b>	<b>44</b>	<b>213</b>		<b>23,374</b>	<b>726</b>	<b>0.327</b>	<b>1,528</b>		<b>25,229</b>
<b>IN-SERVICE INSPECTION</b>										
MAINTENANCE PERSONNEL	80	1	73		0,673		0.0	0.820		
OPERATING PERSONNEL	104	8	39		2,709		0.075	1,761		
HEALTH PHYSICS PERSONNEL	49	3	4		0,255		0.018	0.012		
SUPERVISORY PERSONNEL	26	2	5		0,340		0.022	1,119		
ENGINEERING PERSONNEL	35	29	48		4,785		0.922	3,742		
<b>TOTAL</b>	<b>294</b>	<b>43</b>	<b>169</b>		<b>8,830</b>	<b>506</b>	<b>1.119</b>	<b>7,464</b>		<b>9,549</b>
<b>SPECIAL MAINTENANCE</b>										
MAINTENANCE PERSONNEL	181	23	426		9,830		2,258	105,264		
OPERATING PERSONNEL	152	18	63		2,802		0.314	5,176		
HEALTH PHYSICS PERSONNEL	61	1	12		1,501		0.0	0,237		
SUPERVISORY PERSONNEL	52	5	30		1,531		0.054	2,170		
ENGINEERING PERSONNEL	55	41	71		3,454		0.463	6,933		
<b>TOTAL</b>	<b>501</b>	<b>68</b>	<b>602</b>		<b>19,118</b>	<b>1,191</b>	<b>3.089</b>	<b>119,780</b>		<b>141,987</b>
<b>MATERIAL PROCESSING</b>										
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		
<b>TOTAL</b>	<b>248</b>	<b>15</b>	<b>71</b>		<b>20,077</b>	<b>334</b>	<b>0.362</b>	<b>4,245</b>		<b>25,685</b>
<b>REGULATORY</b>										
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		
<b>TOTAL</b>	<b>4</b>	<b>0</b>	<b>1</b>		<b>0.0</b>	<b>5</b>	<b>0.0</b>	<b>0.0</b>		<b>0.0</b>
<b>TOTAL BY JOB FUNCTION</b>										
MAINTENANCE PERSONNEL	705 (218)	54 (28)	762 (447)	1321 (899)	42,697		2,868	198,802		154,347
OPERATING PERSONNEL	694 (218)	61 (42)	208 (92)	915 (862)	23,151		0,684	10,019		34,945
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	281 (88)	125 (67)	177 (111)	583 (483)	5,152		1,311	8,594		19,559
<b>GRAND TOTAL</b>	<b>2052 (624)</b>	<b>267 (149)</b>	<b>1261 (727)</b>	<b>3580 (1980)</b>	<b>92,568</b>		<b>5,015</b>	<b>130,320</b>		<b>228,503</b>

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

APPENDIX C (Cont.)

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

PLANT: THREE MILE ISLAND 2 (PWR)	1981		1982		TOTAL	
	NUMBER OF PERSONNEL (>100 M-REM)		NUMBER OF PERSONNEL (>100 M-REM)		TOTAL MAN-REMS	
	EMPLOYEES	CONTRACTORS & OTHERS	EMPLOYEES	CONTRACTORS & OTHERS	EMPLOYEES	CONTRACTORS & OTHERS
WORK & JOB FUNCTION	STATION EMPLOYEES	STATION CONTRACTORS & OTHERS	TOTAL PERSONNEL	TOTAL PERSONNEL	UTILITY EMPLOYEES	CONTRACTORS & OTHERS
REACTOR OPERATIONS & SURV.						
MAINTENANCE PERSONNEL	95	52	147	147	1,804	0,508
OPERATING PERSONNEL	67	18	85	85	0,136	0,459
HEALTH PHYSICS PERSONNEL	38	6	44	44	0,066	4,498
SUPERVISORY PERSONNEL	16	7	23	23	0,022	0,0
ENGINEERING PERSONNEL	7	29	36	36	0,311	2,040
TOTAL	223	162	385	385	2,339	7,505
ROUTINE MAINTENANCE						
MAINTENANCE PERSONNEL	95	57	152	152	0,193	0,487
OPERATING PERSONNEL	40	12	52	52	0,072	0,108
HEALTH PHYSICS PERSONNEL	12	31	43	43	0,106	0,508
SUPERVISORY PERSONNEL	11	7	18	18	0,0	0,032
ENGINEERING PERSONNEL	5	5	10	10	0,101	0,015
TOTAL	163	112	275	275	0,472	1,138
IN-SERVICE INSPECTION						
MAINTENANCE PERSONNEL	6	2	8	8	0,080	0,010
OPERATING PERSONNEL	12	3	15	15	0,053	0,035
HEALTH PHYSICS PERSONNEL	7	0	7	7	0,044	0,090
SUPERVISORY PERSONNEL	2	0	2	2	0,002	0,0
ENGINEERING PERSONNEL	28	11	39	39	0,020	0,085
TOTAL	53	16	69	69	0,199	0,138
SPECIAL MAINTENANCE						
MAINTENANCE PERSONNEL	150	172	322	322	9,960	13,679
OPERATING PERSONNEL	120	56	176	176	5,207	8,107
HEALTH PHYSICS PERSONNEL	61	110	171	171	7,739	17,785
SUPERVISORY PERSONNEL	48	23	71	71	0,247	2,357
ENGINEERING PERSONNEL	31	71	102	102	3,670	9,837
TOTAL	410	430	840	840	26,823	51,765
WASTE PROCESSING						
MAINTENANCE PERSONNEL	121	105	226	226	1,116	0,806
OPERATING PERSONNEL	142	56	198	198	0,158	1,172
HEALTH PHYSICS PERSONNEL	57	93	150	150	3,560	3,560
SUPERVISORY PERSONNEL	59	20	79	79	0,096	0,045
ENGINEERING PERSONNEL	32	69	101	101	0,327	9,928
TOTAL	411	343	754	754	1,889	6,511
REFUELING						
MAINTENANCE PERSONNEL	5	5	10	10	0,010	0,010
OPERATING PERSONNEL	13	4	17	17	0,030	0,030
HEALTH PHYSICS PERSONNEL	7	11	18	18	0,0	0,100
SUPERVISORY PERSONNEL	0	1	1	1	0,0	0,0
ENGINEERING PERSONNEL	0	1	1	1	0,005	0,002
TOTAL	25	22	47	47	0,015	0,142
TOTAL BY JOB FUNCTION						
MAINTENANCE PERSONNEL	472 (199)	393 (178)	865 (377)	865 (377)	15,157	15,500
OPERATING PERSONNEL	394 (164)	147 (60)	541 (224)	541 (224)	5,573	9,911
HEALTH PHYSICS PERSONNEL	182 (87)	315 (116)	497 (203)	497 (203)	8,103	26,541
SUPERVISORY PERSONNEL	136 (68)	58 (31)	194 (99)	194 (99)	5,432	8,231
ENGINEERING PERSONNEL	76 (37)	167 (104)	243 (141)	243 (141)	4,414	15,825
GRAND TOTAL	1260 (485)	1080 (509)	2340 (994)	2340 (994)	51,612	67,213

\*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	(CMR)	NUMBER OF PERSONNEL (>100 M-REM) 1981				TOTAL MAN-REMS				
		STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS	
<b>WORK &amp; JOB FUNCTION</b>										
REACTOR OPERATIONS & SURV.										
MAINTENANCE PERSONNEL	0	9	0	0	0	0	0	0	0	0.210
OPERATING PERSONNEL	38	0	0	0	0	0	0	0	0	0.050
HEALTH PHYSICS PERSONNEL	32	0	92	0	0	0	0	0	0	51.910
SUPERVISORY PERSONNEL	2	0	4	0	0	0	0	0	0	4.390
ENGINEERING PERSONNEL	15	12	5	0	0	0	0	0	0	2.400
TOTAL	87	24	101	0	0	0	0	0	0	58.960
<b>EQUIPMENT MAINTENANCE</b>										
MAINTENANCE PERSONNEL	38	16	6	0	0	0	0	0	0	3.560
OPERATING PERSONNEL	0	0	0	0	0	0	0	0	0	0.070
HEALTH PHYSICS PERSONNEL	0	1	0	0	0	0	0	0	0	0.040
SUPERVISORY PERSONNEL	1	0	0	0	0	0	0	0	0	0.000
ENGINEERING PERSONNEL	2	2	0	0	0	0	0	0	0	0.000
TOTAL	41	19	6	0	0	0	0	0	0	3.670
<b>IN-SERVICE INSPECTION</b>										
MAINTENANCE PERSONNEL	0	0	0	0	0	0	0	0	0	0.000
OPERATING PERSONNEL	0	0	0	0	0	0	0	0	0	0.000
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0	0	0	0	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0	0	0	0.000
ENGINEERING PERSONNEL	0	0	0	0	0	0	0	0	0	0.000
TOTAL	0	0	0	0	0	0	0	0	0	0.000
<b>SPECIAL MAINTENANCE</b>										
MAINTENANCE PERSONNEL	59	120	341	0	0	0	0	0	0	257.850
OPERATING PERSONNEL	0	0	0	0	0	0	0	0	0	0.020
HEALTH PHYSICS PERSONNEL	0	0	6	0	0	0	0	0	0	1.650
SUPERVISORY PERSONNEL	0	5	32	0	0	0	0	0	0	12.810
ENGINEERING PERSONNEL	2	0	7	0	0	0	0	0	0	2.650
TOTAL	61	125	386	0	0	0	0	0	0	275.980
<b>WASTE PROCESSING</b>										
MAINTENANCE PERSONNEL	0	0	0	0	0	0	0	0	0	0.050
OPERATING PERSONNEL	0	0	0	0	0	0	0	0	0	0.770
HEALTH PHYSICS PERSONNEL	9	0	0	0	0	0	0	0	0	0.000
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0	0	0	0.000
ENGINEERING PERSONNEL	0	0	0	0	0	0	0	0	0	0.000
TOTAL	9	0	0	0	0	0	0	0	0	0.820
<b>REFUELING</b>										
MAINTENANCE PERSONNEL	5	11	19	0	0	0	0	0	0	24.600
OPERATING PERSONNEL	0	0	5	0	0	0	0	0	0	1.240
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0	0	0	0	3.520
SUPERVISORY PERSONNEL	2	0	6	0	0	0	0	0	0	2.580
ENGINEERING PERSONNEL	9	0	4	0	0	0	0	0	0	0.000
TOTAL	16	11	40	0	0	0	0	0	0	32.940
<b>TOTAL BY JOB FUNCTION</b>										
MAINTENANCE PERSONNEL	102	156	366	624	60	130	286	270	477	380
OPERATING PERSONNEL	38	0	6	44	15	0	2	080	17	320
HEALTH PHYSICS PERSONNEL	41	1	106	148	21	0	57	150	78	690
SUPERVISORY PERSONNEL	5	5	42	52	2	0	19	820	24	000
ENGINEERING PERSONNEL	19	17	53	82	9	10	6	270	25	170
GRAND TOTAL	205	179	536	920	109	142	371	590	623	360

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

APPENDIX C (Cont.)

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

1981

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM)		NUMBER OF PERSONNEL (<100 M-REM)		TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	CONTRACT & OTHERS					
REACTOR OPERATIONS & SURV.									
MAINTENANCE PERSONNEL	141	17	387		65,620	4,355	122,889		
OPERATING PERSONNEL	26	1	0		35,112	0,210	0,0		
HEALTH PHYSICS PERSONNEL	27	0	98		18,647	0,025	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	230	20	585		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	52,694		
SUPERVISORY PERSONNEL	1	0	0		1,090	0,060	0,035		
ENGINEERING PERSONNEL	4	0	3		8,988	0,080	2,048		
TOTAL	113	15	253		78,596	6,420	181,649		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	0	12		4,380	0,375	6,906		
ENGINEERING PERSONNEL	3	3	23		2,380	0,270	16,430		
TOTAL	93	13	414		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		10,630	1,439	60,759		
TOTAL	134	18	1460		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	1		1,325	0,0	0,060		
TOTAL	27	2	36		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	1	0	1		4,678	0,108	1,880		
TOTAL	103	7	74		103,119	12,778	32,819		188,307
TOTAL BY JOB FUNCTION									
MAINTENANCE PERSONNEL	477	58	2182	(1800)	2717	38,335	1947,246		2313,572
OPERATING PERSONNEL	72	2	1	(46)	75	0,605	0,420		54,773
HEALTH PHYSICS PERSONNEL	55	1	413	(207)	469	0,615	336,343		372,750
SUPERVISORY PERSONNEL	46	3	37	(80)	86	0,770	15,136		34,639
ENGINEERING PERSONNEL	62	12	191	(182)	263	3,325	110,301		149,307
GRAND TOTAL	712	76	2824	(1878)	3612	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.)

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

WORK & JOB FUNCTION	STATION EMPLOYERS		NUMBER OF PERSONNEL (>100 M-REM) 1981		TOTAL PERSONS		STATION EMPLOYERS		TOTAL MAN-REMS	
	EMPLOYERS	UTILITY EMPLOYERS	EMPLOYERS	CONTRACT & OTHERS	PERSONS	CONTRACT & OTHERS	EMPLOYERS	UTILITY EMPLOYERS	CONTRACT & OTHERS	MAN-REMS
<b>REACTOR OPERATIONS &amp; SURV.</b>										
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	
<b>TOTAL</b>	<b>118</b>	<b>2</b>	<b>52</b>		<b>91,750</b>	<b>172</b>	<b>1,530</b>	<b>21,780</b>	<b>21,780</b>	<b>115,260</b>
<b>ROUTINE MAINTENANCE</b>										
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		0.540	
<b>TOTAL</b>	<b>100</b>	<b>113</b>	<b>592</b>		<b>93,060</b>	<b>803</b>	<b>56,653</b>	<b>254,242</b>	<b>254,242</b>	<b>403,955</b>
<b>IN-SERVICE INSPECTION</b>										
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		0,000		0.0		0,030	
SUPERVISORY PERSONNEL	0	0	0		0,055		0.0		0.0	
ENGINEERING PERSONNEL	2	2	0		1,120		1,970		0.0	
<b>TOTAL</b>	<b>2</b>	<b>28</b>	<b>31</b>		<b>1,525</b>	<b>61</b>	<b>49,175</b>	<b>37,404</b>	<b>37,404</b>	<b>83,005</b>
<b>SPECIAL MAINTENANCE</b>										
MAINTENANCE PERSONNEL	0	2	110		0,000		0,320		73,885	
OPERATING PERSONNEL	0	0	0		0,000		0.0		0.0	
HEALTH PHYSICS PERSONNEL	0	0	0		0,000		0.0		0.0	
SUPERVISORY PERSONNEL	0	0	0		0,000		0.0		0.0	
ENGINEERING PERSONNEL	0	0	0		0,000		0.0		0.0	
<b>TOTAL</b>	<b>0</b>	<b>2</b>	<b>110</b>		<b>0,000</b>	<b>112</b>	<b>0,320</b>	<b>73,885</b>	<b>73,885</b>	<b>74,265</b>
<b>WASTE PROCESSING</b>										
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		0,000		0.0		0.0	
ENGINEERING PERSONNEL	0	0	0		0,000		0.0		0.0	
<b>TOTAL</b>	<b>20</b>	<b>5</b>	<b>0</b>		<b>4,314</b>	<b>23</b>	<b>1,410</b>	<b>0,040</b>	<b>0,040</b>	<b>5,784</b>
<b>REFUELING</b>										
MAINTENANCE PERSONNEL	10	16	3		2,420		3,640		0,910	
OPERATING PERSONNEL	0	0	0		0,620		0.0		0.0	
HEALTH PHYSICS PERSONNEL	0	0	0		0,020		0.0		0,090	
SUPERVISORY PERSONNEL	0	0	0		0,000		0.0		0.0	
ENGINEERING PERSONNEL	3	0	0		0,620		0.0		0,060	
<b>TOTAL</b>	<b>13</b>	<b>16</b>	<b>3</b>		<b>3,660</b>	<b>32</b>	<b>3,640</b>	<b>1,060</b>	<b>1,060</b>	<b>8,580</b>
<b>TOTAL BY JOB FUNCTION</b>										
MAINTENANCE PERSONNEL	76	163	729		86,951	968	110,595	362,328	362,328	559,874
OPERATING PERSONNEL	100	0	0		65,045	100	0.0	0.0	0.0	65,045
HEALTH PHYSICS PERSONNEL	32	0	50		23,764	82	0.0	22,933	22,933	46,697
SUPERVISORY PERSONNEL	3	1	1		2,007	5	0.163	0.140	0.140	2,310
ENGINEERING PERSONNEL	42	8	8		16,722	52	1,970	3,010	3,010	21,702
<b>GUARD TOTAL</b>	<b>253</b>	<b>166</b>	<b>788</b>		<b>194,489</b>	<b>1207</b>	<b>112,728</b>	<b>388,411</b>	<b>388,411</b>	<b>693,628</b>

Workmen may be counted in more than one category.

APPENDIX C (Cont.)

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

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REH)		NUMBER OF PERSONNEL (<100 M-REH)		TOTAL PERSONS	STATION EMPLOYEES	TOTAL MAN-REH	
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT EMPLOYEES	OTHERS			CONTRACT EMPLOYEES	OTHERS
<b>MAINTENANCE PERSONNEL</b>	2	0	0	0	2	0.693	1.756	0.020
OPERATING PERSONNEL	6	0	0	0	6	2.156	0.0	0.0
HEALTH PHYSICS PERSONNEL	4	0	1	0	5	0.910	0.0	0.638
SUPERVISORY PERSONNEL	0	0	0	0	0	0.030	0.0	0.147
ENGINEERING PERSONNEL	0	0	0	0	0	0.145	0.0	0.0
<b>TOTAL</b>	<b>12</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>13</b>	<b>3.934</b>	<b>1.756</b>	<b>0.805</b>
<b>ROUTINE MAINTENANCE</b>	15	24	6	0	45	6.305	7.343	3.070
OPERATING PERSONNEL	9	0	0	0	9	2.165	0.0	0.0
HEALTH PHYSICS PERSONNEL	5	0	12	0	17	1.465	0.0	3.390
SUPERVISORY PERSONNEL	1	0	0	0	1	0.350	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0	0.120	0.0	0.0
<b>TOTAL</b>	<b>30</b>	<b>24</b>	<b>12</b>	<b>0</b>	<b>66</b>	<b>10.100</b>	<b>7.343</b>	<b>3.460</b>
<b>INSTRUMENTATION</b>	1	0	0	0	1	0.230	2.764	5.955
OPERATING PERSONNEL	0	0	0	0	0	0.105	0.0	0.0
HEALTH PHYSICS PERSONNEL	2	0	0	0	2	0.990	0.0	0.265
SUPERVISORY PERSONNEL	0	0	1	0	1	0.090	0.040	0.150
ENGINEERING PERSONNEL	3	3	6	0	12	2.630	0.735	5.680
<b>TOTAL</b>	<b>6</b>	<b>3</b>	<b>6</b>	<b>0</b>	<b>15</b>	<b>6.645</b>	<b>1.519</b>	<b>11.970</b>
<b>SPECIAL MAINTENANCE</b>	24	70	63	0	157	19.166	54.011	29.501
OPERATING PERSONNEL	22	0	0	0	22	7.277	0.0	0.0
HEALTH PHYSICS PERSONNEL	1	0	39	0	40	3.172	0.0	24.094
SUPERVISORY PERSONNEL	1	0	4	0	5	0.375	0.0	1.098
ENGINEERING PERSONNEL	5	3	20	0	28	3.760	1.055	8.015
<b>TOTAL</b>	<b>61</b>	<b>73</b>	<b>106</b>	<b>0</b>	<b>240</b>	<b>33.770</b>	<b>55.066</b>	<b>35.708</b>
<b>WASTE PROCESSING</b>	5	5	1	0	11	1.304	1.760	0.710
OPERATING PERSONNEL	14	0	0	0	14	4.252	0.0	0.0
HEALTH PHYSICS PERSONNEL	5	0	32	0	37	2.487	0.0	34.425
SUPERVISORY PERSONNEL	0	0	0	0	0	0.0	0.0	0.065
ENGINEERING PERSONNEL	0	0	0	0	0	0.0	0.134	0.0
<b>TOTAL</b>	<b>24</b>	<b>5</b>	<b>33</b>	<b>0</b>	<b>62</b>	<b>8.043</b>	<b>1.894</b>	<b>35.200</b>
<b>REFUELING</b>	10	5	3	0	18	2.410	1.895	0.930
OPERATING PERSONNEL	22	0	0	0	22	10.055	0.0	0.0
HEALTH PHYSICS PERSONNEL	4	0	24	0	28	0.835	0.0	9.250
SUPERVISORY PERSONNEL	1	0	0	0	1	0.190	0.120	0.0
ENGINEERING PERSONNEL	0	0	0	0	0	0.728	0.291	0.138
<b>TOTAL</b>	<b>37</b>	<b>0</b>	<b>24</b>	<b>0</b>	<b>61</b>	<b>11.808</b>	<b>0.411</b>	<b>9.438</b>
<b>TOTAL BY JOB FUNCTION</b>	<b>57</b>	<b>122</b>	<b>81</b>	<b>0</b>	<b>260</b>	<b>30.108</b>	<b>69.729</b>	<b>40.186</b>
OPERATING PERSONNEL	73	0	0	0	73	26.010	0.0	0.0
HEALTH PHYSICS PERSONNEL	29	0	108	0	137	9.859	0.0	72.062
SUPERVISORY PERSONNEL	3	0	6	0	9	1.035	0.040	1.580
ENGINEERING PERSONNEL	10	6	6	0	22	7.180	2.185	5.750
<b>GRAND TOTAL</b>	<b>172</b>	<b>128</b>	<b>201</b>	<b>0</b>	<b>501</b>	<b>74.392</b>	<b>71.954</b>	<b>119.578</b>

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



